Initial Study Appendices

Clovis Unified School District

New District Facilities Project

Appendix 1 – Fresno Metropolitan Flood Control District Requirements

Appendix 2 – Fresno Irrigation District Requirements

Appendix 3 – Documentation for Public Resources Code Section 21151.8 and CEQA Guidelines Section 15186 Findings for Hazardous Air Emissions and Hazardous Substances or Waste

Appendix A – Air Quality and Greenhouse Gas Impact Analysis

Appendix B – Biological Resource Evaluation

Appendix C – Phase I Cultural Resources Survey Report

Appendix D – Energy Impact Assessment

Appendix E – Noise & Groundborne Vibration Impact Analysis

Appendix F – Traffic Impact Analysis Report

Appendix G – Vehicle Miles Traveled Analysis

Initial Study Appendix 1

Clovis Unified School District

New District Facilities Project

Fresno Metropolitan Flood Control District Requirements

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
NOTICE OF REQUIREMENTS

CL DRC No. 2022-028

PUBLIC AGENCY

JOYCE ROACH
DEPARTMENT OF PLANNING AND
DEVELOPMENT SERVICES
CITY OF CLOVIS
1033 FIFTH ST.
CLOVIS, CA 93612

DEVELOPER

TANAIRY BARRERA
451 CLOVIS AVE. SUITE 200
CLOVIS, CA 93612

PROJECT NO: **2022-028**

ADDRESS: **1850 EAST HERNDON**

APN: **550-020-47T, 45T, 491-050-74ST**

SENT: **September 08, 2022**

Drainage Area(s)	Preliminary Fee(s)	Development Review Service Charge(s)	Fee(s)	
5F	$179,207.00	NOR Review	$0.00	To be paid prior to release of District comments to Public Agency and Developer.
6D	$16,008.00	Grading Plan Review	$0.00	Amount to be submitted with first grading plan submittal.
7D	$7,777.00	Storm Drain Plan Review	For amount of fee, refer to www.fresnofloodcontrol.org for form to fill out and submit with first storm drain plan submittal (blank copy attached).	

Total Drainage Fee: $202,992.00 **Total Service Charge: $0.00**

The proposed development will generate storm runoff which produces potentially significant environmental impacts and which must be properly discharged and mitigated pursuant to the California Environmental Quality Act and the National Environmental Policy Act. The District in cooperation with the City and County has developed and adopted the Storm Drainage and Flood Control Master Plan. Compliance with and implementation of this Master Plan by this development project will satisfy the drainage related CEQA/NEPA impact of the project mitigation requirements.

Pursuant to the District's Development Review Fee Policy, the subject project shall pay review fees for issuance of this Notice of Requirements (NOR) and any plan submittals requiring the District's reviews. The NOR fee shall be paid to the District by Developer before the Notice of Requirement will be submitted to the City. The Grading Plan fee shall be paid upon first submittal. The Storm Drain Plan fee shall be paid prior to return/pick up of first submittal.

The proposed development shall pay drainage fees pursuant to the Drainage Fee Ordinance prior to issuance of a building permit at the rates in effect at the time of such issuance. The fee indicated above is valid through 2/28/23 based on the site plan submitted to the District on 6/27/22 Contact FMFCD for a revised fee in cases where changes are made in the proposed site plan which materially alter the proposed impervious area.

Considerations which may affect the fee obligation(s) or the timing or form of fee payment:

a.) Fees related to undeveloped or phased portions of the project may be deferrable.

b.) Fees may be calculated based on the actual percentage of runoff if different than that typical for the zone district under which the development is being undertaken and if permanent provisions are made to assure that the site remains in that configuration.

c.) Creditable storm drainage facilities may be constructed, or required to be constructed in lieu of paying fees.

d.) The actual cost incurred in constructing Creditable drainage system facilities is credited against the drainage fee obligation.

e.) When the actual costs incurred in constructing Creditable facilities exceeds the drainage fee obligation, reimbursement will be made for the excess costs from future fees collected by the District from other development.

f.) Any request for a drainage fee refund requires the entitlement cancellation and a written request addressed to the General Manager of the District within 60 days from payment of the fee. A non refundable $300 Administration fee or 5% of the refund whichever is less will be retained without fee credit.

CL DRC No. 2022-028

Approval of this development shall be conditioned upon compliance with these District Requirements.

1. ____ **a.** Drainage from the site shall

__X__ **b.** Grading and drainage patterns shall be as identified on Exhibit No. 1

____ **c.** The grading and drainage patterns shown on the site plan conform to the adopted Storm Drainage and Flood Control Master Plan.

2. The proposed development shall construct and/or dedicate Storm Drainage and Flood Control Non Master Plan facilities located within the development or necessitated by any off-site improvements required by the approving agency:

__X__ Developer shall construct facilities as shown on Exhibit No. 1 as NON-MASTER PLAN FACILITIES TO BE CONSTRUCTED BY DEVELOPER.

____ None required.

3. The following final improvement plans and information shall be submitted to the District for review prior to final development approval:

__X__ Grading Plan

____ Street Plan

__X__ Storm Drain Plan

__X__ Water & Sewer Plan

____ Final Map

__X__ Drainage Report (to be submitted with tentative map)

____ Other

____ None Required

4. Availability of drainage facilities:

____ **a.** Permanent drainage service is available provided the developer can verify to the satisfaction of the City that runoff can be safely conveyed to the Master Plan inlet(s).

____ **b.** The construction of facilities required by Paragraph No. 2 hereof will provide permanent drainage service.

____ **c.** Permanent drainage service will not be available. The District recommends temporary facilities until permanent service is available.

__X__ **d.** See Exhibit No. 2.

5. The proposed development:

____ Appears to be located within a 100 year flood prone area as designated on the latest Flood Insurance Rate Maps available to the District, necessitating appropriate floodplain management action. (See attached Floodplain Policy.)

__X__ Does not appear to be located within a flood prone area.

6. ____ The subject site contains a portion of a canal or pipeline that is used to manage recharge, storm water, and/or flood flows. The existing capacity must be preserved as part of site development. Additionally, site development may not interfere with the ability to operate and maintain the canal or pipeline.

7. The Federal Clean Water Act and the State General Permits for Storm Water Discharges Associated with Construction and Industrial Activities (State General Permits) require developers of construction projects disturbing one or more acres, and discharges associated with industrial activity not otherwise exempt from National Pollutant Discharge Elimination System (NPDES) permitting, to implement controls to reduce pollutants, prohibit the discharge of waters other than storm water to the municipal storm drain system, and meet water quality standards. These requirements apply both to pollutants generated during construction, and to those which may be generated by operations at the development after construction.

a. State General Permit for Storm Water Discharges Associated with Construction Activities, effective July 1, 2010, as amended. A State General Construction Permit is required for all clearing, grading, and disturbances to the ground that result in soil disturbance of at least one acre (or less than one acre) if part of a larger common plan of development or sale). Permittees are required to: submit a Notice of Intent and Permit Registration Documents to be covered and must pay a permit fee to the State Water Resources Control Board (State Board), develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, and complete an annual certification of compliance.

b. State General Permit for Storm Water Discharges Associated with Industrial Activities, April, 2014 (available at the District Office). A State General Industrial Permit is required for specific types of industries described in the NPDES regulations or by Standard Industrial Classification (SIC) code. The following categories of industries are generally required to secure an industrial permit: manufacturing; trucking; recycling; and waste and hazardous waste management. Specific exemptions exist for manufacturing activities which occur entirely indoors. Permittees are required to: submit a Notice of Intent to be covered and must pay a permit fee to the State Water Resources Control Board, develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, sample storm water runoff and test it for pollutant indicators, and annually submit a report to the State Board.

c. The proposed development is encouraged to select and implement storm water quality controls recommended in the Fresno-Clovis Storm Water Quality Management Construction and Post-Construction Guidelines (available at the District Office) to meet the requirements of the State General Permits, eliminate the potential for non-storm water to enter the municipal storm drain system, and where possible minimize contact with materials which may contaminate storm water runoff.

8. A requirement of the District may be appealed by filing a written notice of appeal with the Secretary of the District within ten days of the date of this Notice of Requirements.

9. The District reserves the right to modify, reduce or add to these requirements, or revise fees, as necessary to accommodate changes made in the proposed development by the developer or requirements made by other agencies.

10. __X__ See Exhibit No. 2 for additional comments, recommendations and requirements.

Debbie Campbell

Debbie Campbell
Digitally signed by Debbie Campbell Date: 9/8/2022 3:27:51 PM
Design Engineer, RCE

Robert Villalobos
Digitally signed by Robert Villalobos Date: 9/1/2022 11:48:30 AM
Engineering Tech III

CL DRC No. 2022-028

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
NOTICE OF REQUIREMENTS

Pursuant to the District's Development Review Fee Policy, the subject project shall pay review fees in the amount identified below for Storm Drain Review. The fee shall be paid to the District by Developer with first plan submittal. Checks shall be made out to Fresno Metropolitan Flood Control District.

Application No. **CL DRC 2022-028**

Name / Business **TANAIRY BARRERA**

Project Address **1850 EAST HERNDON**

Project APN(s) **550-020-47T, 45T, 491-050-74ST**

Project Acres (gross) **16.97**

Please fill in the table below of proposed storm drain facilities to be constructed with this development and return completed form with first plan submittal. If you have any questions or concerns regarding the construction of facilities list, you can contact the Fresno Metropolitan Flood Control District at 559-456-3292.

Description	Qty	Unit	Price	Amount

Estimated Construction Cost ________________

Fee equals lesser of

$375.00 plus 3% of the estimated construction costs ______________ Total ($300.00 gross per acre) **$5,091.00**

Amount Due ________________

Storm Drain Facilities Cost Sheet

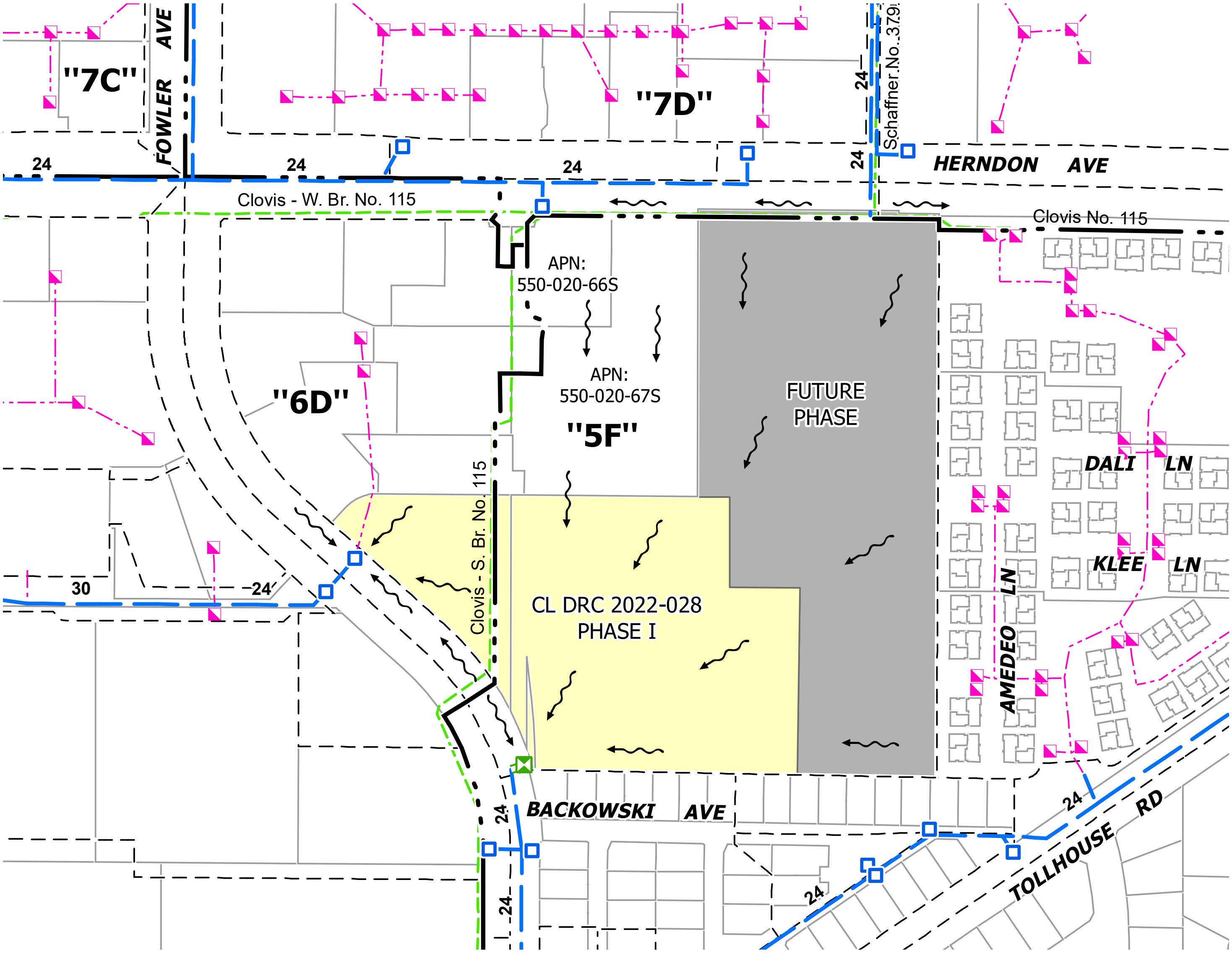
15" Concrete Pipes $127.00 LF
18" Concrete Pipes $134.00 LF
24" Concrete Pipes $151.00 LF
30" Concrete Pipes $179.00 LF
36" Concrete Pipes $222.00 LF
42" Concrete Pipes $258.00 LF
48" Concrete Pipes $300.00 LF
54" Concrete Pipes $366.00 LF
60" Concrete Pipes $431.00 LF
66" Concrete Pipes $509.00 LF
72" Concrete Pipes $587.00 LF
84" Concrete Pipes $656.00 LF
96" Concrete Pipes $711.00 LF
15" Jacked Pipes $1,026.00 LF
18" Jacked Pipes $1,091.00 LF
24" Jacked Pipes $1,298.00 LF
30" Jacked Pipes $1,512.00 LF
36" Jacked Pipes $2,100.00 LF
42" Jacked Pipes $2,537.00 LF
48" Jacked Pipes $2,661.00 LF
54" Jacked Pipes $2,834.00 LF
60" Jacked Pipes $2,916.00 LF
66" Jacked Pipes $3,083.00 LF
72" Jacked Pipes $3,214.00 LF
84" Jacked Pipes $3,397.00 LF
Manholes $6,100.00 EA
Inlets & Laterals $4,800.00 EA
Outfalls $16,300.00 EA
Canal Turnout $30,000.00 EA
Basin Excavation $1.00 CY

IMPROVEMENTS ADJACENT TO BASIN

Fence, Pad, and Gate $40.00 LF
Mowstrip $20.00 LF
Arterial Paving $109.00 LF
Local Paving $53.00 LF
Curb and Gutter $40.00 LF
Sidewalk $93.00 LF
Sewer Line $30.00 LF
Water Line $31.00 LF
Street Lights $70.00 LF
Pump Station/Intake $550,000.00 EA

CL DRC No. 2022-028

NOTE: THIS MAP IS SCHEMATIC. DISTANCES, AMOUNT OF CREDITABLE FACILITIES, AND LOCATION OF INLET BOUNDARIES ARE APPROXIMATE.



LEGEND

Limits Of CL DRC 2022-028, Phase I

Non-Master Plan Facilities To Be Constructed By Developer (Not Eligible For Fee Credit) - Inlet & Lateral

Existing Master Plan Facilities

Private Facilities

Existing FID Facilities

Inlet Boundary

Drainage Area Boundary

Direction Of Drainage

1 " = 300 '

CL DRC 2022-028

DRAINAGE AREAS "5F", "6D" & "7D"

EXHIBIT NO. 1

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

Prepared by: keithr
Date: 7/7/2022
Path: K:\Autocad\DWGS\0EXHIBIT\CLDRC\2022-028.mxd

OTHER REQUIREMENTS

EXHIBIT NO. 2

CL DRC 2022-028 is located in three drainage areas, Drainage Area "5F", Drainage Area "6D" and Drainage Area "7D", as shown on Exhibit No. 1. Permanent drainage service is available for the 1.45 acres of the project located within Drainage Area "6D". For the easterly portion of the project, located within Drainage Area "5F", permanent drainage service is available with the construction of the Non-Master Plan facilities, as shown on Exhibit No. 1. The 0.5 acres of the project along the Herndon Avenue frontage within Drainage Area "7D" also has permanent drainage service.

The minimum finish floor elevation for the area of the project located within Drainage Area "6D" shall be 373.50 (U.S.G.S. Datum), and the minimum finish floor elevation for the area of the project located within Drainage Area "5F" shall be 374.23 (U.S.G.S. Datum).

The District's existing Master Plan drainage system located in Drainage Area "5F" is designed to serve medium density residential uses and the existing Master Plan storm drain facilities do not have capacity to serve the proposed commercial land use. The developer shall be required to mitigate the impacts of the increased runoff from the proposed commercial land use to a rate that would be expected if developed to medium density residential. The developer may either make improvements to the existing pipeline system to provide additional capacity or may use some type of permanent peak reducing facility in order to eliminate adverse impacts on the existing system. Should the developer choose to construct a permanent peak-reducing facility, such a system would be required to reduce runoff from a ten-year storm produced by a commercial development, to a two-year discharge, which would be produced by the property if developed at medium density residential. Implementation of the mitigation measures may be deferred until the time of development.

CL DRC 2022-028 is required to grant drainage covenants to APNs 550-020-67s and 550-020-66s and grade the site to allow surface runoff to reach the proposed Non-Master Plan facilities in Fowler Avenue, as shown on Exhibit No. 1.

In an effort to improve storm runoff quality, outdoor storage areas shall be constructed and maintained such that material that may generate contaminants will be prevented from contact with rainfall and runoff and thereby prevent the conveyance of contaminants in runoff into the storm drain system.

The District encourages, but does not require that roof drains from non-residential development be constructed such that they are directed onto and through a landscaped grassy swale area to filter out pollutants from roof runoff.

Runoff from areas where industrial activities, product, or merchandise come into contact with and may contaminate storm water must be treated before discharging it off-site or into a storm drain. Roofs covering such areas are recommended. Cleaning of such areas by sweeping instead of washing is to be required unless such wash water can be directed to the sanitary sewer system. Storm drains receiving untreated runoff from such areas shall not be connected to the District's system. Loading docks, depressed areas, and areas servicing or fueling vehicles are specifically subject to these requirements. The District's policy governing said industrial site NPDES program requirements is available on the District's website at: www.fresnofloodcontrol.org or contact the District's Environmental Department for further information regarding these policies related to industrial site requirements.

Initial Study Appendix 2

Clovis Unified School District

New District Facilities Project

Fresno Irrigation District Requirements

2907 S. Maple Avenue
Fresno, California 93725-2208
Telephone: (559) 233-7161
Fax: (559) 233-8227

CONVEYANCE. COMMITMENT. CUSTOMER SERVICE.

July 7, 2022

Lily Cha
Planning and Development Services Department
City of Clovis
1033 Fifth Street
Clovis, CA 93612

RE: Development Review Committee Application No. 2022-028
S/E Herndon and Fowler avenues
FID's Clovis No. 115 and Clovis – S. Br. No. 115

Dear Ms. Cha:

The Fresno Irrigation District (FID) has reviewed the Development Review Committee Application No. 2022-028 for which CUSD is planning the construction of two buildings with on-site improvements, APNs: 491-050-74ST, 550-020-45T, 47T. FID has the following comments:

Summary of Requirements:

- FID Board Approval.
- Review and Approval of all Plans.
- Replace 30" CIP-MCP with 30" ASTM C-361 B25 RGRCP (with MacWrap).
- Replace 20" RCP-M with 24" ASTM C-361 B25 RGRCP (with MacWrap).
- Execute Pipeline Substitution with Easement Agreement(s).
- Execute additional Agreement(s), if necessary.
- Project Fees.
- No Encroachments (i.e. trees, monuments, fences, PUE, etc.).

Area of Concern – Clovis No. 115

1. FID's active Clovis No. 115 runs westerly along the south side of Herndon Avenue and traverses the north side of the subject property in a 17-feet wide exclusive easement per Doc. No. 83102166 O.R.F.C, as shown on the attached FID exhibit map, and will be impacted by the future development.

2. No as-builts plans exist for this section of the Clovis No. 115 however, FID believes it was constructed in 1983 (39 years old) as 30-inch inside diameter Cast-in-Place Monolithic Concrete Pipe (CIP-MCP). CIP-MCP is non reinforced

monolithic pipe that is easily damaged, extremely prone to leakage and does not meet FID's minimum standards for developed (residential, industrial, commercial) parcels or urban areas must be replaced.

3. FID requires CUSD confirm the pipelines construction. If in fact it is constructed as CIP-MCP, FID requires the CUSD replace the existing pipeline with new 30-inch diameter ASTM C-361 B25 Rubber Gasket Reinforced Concrete Pipe (RGRCP) with MacWrap and in accordance with FID standards and that the CUSD enter into an agreement with FID for that purpose. FID's minimum easement requirement for 30-inch pipe is 30 feet. CUSD will be required to grant FID the necessary exclusive easement width of 13 feet to make up for the difference.

Area of Concern – Clovis - S. Br. No. 115

1. FID's active Clovis – S. Br. No. 115 runs southerly, traverses the subject property in a 15-feet wide exclusive easement per Doc. No. 6025, Book 6392, Page 513 O.R.F.C., cross Fowler Avenue, continues southerly along the west side of Fowler Avenue and crosses Tollhouse Avenue approximately 860 feet south of the subject property, as shown on the attached FID exhibit map and will be impacted by the future development.

2. FID records indicate this section of the Clovis – S. Br. No. 115 was installed on 1975 (47 years old) as 20-inch inside diameter Reinforced Mortar Concrete Pipe (RCP-M). RCP-M does not meet FID's minimum standards for developed (residential, industrial, commercial) parcels or urban areas and must be replaced.

3. FID requires CUSD replace the existing pipeline with new 24-inch diameter ASTM C-361 B25 Rubber Gasket Reinforced Concrete Pipe (RGRCP) with MacWrap and in accordance with FID standards and that the CUSD enter into an agreement with FID for that purpose. FID's minimum easement requirement for 24-inch pipe is 20ft. CUSD will be required to grant FID the necessary exclusive easement width of 5 feet to make up for the difference.

General Comments

1. FID requires the CUSD and/or the CUSD's engineer meet with FID at their earliest convenience to discuss specific requirements, e.g. easement width and alignment, right-of-way width and alignment, pipeline alignment, depth and size, fees, etc.

2. In recent years, the most significant issue with pipelines has been caused by tree root intrusion into pipe joints. The roots enter through the rubber gasketed joint, thus creating a non-water tight joint causing leaks. If the roots continue to grow, the roots will eventually clog the pipe and reduce the flow capacity of the pipeline. This problem causes disruption to FID's customers and increases the risk of flooding in upstream open channel sections. Subsequent pipeline repairs

can be very disruptive to public infrastructure, as well as to FID's operations. The leaking pipelines and pipeline repairs also increase the liability of all parties involved. FID may require external wrap be installed at all pipeline joints within the subject property or any areas where root intrusion may be a future concern based on the proposed improvement at the time of review. This method involves using mastic material that can be externally applied to pipe joints to provide a permanent seal against root intrusion. The product that has been approved is known as MacWrap from Mar Mac. FID is open to other products, but they would need to be reviewed and approved by FID.

3. The installation of tracer wire, per FID standards and requirements, will be required.

4. FID requires its review and approval of all improvement plans which affect its property/easements and canal/pipeline facilities including but not limited to Sewer, Water, Fresno Metropolitan Flood Control District (FMFCD), Street, Landscaping, Dry Utilities, and all other utilities.

5. FID requires the CUSD to submit for FID's approval a grading and drainage plan which shows that the proposed development will not endanger the structural integrity of the pipeline(s), or result in drainage patterns that could adversely affect FID.

6. All existing trees, bushes, debris, old canal structures, pumps, canal gates, and other non- or in-active FID and private structures must be removed within FID's property/easement and the development project limits.

7. No large earthmoving equipment (paddle wheel scrapers, graders, excavators, etc.) will be allowed within FID's easement and the grading contractor will be responsible for the repair of all damage to the pipeline(s) caused by contractors grading activities.

8. FID requires its easements be shown on all maps/plans with proper recording information, and that FID be made a party to signing all final maps/plans.

9. Footings of retaining walls shall not encroach onto FID property/easement areas.

10. Trees will not be permitted within FID's property/easement areas.

11. FID is concerned about the potential vibrations caused by construction efforts near existing District facilities as it may cause damage to FID's canals, pipelines and culverts. The developer and contractor(s) must keep all large equipment, construction material, and soil stockpile outside of FID's easement and a minimum of 30 feet away from existing cast-in-place concrete pipe. CUSD

and/or its contractor(s) will be responsible for all damages caused by construction activities.

12. As with Agency projects, there will be considerable time and effort required of FID's staff to plan, coordinate, engineer, review plans, prepare agreements, and inspect the project. FID's cost for associated plan review will vary and will be determined at the time of the plan review.

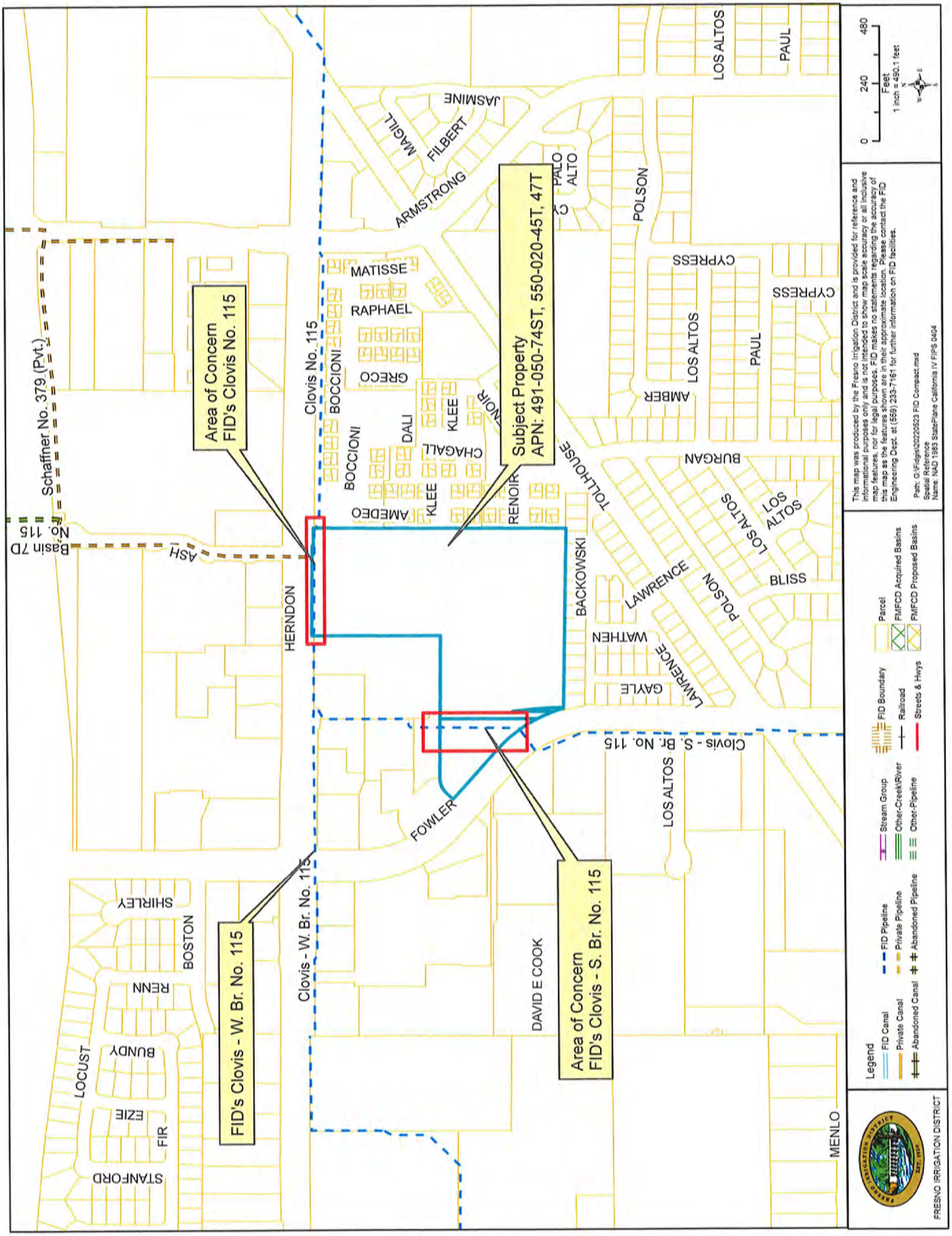
13. The above comments are not to be construed as the only requests FID will have regarding this project. FID will make additional comments and requests as necessary as the project progresses and more detail becomes available.

Thank you for submitting the proposed project for our review. We appreciate the opportunity to review and comment on the subject documents for this project. If you have any questions, please feel free to contact Chris Lundeen at (559) 233-7161 extension 7410 or clundeen@fresnoirrigation.com.

Sincerely,

Laurence Kimura, P.E.
Chief Engineer

Attachment


Area of Concern
FID's Clovis No. 115
Subject Property
APN: 491-050-74ST, 550-020-45T, 47T
Area of Concern
FID's Clovis - S. Br. No. 115
FID's Clovis - W. Br. No. 115
Schaffner No. 379 (Pvt.)
Basin 7D
No. 115
Clovis No. 115
Clovis - W. Br. No. 115
Clovis - S. Br. No. 115
HERNDON
FOWLER
ASH
ARMSTRONG
MATISSE
RAPHAEL
GRECO
BOCCIONI
DALI
KLEE
CHAGALL
AMEDEO
RENOIR
TOLLHOUSE
BACKOWSKI
WATHEN
GAYLE
LAWRENCE
POLSON
LOS ALTOS
BLISS
BURGAN
AMBER
PAUL
CYPRESS
PALO ALTO
MAGILL
FILBERT
JASMINE
DAVID E COOK
SHIRLEY
BOSTON
RENN
BUNDY
LOCUST
EZIE
FIR
STANFORD
MENLO
Legend
FID Canal
Private Canal
Abandoned Canal
FID Pipeline
Private Pipeline
Abandoned Pipeline
Stream Group
Other-Creek/River
Other-Pipeline
FID Boundary
Railroad
Streets & Hwys
Parcel
FMFCD Acquired Basins
FMFCD Proposed Basins
This map was produced by the Fresno Irrigation District and is provided for reference and informational purposes only and is not intended to show map scale accuracy or all inclusive map features, nor for legal purposes. FID makes no statements regarding the accuracy of this map as the features shown are in their approximate location. Please contact the FID Engineering Dept. at (559) 233-7161 for further information on FID facilities.
Path: G:\Fidgis\20220523 FID Compact.mxd
Spatial Reference
Name: NAD 1983 StatePlane California IV FIPS 0404
0 240 480
Feet
1 inch = 490.1 feet
FRESNO IRRIGATION DISTRICT

Initial Study Appendix 3

Clovis Unified School District

New District Facilities Project

Documentation for Public Resources Code Section 21151.8 and CEQA Guidelines Section 15186 Findings for Hazardous Air Emissions and Hazardous Substances or Waste

75 Higuera Street, Suite 105
San Luis Obispo, CA 93401
www.Ambient.Consulting

MEMORANDUM

Date:	May 30, 2023
To:	Scott Odell Odell Planning & Research, Inc.
From:	Kurt Legleiter, Principal
Subject:	**CUSD Facilities Project – Toxic Facility Search**

This memorandum provides a qualitative analysis of major facilities identified in the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Public Records Requests Release for Clovis Unified School District (CUSD) Educational Site, Public Records Request Number: 23-216.[1]

The SJVAPCD identified a total of nine permitted stationary sources of emissions and one highway located within one-quarter mile of the project site. The effects of these sources on the project site are summarized below:

Permitted Stationary Sources

Permitted stationary sources located within one-quarter mile of the project site identified by the SJVAPCD are summarized in Table 1. The location of permitted stationary sources in relation to the project site are depicted in Figure 1.

Permitted stationary sources of emissions would be subject to SJVAPCD's permitting requirements. Accordingly, no emissions can be released into the atmosphere which would result in a public nuisance or an exceedance of applicable health risk thresholds at the nearest sensitive land uses. As part of the permitting process, potential health risks to nearby sensitive land uses (e.g., residential dwellings, schools) associated with stationary sources of emissions are assessed and permit limitations applied to ensure that predicted health risks to off-site receptors would not exceed SJVAPCD's significance thresholds.

1 San Joaquin Valley Air Pollution Control District (SJVAPCD). May 25, 2023. Public Records Requests Release for Clovis Unified School District (CUSD) Educational Site, Public Records Request Number: 23-216.

Table 1. Permitted Stationary Sources within One-Quarter Mile of the Project Site

Facility ID	Facility Name	Facility Description	Facility Address	Latitude, Longitude
C-343	CLOVIS UNIFIED SCHOOL DISTRICT	ELEMENTARY AND SECONDARY SCHOOLS	1490 HERNDON AVE CLOVIS, CA 93612	36.83727, -119.687949
C-351	CITY OF CLOVIS	GOVERNMENT SERVICES	2085 TOLLHOUSE RD CLOVIS, CA 93612	36.835756, -119.675846
C-2945	CLUB CLEANERS (MIKE CHIEN LU)	DRY CLEANING	2220 HERNDON AVE #101 CLOVIS, CA 93611	36.83705, -119.6749
C-3763	VONS - A SAFEWAY COMPANY	GROCERIES, WHOLESALE	1650 HERNDON AVE CLOVIS, CA 93612	36.837216, -119.686771
C-4016	CITY OF CLOVIS	GOVERNMENT SERVICES	1033 5TH ST CLOVIS, CA 93612	36.841254, -119.6748
C-4017	ANLIN INDUSTRIES	GLASS MANUFACTURING	1665 TOLLHOUSE RD CLOVIS, CA 93611	36.831924, -119.684501
C-7636	CITY OF CLOVIS	GOVERNMENT SERVICES	1033 5TH ST CLOVIS, CA 93612	36.83481, -119.682333
C-691	RED ROCKET (LAKHBIR SINGH)	GASOLINE DISPENSING	2255 E HERNDON AVE CLOVIS, CA 93611	36.837518, -119.672429
C-3143	CLOVIS GUNITE & MATERIALS INC	CONCRETE PRODUCTS	1509 MENLO AVE CLOVIS, CA 93611	36.831358, -119.688638

The project site is located south of Herndon Avenue, east of Fowler Avenue. Existing sensitive land uses in the project area and nearby permitted stationary sources consist predominantly of residential land uses. In addition, the Community Day Elementary School is located west of the project site across N Fowler Avenue, and Gateway High School is located west of N Fowler Avenue, adjacent to and south of Herndon Avenue. Nearby land uses are depicted in Figure 1.

The proposed project would not result in the location of sensitive land uses closer to the permitted stationary sources identified in Table 1. As a result, no change in predicted off-site health risks associated with these permitted stationary sources would occur with implementation of the proposed project. Because the project site is located at further distances from these sources than other existing sensitive land uses in the area, predicted health risks to onsite students and employees would not be anticipated to exceed applicable health risk thresholds. In addition, it is also important to note that the proposed project is a non-traditional school facility. In contrast to students being there for 180 school days and playing outside every day, the online and special ed students will be there only occasionally and predominantly inside the buildings. As a result, potential exposure to stationary source air toxics and associated health risks to onsite students would be significantly less than that of other nearby existing sensitive land uses.

Figure 1. Permitted Stationary Sources within One-Quarter Mile of the Project Site

75 Higuera Street, Suite 105
San Luis Obispo, CA 93401
www.Ambient.Consulting

Freeway, High Volume Roadways, and Railways

The California Air Resources Board (ARB) recommends that sensitive land uses not be located within 500 feet of high-volume roadways. High-volume roadways of concern are defined as urban roads having volumes of 100,000 vehicles per day, or more, or rural roads having 50,000 vehicles per day.[2]

California State Route (SR) 168 and Herndon Avenue were identified by SJVAPCD as being located within one-quarter mile of the project site. The location of these roadways in relation to the project site is depicted in Figure 1.

Existing traffic volumes along SR-168 average approximately 30,500 vehicles per day.[3] Existing traffic volumes along Herndon Avenue average approximately 20,784 vehicles per day.[4] Traffic volumes along these roadways would not approach or exceed 100,000 vehicles per day. Health risks to onsite students and employees would not be anticipated to exceed applicable thresholds. In addition, as noted above, the proposed project is a non-traditional school facility. As a result, potential exposure to mobile-source air toxics and associated health risks to onsite students would be significantly less than that of other nearby existing sensitive land uses.

[2] California Air Resources Board (ARB). April 2005. Air Quality and Land Use Handbook – A Community Health Perspective.

[3] California Department of Transportation (Caltrans). Traffic Volumes on California Highways. Website url: https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes/2017/route-164-178.

[4] City of Clovis. Speed Limits and Traffic Count Viewer C001. Website url: https://cloviswebgis.maps.arcgis.com/apps/webappviewer/index.html?id=d318daa852164de3ac4d3b5963875961.

Memorandum on Facilities Handling Hazardous Substances or Waste within One-Fourth Mile of the Clovis Unified New District Facilities Site

June 26, 2023

Introduction

Public Resources Code Section 21151.8 and CEQA Guidelines Section 15186 require that an EIR or Negative Declaration shall not be certified or approved for a school construction project unless the District has consulted with the Air Pollution Control District and county health department to determine whether there are any facilities within one-fourth mile of the site that might reasonably be anticipated to emit hazardous air emissions or handle hazardous substances or waste. If there are such facilities identified, the District must find that the facilities will not pose a potential endangerment of health to student or employees at the site. The Air District consultation is addressed by the memorandum prepared by Ambient Air Quality & Noise Consulting dated May 30, 2023. This memo is intended to address information obtained from the Fresno County Environmental Health Division, which is the Certified Unified Program Agency (CUPA) that administers hazardous materials regulatory functions in Fresno County.

Identification of Facilities

The addresses for all properties within one-fourth mile of the proposed location of the special education administration and online school buildings were identified using Parcel Quest and then screened using Google Earth to be sure they were actually within one-fourth mile of the proposed facilities. The Fresno County Environmental Health Division (FCEHD) online database (www.fresnohealthinspections.com), which provides records on hazardous material-related permitting in Fresno County, was used to identify any facilities handling hazardous materials at the addresses within one-fourth mile of the project location. The addresses/facilities that were identified include the following:

Table 1: Facilities within One Fourth Mile of Proposed Educational Facilities

Address	Facility Name	Distance	Facility Permit
1630 Herndon, Clovis, 93611	Tractor Supply	1,000 feet	Hazardous Materials Business Plan (HMBP) for MV Fuel/Oil/Propane Only in AGST/UST; and Conditionally Exempt Small Quantity Generator (CESQG)
1650 Herndon, Clovis, 93611	Vons	750 feet	HMBP for MV Fuel/Oil/Propane Only in AGST/UST; and CESQG
1815 Herndon, Clovis, 93611	Walgreens	900 feet	Conditionally Exempt Small Quantity Generator (CESQG)
1835 Herndon, Clovis, 93611	Save Mart	1,000 feet	HMBP for MV Fuel/Oil/Propane Only in AGST/UST; and CESQG
1865 Herndon, Clovis, 93611	Dry Cleaning by Martinizing	1,000 feet	HMBP for MV Fuel/Oil/Propane Only in AGST/UST; and CESQG
1665 Tollhouse, Clovis, 93611	Anlin Industries	550 feet (yard); 850 feet (building)	Large Hazardous Materials Handler

Evaluation

Save Mart, Vons, Tractor Supply and Walgreens are chain retail stores typically found in urbanized areas and are generally not thought of as being detrimental or hazardous to neighboring uses. Dry cleaners used to be more of a concern due to the use of the solvent perchloroethylene (Perc). However, California banned the installation of new Perc dry cleaning machines in 2007 and required that old machines be shut down by 2010. The law also provided that all Perc machines be taken out of service by 2023. All of the commercial uses (except Walgreens) have Hazardous Materials Business Plans (HMBPs) for fuel, oil or propane handling and storage and all of the commercial facilities are Conditionally Exempt Small Quantity Generators (CESQG).

A Hazardous Materials Business Plan contains the following information intended to prevent or minimize damage to public health, safety, and the environment, from a release or threatened release of a hazardous material:

- An inventory of hazardous materials at a facility.
- Emergency response plans and procedures to be followed in the event of a reportable release or threatened release of a hazardous material.
- Requirements to train employees in safety procedures in the event of a release or threatened release of a hazardous material, including onboarding for new employees and annual refresher courses for existing employees.
- A site map that depicts north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, evacuation staging areas, hazardous material handling and storage areas, and emergency response equipment.

Businesses generating small quantities of hazardous waste may qualify as Conditionally Exempt Small Quantity Generators (CESQG). For those businesses qualifying as CESQGs, the waste amounts are small enough to allow them to dispose of the waste at household hazardous waste disposal facilities. All of the retail commercial facilities listed are CESQGs.

Anlin Industries is a manufacturer of windows and is permitted as a large hazardous materials handler in the FCEHD database. Records indicate that the facility handles and stores a variety of hazardous materials used in the manufacturing process. The use and storage of hazardous materials is highly regulated and periodic site inspections occur to assure that the HMBP has been established and implemented; the inventory of hazardous materials is accurate; hazardous materials are properly labeled, handled and stored; site and facility maps are accurate; a health & safety/emergency response plan has been established and implemented; and an employee training program is established as to safe handling and storage methods with annual refresher training.

All of the permitted facilities are a substantial distance from the location of the proposed educational facilities, as noted in Table 1. In addition, it is noted that the proposed project is a non-traditional educational facility consisting of a special education administration building and an online school. In contrast to students being there for 180 school days and playing outside every day, the online and special ed students will be there only occasionally and predominantly inside the buildings. Therefore, any potential health risks to onsite students would be significantly less than that of other nearby existing sensitive land uses.

Given the characteristics of the permitted facilities and the project, the safeguards built into the HMBPs and existing CUPA permitting requirements, and the distance from the permitted facilities to the proposed educational facilities, the identified facilities on Table 1 would not be anticipated to constitute an appreciable risk to the proposed educational facilities.

Conclusion

The above evaluation supports a conclusion that the identified facilities will not constitute a potential endangerment of public health to persons who would attend or be employed at the proposed educational facilities.

Initial Study Appendix A

Clovis Unified School District

New District Facilities Project

Air Quality and Greenhouse Gas Impact Analysis

AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

FOR

CLOVIS UNIFIED SCHOOL DISTRICT FACILITIES PROJECT

CLOVIS, CA

APRIL 2023

PREPARED FOR:

ODELL PLANNING & RESEARCH, INC.
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

LIST OF COMMON TERMS & ACRONYMS

AHERA	Asbestos Hazard Emergency Response Act
ASHAA	Asbestos School Hazard Abatement Act
ASHARA	Asbestos School Hazard Abatement and Reauthorization Act
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
CAAQS	California Ambient Air Quality Standards
ARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CUSD	Clovis Unified School District
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of Service
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for HAPs
NO_x	Oxides of Nitrogen
OPR	Governor's Office of Planning and Research
O_3	Ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter (less than 10 μm)
$PM_{2.5}$	Particulate Matter (less than 2.5 μm)
ppb	Parts per Billion
ppm	Parts per Million
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SMAQMD	Sacramento Air Quality Management District
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
SRTS	Safe Routes to School
TAC	Toxic Air Contaminant
TSCA	Toxic Substances Control Act
$\mu g/m^3$	Micrograms per cubic meter
U.S. EPA	United State Environmental Protection Agency

INTRODUCTION

This report describes the existing environment in the vicinity of and identifies potential air quality and greenhouse gas impacts associated with the proposed Clovis Unified School District (CUSD) Facilities Project (project). Project impacts are evaluated relative to applicable thresholds of significance. Mitigation measures have been identified for significant impacts.

PROPOSED PROJECT

The project site is located on 16.61 acres southeast of the intersection of North Fowler and East Herndon Avenues in the City of Clovis (City), Fresno County (County), California (APN: 491-050-74ST, 550-020-45T, and 550-020-47T). The District proposes to construct and operate a Special Education Administration building (24,167 square feet) and an Online School building (27,399 square feet) on the site and construct associated site improvements under Phase 1 of the project. A future phase would consist of the construction and operation of District administrative offices in several buildings totaling approximately 90,000 square feet. The new Special Education Administration facility will include a reception/lobby area; offices for administration, operations and school services; meeting, conference and break rooms; and will house the Clovis Infant Toddler Intervention (CITI) Kids program. The new Online School facility will include a reception/lobby area, administrative offices, flex rooms, teacher offices, STEM (Science, Technology, Engineering, and Math) lab, computer lab, nurse station and conference room. A map identifying the project location is presented in Figure 1.

AIR QUALITY

EXISTING SETTING

The project is located within the San Joaquin Valley Air Basin (SJVAB). The SJVAB is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air quality in the SJVAB is influenced by a variety of factors, including topography, local and regional meteorology. Factors affecting regional and local air quality are discussed below.

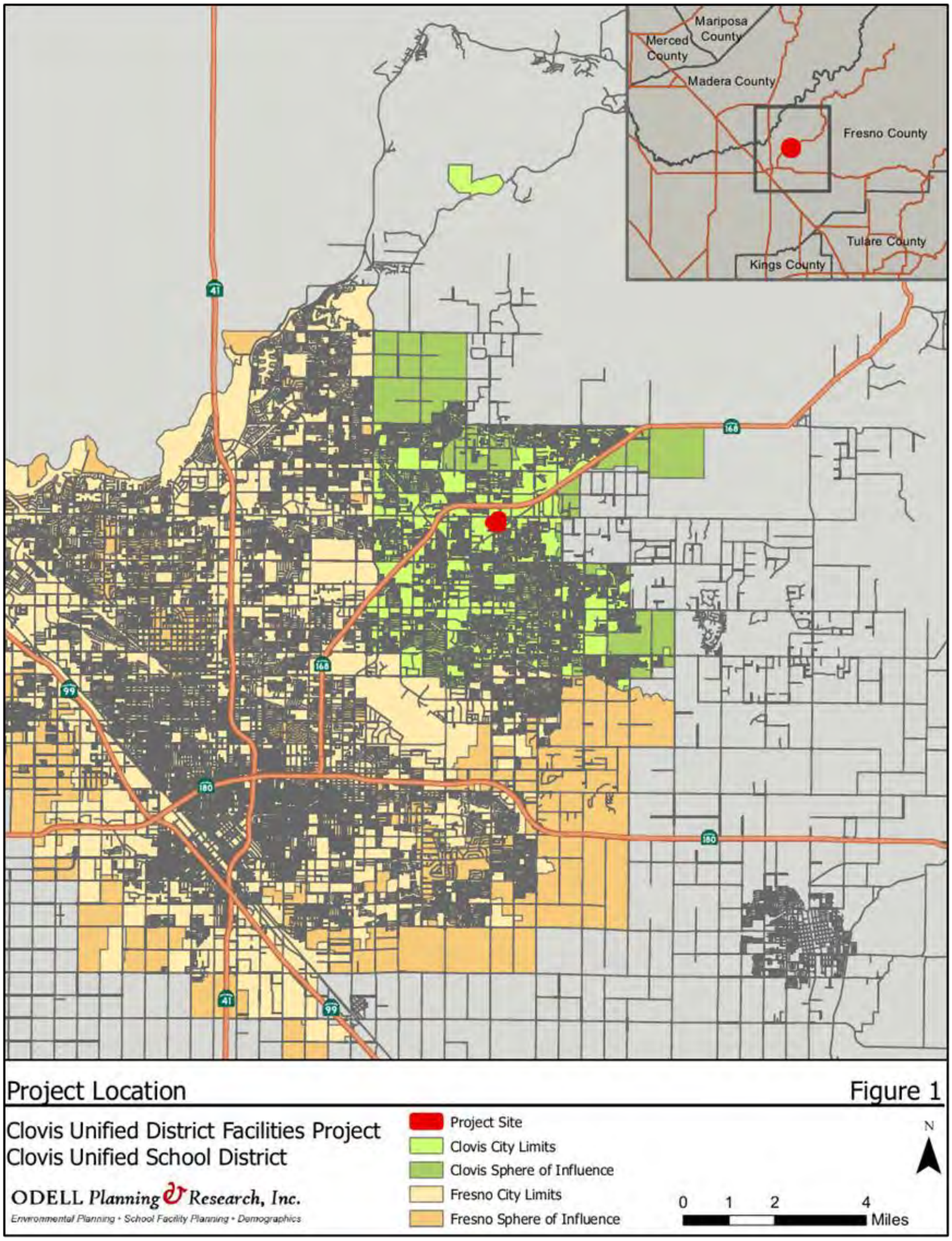
TOPOGRAPHY, METEOROLOGY, AND POLLUTANT DISPERSION

The dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution with respect to the SJVAB are discussed below.

Topography

The SJVAB occupies the southern half of the Central Valley. The SJVAB is open to the north and is surrounded by mountain ranges on all other sides. The Coast Ranges, which have an average elevation of 3,000 feet, are along on the western boundary of the SJVAB, while the Sierra Nevada Mountains (8,000 to 14,000 feet in elevation) are along the eastern border. The San Emigdio Mountains, which are part of the Coast Ranges, and the Tehachapi Mountains, which are part of the Sierra Nevada, form the southern boundary, and have an elevation of 6,000 to 8,000 feet. The SJVAB is mostly flat with a downward gradient in terrain to the northwest.

Figure 1. Project Location

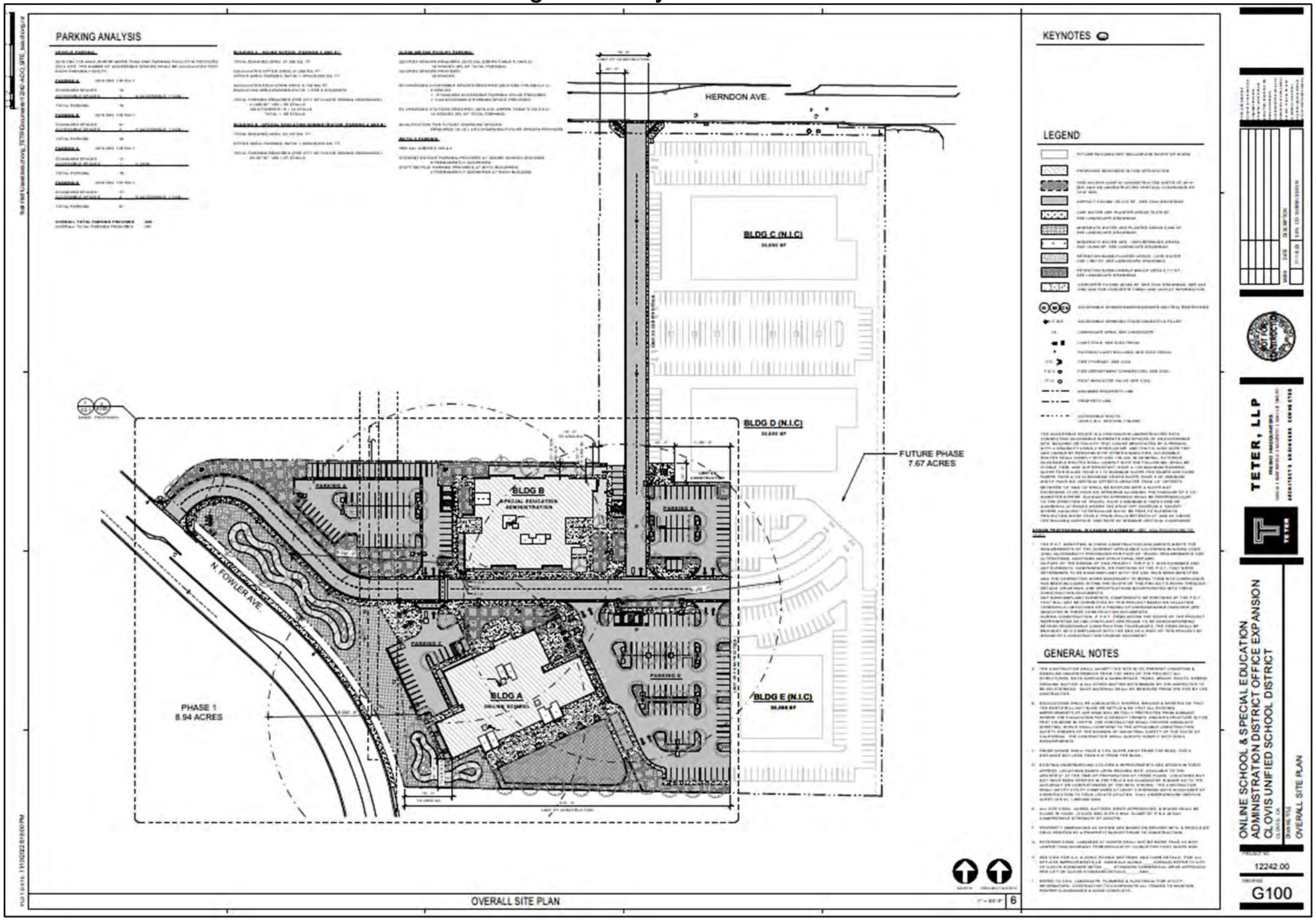


Source: OPR 2023

Figure 2. Project Site

Source: OPR 2023

Figure 3. Project Site Plan



Source: OPR 2023

Meteorology and Climate

The SJVAB has an inland Mediterranean climate that is strongly influenced by the presence of mountain ranges. The mountain ranges to the west and south induce winter storms from the Pacific Ocean to release precipitation on the western slopes producing a partial rain shadow over the valley. In addition, the mountain ranges block the free circulation of air to the east, trapping stable air in the valley for extended periods during the cooler half of the year.

Winter in the SJVAB is characterized as mild and fairly humid, while the summer is typically hot, dry, and cloudless. The climate is a result of the topography and the strength and location of a semi permanent, subtropical high-pressure cell. During the summer months, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface as a result of the northwesterly flow produces a band of cold water off the California coast. In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

The annual temperature, humidity, precipitation, and wind patterns reflect the topography of the SJVAB and the strength and location of the semi-permanent, subtropical high-pressure cell. Summer temperatures that often exceed 100 degrees Fahrenheit (°F) and clear sky conditions are favorable to ozone formation. Most of the precipitation in the valley occurs as rainfall during winter storms. The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions, which can result in higher pollutant concentrations. The orientation of the wind flow pattern in the SJVAB is parallel to the valley and mountain ranges. Summer wind conditions promote the transport of ozone and precursors from the San Francisco Bay Area through the Carquinez Strait, a gap in the Coast Ranges, and low-mountain passes such as Altamont Pass and Pacheco Pass. During the summer, predominant wind direction is from the northwest. During the winter, the predominant wind direction is from the southeast. Calm conditions are also predominant during the winter (ARB 1992).

The climate is semi-arid, with an annual normal precipitation of approximately 11 inches. Temperatures in the project area range from an average minimum of approximately 38°F, in January, to an average maximum of 98°F, in July (WRCC 2023).

Atmospheric Stability and Inversions

Stability describes the resistance of the atmosphere to vertical motion. The stability of the atmosphere is dependent on the vertical distribution of temperature with height. Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions often occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under Class A stability conditions, large fluctuations in horizontal wind direction occur coupled with large vertical mixing depths. Under Class B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced because of a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak along with horizontal and vertical fluctuations because of a combination of thermal and mechanical turbulence. Under Class D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under Class E and Class F stability conditions, air pollution emitted into the atmosphere travels downwind with poor dispersion. The dispersive power of the atmosphere decreases with progression through the categories from A to F.

With respect to the SJVAB, Classes D through F are predominant during the late fall and winter because of cool temperatures and entrapment of cold air near the surface. March and August are transition months with equally occurring percentages of Class F and Class A. During the spring months of April and May and the summer months of June and July, Class A is predominant. The fall months of September, October, and November have comparable percentages of Class A and Class F.

An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The SJVAB experiences both surface-based and elevated inversions. The shallow surface-based inversions are present in the morning but are often broken by daytime heating of the air layers near the ground. The deep elevated inversions occur less frequently than the surface-based inversions but generally result in more severe stagnation. The surface-based inversions occur more frequently in the fall, and the stronger elevated inversions usually occur during December and January.

AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. Additional information and health impacts associated with criteria pollutants is presented in Table 1.

Ozone (O_3) is a reactive gas consisting of three atoms of oxygen. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when NO_X and volatile organic compounds (VOC) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Reactive Organic Gas (ROG) is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment. Total Organic Gases (TOGs) includes all of the ROGs, in addition to low reactivity organic compounds like methane and acetone. ROGs and VOC are subsets of TOG.

Volatile Organic Compounds (VOC) are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and may also be toxic. VOC emissions are a major precursor to the formation of ozone. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Oxides of Nitrogen (NO_X) are a family of gaseous nitrogen compounds and is a precursor to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Table 1. State and Federal Criteria Air Pollutant Effects and Sources

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10})	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Color's atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limit's visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also, a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Sulfate	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

Source: CAPCOA 2021

Particulate Matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. U.S. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. U.S. EPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($PM_{2.5}$- PM_{10})," such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5\text{-}10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossils fuels, meat, wood and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Numerous scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and also acute (short-term) bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short term exposures, although they may experience temporary minor irritation when particle levels are elevated.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO is on-road motor vehicles. Other CO sources include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources. Because of the local nature of CO problems, the California Air Resources Board (ARB) and U.S. EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover.

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NO_X, suspended SO_X particles contribute to the poor visibility. These SO_X particles can also combine with other pollutants to form $PM_{2.5}$. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) 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. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. Gasoline-powered automobile

engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically.
Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death). OSHA regulates workplace exposure to H_2S.

Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The ARB has established State standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Sulfates (SO_4^{2-}) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilator function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

Visibility Reducing Particles: Are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Vinyl Chloride (C_2H_3Cl or VCM) is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Odors

Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration

decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.
Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The SJVAPCD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to SJVAPCD *Rule 4102, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the SJVAPCD.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the Federal Clean Air Act (FCAA) or the California Clean Air Act (CCAA) and are thus not subject to National or State Ambient Air Quality Standards (AAQS). TACs are not considered criteria pollutants in that the FCAA and CCAA do not address them specifically through the setting of National or State AAQS. Instead, the U.S. EPA and California Air Resources Board (ARB) regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with District rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national level, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

The exposure to TACs can lead to acute health problems shortly after exposure from minor effects such as watery eyes, or more serious life threats such as respiratory damage. Other health problems may not appear until many months or years after a person's first exposure to the toxic air pollutant. Cancer is one example of a delayed health problem. (EPA 1991)

At the local level, air districts have authority over stationary or industrial sources. For SJVAPCD, if a project may emit TACs, or if toxic contaminants may already be present at the project site, and there are sensitive receptors nearby, a screening health risk assessment using worst-case scenario assumptions may be warranted.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB 2013).

In October 2000, the ARB issued a report entitled: "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles", which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRPP will significantly reduce emissions from both old and new diesel fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2013, ARB 2000).

Exposure to DPM can have immediate health effects. DPM can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. In California, DPM has been identified as a carcinogen.

Acetaldehyde is a federal hazardous air pollutant. The ARB identified acetaldehyde as a TAC in April 1993. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. A majority of the statewide acetaldehyde emissions can be attributed to mobile sources, including on-road motor vehicles, construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area sources of emissions include the burning of wood in residential fireplaces and wood stoves. The primary stationary sources of acetaldehyde are from fuel combustion from the petroleum industry (ARB 2013).

Acute exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic intoxication of acetaldehyde resemble those of alcoholism. The U.S. EPA has classified acetaldehyde as a probable human carcinogen. In California, acetaldehyde was classified on April 1, 1988, as a chemical known to the state to cause cancer (U.S. EPA 2014; ARB 2013).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 88 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products. The primary area sources include residential combustion of various types such as cooking and water heating (ARB 2013).

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests.

Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as known human carcinogen for all routes of exposure (U.S. EPA 2014).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for a majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2013)
Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a carcinogen.

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program (ARB 2013). The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risk (ARB 2013).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride are limited. Studies in animals have shown that ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a carcinogen.

Hexavalent chromium was identified as a TAC in 1986. Sources of Hexavalent chromium include industrial metal finishing processes, such as chrome plating and chromic acid anodizing, and firebrick lining of glass furnaces. Other sources include mobile sources, including gasoline motor vehicles, trains, and ships (ARB 2013).

The respiratory tract is the major target organ for hexavalent chromium toxicity, for acute and chronic inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to hexavalent chromium, while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled hexavalent chromium is a human carcinogen, resulting in an increased risk of lung cancer. In California, hexavalent chromium has been identified as a carcinogen.

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions (ARB 2013).

Acute exposure to paradichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. The U.S. EPA has classified para-dichlorobenzene as a possible human carcinogen.

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2013).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. Formaldehyde is classified as a probable human carcinogen.

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2013).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data are inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a carcinogen.

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners and tire sealants and inflators (ARB 2013).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a carcinogen.

ASBESTOS

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The project site, however, is not located in an area of known ultramafic rock.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900's; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos containing products.

Naturally-occurring asbestos was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

VALLEY FEVER

Valley fever is an infection caused by the fungus Coccidioides. The scientific name for valley fever is "coccidioidomycosis," and it's also sometimes called "desert rheumatism." The term "valley fever" usually refers to Coccidioides infection in the lungs, but the infection can spread to other parts of the body in severe cases.

Coccidioides spores circulate in the air after contaminated soil and dust are disturbed by humans, animals, or the weather. The spores are too small to see without a microscope. When people breathe in the spores, they are at risk for developing valley fever. After the spores enter the lungs, the person's body temperature allows the spores to change shape and grow into spherules. When the spherules get large enough, they break open and release smaller pieces (called endospores) which can then potentially spread within the lungs or to other organs and grow into new spherules. In extremely rare cases, the fungal spores can enter the skin through a cut, wound, or splinter and cause a skin infection.

Symptoms of valley fever may appear between 1 and 3 weeks after exposure. Symptoms commonly include fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches and joint pain, and rashes on the upper body or legs.

Approximately 5 to 10 percent of people who get valley fever will develop serious or long-term problems in their lungs. In an even smaller percent of people (about 1 percent), the infection spreads from the lungs to other parts of the body, such as the central nervous system (brain and spinal cord), skin, or bones and joints. Certain groups of people may be at higher risk for developing the severe forms of valley fever, such as people who have weakened immune systems. The fungus that causes valley fever, Coccidioides, can't spread from the lungs between people or between people and animals. However, in extremely rare instances, a wound infection with Coccidioides can spread valley fever to someone else, or the infection can be spread through an organ transplant with an infected organ.

For many people, the symptoms of valley fever will go away within a few months without any treatment. Healthcare providers choose to prescribe antifungal medication for some people to try to reduce the severity of symptoms or prevent the infection from getting worse. Antifungal medication is typically given to people who are at higher risk for developing severe valley fever. The treatment typically occurs over a period of roughly 3 to 6 months. In some instances, longer treatment may be required. If valley fever develops into meningitis life-long antifungal treatment is typically necessary.

Scientists continue to study how weather and climate patterns affect the habitat of the fungus that causes valley fever. Coccidioides is thought to grow best in soil after heavy rainfall and then disperse into the air most effectively during hot, dry conditions. For example, hot and dry weather conditions have been shown to correlate with an increase in the number of valley fever cases in Arizona and in California. The ways in which climate change may be affecting the number of valley fever infections, as well as the geographic range of Coccidioides, isn't known yet, but is a subject for further research (CDC 2016).

REGULATORY FRAMEWORK

Air quality within the SJVAB is regulated by several jurisdictions including the U.S. EPA, ARB, and the SJVAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS), and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) first authorized the U.S. EPA to regulate asbestos in schools and Public and Commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA requires Local Education Agencies (LEAs) to inspect their schools for ACBM and prepare management plans to reduce the asbestos hazard. The Act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the National Emission Standards for Hazardous Air Pollutants. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

STATE

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

Table 2. Summary of Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards (Primary)
Ozone (O_3)	1-hour	0.09 ppm	–
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	AAM	20 µg/m³	–
	24-hour	50 µg/m³	150 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m³	12 µg/m³
	24-hour	No Standard	35 µg/m³
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
	8-hour (Lake Tahoe)	6 ppm	–
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	53 ppb
	1-hour	0.18 ppm	100 ppb
Sulfur Dioxide (SO_2)	AAM	–	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	3-hour	–	–
	1-hour	0.25 ppm	75 ppb
Lead	30-day Average	1.5 µg/m³	–
	Calendar Quarter	–	1.5 µg/m³
	Rolling 3-Month Average	–	0.15 µg/m³
Sulfates	24-hour	25 µg/m³	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m³)	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m³)	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	

** For more information on standards visit : https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf*
Source: ARB 2019a

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a five percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

California Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003 creating Government Code Section 65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality.

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

California Air Resources Board's Truck and Bus Regulation

This regulation requires fleets that operate in California to reduce diesel truck and bus emissions by retrofitting or replacing existing engines. Amendments were adopted in December 2010 to provide more time for fleets to comply. The amended regulation required installation of PM retrofits beginning January 1, 2012 and replacement of older trucks starting January 1, 2015. By January 1, 2023, nearly all vehicles would need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation has provisions to provide extra credit for PM filters installed prior to July 2011, has delayed requirements for fleets with 3 or fewer vehicles, provisions for agricultural vehicles and other situations.

Airborne Toxic Control Measure to Limit School Bus Idling at Schools

ARB has approved an airborne toxic control measure (ATCM) that limits school bus idling and idling at or near schools to only when necessary for safety or operational concerns. The ATCM requires a driver of a school bus or vehicle, transit bus, or other commercial motor vehicle to manually turn off the bus or vehicle engine upon arriving at a school and to restart no more than 30 seconds before departing. A driver of a school bus or vehicle is subject to the same requirement when operating within 100 feet of a school and is prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or other commercial motor vehicle is prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns is exempt from these restrictions. In addition, the ATCM requires a motor carrier of an affected bus or vehicle to ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep records of these driver education and tracking activities. This ATCM became effective in July 2003.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the SJVAB, within which the proposed project is located. Responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. The SJVAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following:

- *Regulation VIII (Fugitive Dust Prohibitions). Regulation VIII (Rules 8011-8081).* This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc.
- *Rule 4002 (National Emissions Standards for Hazardous Air Pollutants).* This rule may apply to projects in which portions of an existing building would be renovated, partially demolished or removed. With regard to asbestos, the NESHAP specifies work practices to be followed during renovation, demolition or other abatement activities when friable asbestos is involved. Prior to demolition activity, an asbestos survey of the existing structure may be required to identify the presence of any asbestos containing building materials (ACBM). Removal of identified ACBM must be removed by a certified asbestos contractor in accordance with CAL-OSHA requirements.
- *Rule 4102 (Nuisance).* Applies to any source operation that emits or may emit air contaminants or other materials.
- *Rule 4103 (Open Burning).* This rule regulates the use of open burning and specifies the types of materials that may be open burned. Section 5.1 of this rule prohibits the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes.
- *Rule 4601 (Architectural Coatings).* Limits volatile organic compounds from architectural coatings.
- *Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).* This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations.
- *Rule 9510 (Indirect Source Review - ISR).* Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the District, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NOx; (2) 45-percent reduction of construction equipment exhaust PM_{10}; (3) 33-percent reduction of operational NOx over 10 years; and (4) 50-percent reduction of operational PM_{10} over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency."

CLOVIS GENERAL PLAN

- Policy 1.1: Land use and transportation. Reduce greenhouse gas and other local pollutant emissions through mixed use and transit-oriented development and well-designed transit, pedestrian, and bicycle systems.
- Policy 1.2: Sensitive Land Uses. Prohibit, without sufficient mitigation, the future siting of sensitive land uses within the distances of emission sources as defined by the California Air Resources Board.

- Policy 1.3: Construction activities. Encourage the use of best management practices during construction activities to reduce emissions of criteria pollutants as outlined by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

- Policy 1.4: City buildings. Require that municipal buildings be designed to exceed energy and water conservation and greenhouse gas reduction standards set in the California Building Code.

- Policy 1.5: Fleet operations. Purchase low- or zero-emission vehicles for the city's fleet where feasible. Use clean fuel sources for city-owned mass transit vehicles, automobiles, trucks, and heavy equipment where feasible.

- Policy 1.6: Alternative fuel infrastructure. Encourage public and private activity and employment centers to incorporate electric charging and alternative fuel stations.

- Policy 1.7: Employment measures. Encourage employers to provide programs, scheduling options, incentives, and information to reduce vehicle miles traveled by employees.

- Policy 1.8: Trees. Maintain or plant trees where appropriate to provide shade, absorb carbon, improve oxygenation, slow stormwater runoff, and reduce the heat island effect.

REGULATORY ATTAINMENT DESIGNATIONS

Under the CCAA, ARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, ARB terminology of attainment, nonattainment, and unclassified is more frequently used. The U.S. EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, U.S. EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 3. The SJVAB is currently designated as a nonattainment area with respect to the state PM_{10} standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2019).

Table 3. SJVAB Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone, 1 hour	No Standard	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen dioxide	Attainment/Unclassified	Attainment
Sulfur dioxide	Attainment/Unclassified	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

For more information visit website url: https://www.valleyair.org/aqinfo/attainment.htm.
Source: SJVAPCD 2022

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in the County. The Clovis-N Villa Avenue Monitoring Station is the closest representative monitoring site to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. This monitoring station monitors ambient concentrations of ozone, nitrogen dioxide, PM_{10}, and $PM_{2.5}$. Ambient monitoring data was obtained for the last three years of available measurement data (i.e., 2019 through 2021) and are summarized in Table 4. As depicted, the state and national standards for ozone, PM_{10}, and $PM_{2.5}$ were exceeded on numerous occasions over the past 3 years.

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Table 4. Summary of Ambient Air Quality Monitoring Data[1]

	2019	2020	2021
Ozone			
Maximum concentration (1-hour/8-hour average)	0.103/0.079	0.142/0.108	0.123/0.100
Number of days state/national 1-hour standard exceeded	6/0	12/2	9/0
Number of days state/national 8-hour standard exceeded	NA/27	NA/35	NA/34
Nitrogen Dioxide (NO_2)			
Maximum concentration (1-hour average)	57.2	54.3	49.4
Annual average	8	9	7
Number of days state/federal standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter (PM_{10})			
Maximum concentration (state/national)	155.7/150.9	296.0/180.9	208.8/125.0
Number of days state standard exceeded (measured/calculated[2])	11/65.9	114/117.5	111/112.4
Number of days national standard exceeded (measured/calculated[2])	0/0.0	1/5.8	0/NA
Suspended Particulate Matter ($PM_{2.5}$)			
Maximum concentration (state/national)	39.1/39.1	193.7/193.7	104.6/104.6
Annual Average (state/national)	10.2/NA	18.4/18.4	18/15.1
Number of days national standard exceeded	1	40	22

ppm = parts per million by volume, μg/m³ = micrograms per cubic meter, NA=Not Available

1 Ambient data was obtained from the Clovis-N Villa Avenue monitoring station.

2 Measured days are those days that an actual measurement was greater than the standard. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day.

Source: ARB 2022b

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are generally located adjacent to the project's southern and eastern property lines (refer to Figure 2).

IMPACTS & MITIGATION MEASURES

METHODOLOGY

Short-term Impacts

Short-term construction emissions associated with the proposed project were calculated using the CalEEMod 2022.1.1.2 computer program. Emissions were quantified for demolition, site preparation/grading, construction, paving, and architectural coating. Detailed construction information, including construction schedules and equipment requirements, have not been identified for the proposed project. Default construction phases and equipment assumptions contained in the CalEEMod model were, therefore, relied upon for the calculation of construction-generated emissions. Modeling assumptions and output files are included in Appendix A of this report.

Long-term Impacts

Long-term operational emissions of criteria air pollutants associated with the proposed project were calculated using the CalEEMod computer program. Mobile-source emissions were calculated based on trip generation rates contained in the traffic impact analysis report. All other modeling assumptions were based on the default parameters contained in the CalEEMod computer model for Fresno County. Modeling assumptions and output files are included in Appendix A of this report. Exposure to localized pollutant concentrations, including fugitive dust, mobile-source CO, and odors were qualitatively assessed. To be conservative, operation of the project was assumed to begin in 2026.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it 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 non-attainment under an applicable federal or state ambient air quality standard.

c) Expose sensitive receptors to substantial pollutant concentrations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

To assist local jurisdictions in the evaluation of air quality impacts, the SJVAPCD has published the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant air quality impact. The thresholds of significance are summarized below.

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 TPY of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NO_x) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.
- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

In addition to the above thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality conditions. Accordingly, the proposed project would also be considered to result in a significant contribution to localized ambient air quality if on-site emissions or ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, or SO_2 associated with either short-term construction or long-term operational activities would exceed a daily average of 100 pounds per day (lbs/day) for each of the pollutants evaluated (SJVAPCD 2015).

PROJECT IMPACTS

Impact AQ-A.	*Would the project conflict with or obstruct implementation of the applicable air quality plan?*

In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact. As noted in Impact AQ-B, short-term construction and long-term operational emissions would not exceed applicable thresholds. In addition, the proposed project would not result in a significant increase in vehicle miles traveled (VMT) and would not be inconsistent with the Fresno Council of Government's (FCOG's) *2022 Regional Transportation Plan and Sustainable Communities Strategies* (2022 RTP/SCS). For these reasons, implementation of the proposed project would not be anticipated to conflict with air quality attainment or maintenance planning efforts. This impact would be considered *less than significant.*

Impact AQ-B.	*Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

The proposed project is located in the City of Clovis, which is within the SJVAB. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2019). Potential air quality impacts associated with the proposed project could potentially occur during project construction or operational phases. Short-term construction and long-term air quality impacts associated with the proposed project are discussed, as follows:

SHORT-TERM CONSTRUCTION EMISSIONS

Short-term increases in emissions would occur during the construction process. Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with site grading and excavation, paving, motor vehicle exhaust associated with construction equipment, and worker trips; as well as, the movement of construction equipment on unpaved surfaces. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_X) and emissions of PM. Emissions of ozone-precursors would result from the operation of on-road and off-road motorized vehicles and equipment. Emissions of airborne PM are largely dependent on the amount of ground disturbance associated with site grading and excavation activities and can result in increased concentrations of PM that can adversely affect nearby sensitive land uses. Estimated construction-generated annual emissions associated with the proposed project alternatives are summarized in Table 5.

As noted in Table 5, construction of the proposed project would generate maximum uncontrolled annual emissions of approximately 0.28 tons/year of ROG, 1.7 tons/year of NO_x, 1.95 tons/year of CO, <0.01 tons/year of SO_2, 0.13 tons/year of PM_{10}, and 0.09 tons/year of $PM_{2.5}$. Estimated construction-generated emissions would not exceed the SJVAPCD's significance thresholds of 10 tons/year of ROG, 10 tons/year of NO_x, 100 tons/year of CO, 27 tons/year of SO_2 or 15 tons/year for PM_{10} & $PM_{2.5}$.

Table 5. Annual Construction Emissions (Unmitigated)

Construction Phase	Maximum Annual Emissions (TPY) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Phase 1						
Construction Year 2024	0.19	1.7	1.95	<0.01	0.13	0.09
Construction Year 2025	0.16	0.13	0.17	<0.01	0.01	0.01
Phase 2						
Construction Year 2026	0.13	1.14	1.55	<0.01	0.06	0.04
Construction Year 2027	0.28	0.44	0.63	<0.01	0.02	0.02
Maximum Annual Emissions:	0.28	1.7	1.95	<0.01	0.13	0.09
Significance Thresholds:	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures.
Refer to Appendix A for modeling results and assumptions.

Table 6. Daily On-Site Construction Emissions (Unmitigated)

Construction Phase	Daily Emissions (lbs/day) [1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Phase 1						
Grubbing/Demolition	2.62	24.9	21.7	0.03	1.06	0.98
Site Preparation	3.65	36	32.9	0.05	21.3	11.57
Grading	3.52	34.3	30.2	0.06	10.65	4.98
Building Construction 2024	1.2	11.2	13.1	0.02	0.5	0.46
Building Construction 2025	1.13	10.4	13	0.02	0.43	0.4
Paving	1.7	7.45	9.98	0.01	0.35	0.32
Architectural Coating	28.23	0.88	1.14	<0.01	0.03	0.03
Phase 2						
Building Construction 2026	1.07	9.85	13	0.02	0.38	0.35
Building Construction 2027	1.03	9.39	12.9	0.02	0.34	0.31
Paving	1.02	6.09	8.83	0.01	0.24	0.22
Architectural Coating	24.91	0.83	1.13	<0.01	0.02	0.02
Maximum Daily On-site Emissions[2]:	28.23	95.2	84.8	0.14	33.01	17.53
Significance Thresholds:	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Based on CalEEMod computer modeling. Totals may not sum due to rounding.
2. Maximum daily on-site emissions assumes grubbing/demolition, site preparation, and grading of the entire site could potentially occur simultaneously.
Refer to Appendix A for modeling results and assumptions.

Estimated average-daily on-site construction emissions are summarized in Table 6. As noted in Table 6, construction of the proposed project would generate maximum on-site emissions of approximately 28.23 lbs/day of ROG, 95.2 lbs/day of NO_x, 84.8 lbs/day of CO, 0.14 lbs/day of SO_2, 33.01 lbs/day of PM_{10}, and 17.53 lbs/day of $PM_{2.5}$. Daily on-site construction emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for any of the criteria pollutants. Additionally, project construction would be required to comply with applicable SJVAPCD rules and regulations. This would further reduce construction related emissions. For these reasons, the impact of construction-generated emission would be considered *less than significant*.

LONG-TERM OPERATIONAL EMISSIONS

Estimated annual operational emissions for the proposed project are summarized in Table 7. As depicted, the proposed project upon completion of Phase 1 would result in total operational emissions of approximately 0.67 tons/year of ROG, 0.47 tons/year of NO_x, 2.76 tons/year of CO, 0.01 tons/year of SO_2, 0.21 tons/year of PM_{10}, & 0.05 tons/year of $PM_{2.5.}$ Project-generated emissions would be largely associated with mobile emissions, building operations, including energy use and area sources, such as the occasional use of cleaning products and architectural coating, and maintenance activities Operational emissions would not exceed SJVAPCD's mass-emissions significance thresholds during Phase 1 operation in 2026.

Also depicted in Table 7, are the complete project upon completion of Phase 1 and Phase 2 in year 2028 would result in total operational emissions of approximately 1.59 tons/year of ROG, 1.21 tons/year of NO_x, 6.13 tons/year of CO, 0.02 tons/year of SO_2, 0.5 tons/year of PM_{10}, & 0.13 tons/year of $PM_{2.5.}$ Operational emissions would continue to not exceed SJVAPCD's mass-emissions significance thresholds during full operation in 2028.

Estimated average-daily on-site operational emissions are also summarized in Table 7. As noted above, maximum daily on-site operational emissions would be largely associated with area sources (e.g., landscape maintenance activities and use of consumer products). Maximum daily on-site emissions upon completion of Phase 1 in 2026 would total approximately 1.59 lbs/day of ROG, 0.61lbs/day of NO_X, 5.98 lbs/day of CO, <0.01 lbs/day of SO_2, 0.05 lbs/day of PM_{10} and 0.05 lbs/day of $PM_{2.5}$. Maximum daily on-site emissions upon completion of Phase 2 in 2028 would total approximately 4.4 lbs/day of ROG, 2.57 lbs/day of NO_X, 8.27 lbs/day of CO, 0.02 lbs/day of SO_2, 0.21 lbs/day of PM_{10} and 0.21 lbs/day of $PM_{2.5}$.

Maximum daily on-site emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for each of the criteria air pollutants evaluated. Long-term operation of the proposed project would not result in a significant impact to regional or local air quality conditions. Additionally, project operation would be required to comply with the 2022 Building Energy Efficiency Standards which include requirements to install onsite solar photovoltaic (PV) systems and an energy storage system (ESS). This would further reduce operational related emissions. This impact is considered *less than significant*.

Table 7. Long-term Operational Emissions (Unmitigated)

Season	Uncontrolled Annual Emissions (tons/year)[1]					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Phase 1 2026						
Area Source	0.25	<0.01	0.2	<0.01	<0.01	<0.01
Energy Use	0.01	0.11	0.09	<0.01	0.01	0.01
Mobile Source	0.41	0.36	2.47	0.01	0.2	0.04
Total:	0.67	0.47	2.76	0.01	0.21	0.05
Significance Thresholds (tons):	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*
Phase 1 & Phase 2 2028						
Area Source	0.68	<0.01	0.55	<0.01	<0.01	<0.01
Energy Use	0.03	0.46	0.39	<0.01	0.04	0.04
Mobile Source	0.88	0.75	5.19	0.02	0.47	0.09
Total:	1.59	1.21	6.13	0.02	0.5	0.13
Significance Thresholds (tons):	*10*	*10*	*100*	*27*	*15*	*15*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*
Maximum Daily On-site Emissions 2026 (lbs)[2]:	1.59	0.61	2.74	<0.01	0.05	0.05
Maximum Daily On-site Emissions 2028 (lbs)[2]:	4.4	2.57	8.27	0.02	0.21	0.21
Significance Thresholds (lbs):	*100*	*100*	*100*	*100*	*100*	*100*
Exceeds Thresholds/Significant Impact?:	*No*	*No*	*No*	*No*	*No*	*No*

1. Emissions were calculated using the CalEEMod computer program. Does not include implementation of emissions control measures.
2. Based on highest emissions between winter and summer operation.
Totals may not sum due to rounding.
Refer to Appendix A for modeling assumptions and results.

Impact AQ-C. Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are generally located adjacent to the southern and eastern boundaries of the project site. Long-term operational and short-term construction activities and emission sources that could adversely impact these nearest sensitive receptors are discussed, as follows:

LONG-TERM OPERATION

Toxic Air Contaminants

Implementation of the proposed project would not result in the long-term operation of any major onsite stationary sources of TACs, nor would project implementation result in a significant increase in diesel-fueled vehicles traveling along area roadways. No major stationary sources of TACs were identified in the project vicinity that would result in increased exposure of students and employees to TACs. For these reasons, long-term increases in exposure to TACs would be considered less than significant

Carbon Monoxide

CO is the primary criteria air pollutant of local concern associated with the proposed project. Under specific meteorological and operational conditions, such as areas of heavily congested vehicle traffic, CO concentrations may reach unhealthy levels. If inhaled, CO can be adsorbed easily by the bloodstream and inhibit oxygen delivery to the body, which can cause significant health effects ranging from slight headaches to death. The most serious effects are felt by individuals susceptible to oxygen deficiencies, including people with anemia and those suffering from chronic lung or heart disease.

Mobile-source emissions of CO are a direct function of traffic volume, speed, and delay. The transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. For this reason, modeling of mobile-source CO concentrations is typically recommended for sensitive land uses located near signalized roadway intersections that are projected to operate at unacceptable levels of service (LOS). Localized CO concentrations associated with the proposed project would be considered less-than-significant if: (1) traffic generated by the proposed project would not result in deterioration of a signalized intersection to LOS E or LOS F; or (2) the project would not contribute additional traffic to a signalized intersection that already operates at LOS E or LOS F.

Under future conditions, the intersection the project is not anticipated to exceed its level of service (LOS) threshold for any signalized intersection. The traffic report determined that the intersection operation near the project is not significant (JLB 2023). For these reasons, long-term exposure to localized pollutant concentrations would be considered *less than significant*.

SHORT-TERM CONSTRUCTION

Naturally Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to naturally-occurring asbestos during the construction process would be considered *less than significant*.

Asbestos-Containing Materials

Demolition activities can have potential negative air quality impacts, including issues surrounding proper handling, demolition, and disposal of asbestos containing material (ACM). Asbestos containing materials could be encountered during demolition of existing buildings, particularly older structures constructed prior to 1970. Asbestos can also be found in various building products, including (but not limited to) utility pipes/pipelines (transite pipes or insulation on pipes). If a project will involve the disturbance or potential disturbance of ACM, various regulatory requirements may apply, including the requirements stipulated in the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M-Asbestos NESHAP). These requirements include but are not limited to: 1) notification, within at least 10 business days of activities commencing, to the APCD, 2) an asbestos survey conducted by a Certified Asbestos Consultant, and, 3) applicable removal and disposal requirements of identified ACM.

The proposed project would does not include demolition of structures. As a result, exposure to asbestos-containing materials would be considered *less than significant*.

Lead-Coated Materials

Demolition of structures coated with lead based paint can have potential negative air quality impacts and may adversely affect the health of nearby individuals. Lead-based paints could be encountered during demolition of existing buildings, particularly older structures constructed prior to 1978. Improper demolition can result in the release of lead containing particles from the site. Sandblasting or removal of paint by heating with a heat gun can result in significant emissions of lead. In such instances, proper abatement of lead before demolition of these structures must be performed in order to prevent the release of lead from the site. Federal and State lead regulations, including the Lead in Construction Standard (29CFR1926.62) and California Code of Regulations (CCR Title 8, Section 1532.1, Lead) regulate disturbance of lead containing materials during construction, demolition, and maintenance-related activities. Depending on removal method, a SJVAPCD permit may be required.

The proposed project would does not include demolition of structures. As a result, exposure to lead-based paint would be considered *less than significant.*

Localized PM Concentrations

Fugitive dust emissions would be primarily associated with site preparation, grading, and vehicle travel on unpaved and paved surfaces. Uncontrolled emissions of fugitive dust may also contribute to potential increases in nuisance impacts to nearby receptors. On-site off-road equipment and trucks would also result in short-term emissions of diesel-exhaust PM (DPM), which could contribute to elevated localized concentration at nearby receptors. Localized concentrations of DPM would be short-term occurring over an approximate three year period and would constitute less than five percent of the exposure period upon which health-related risks are typically calculated (i.e., 70 years). For this reason, short-term increases of DPM would not be anticipated to exceed SJVAPCD significance thresholds. However, short-term emissions of DPM could contribute to localized increases of particulate matter that may result in short-term nuisance impacts to nearby sensitive receptors. Short-term exposure to airborne particulates can result in irritation of eyes and the respiratory system and may affect sensitive individuals, including those suffering from asthma and other medical conditions. As a result, exposure to localized PM concentrations would be considered to have a *potentially significant impact*.

Mitigation Measure AQ-1: The following measures shall be implemented to reduce potential expose of nearby sensitive receptors to localized PM concentrations associated with project construction:

a. Fleet owners of mobile construction equipment are subject to the ARB Regulation for In-Use Off-Road Diesel Vehicles (Title 13, California Code of Regulations (CCR), §2449), the purpose of which is to reduce NOx, DPM, and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. Off-road heavy-duty trucks shall comply with the State Off-Road Regulation.
b. Fleet owners of mobile construction equipment are subject to the ARB Regulation for In-Use (On-Road) Heavy-Duty Diesel-Fueled Vehicles (Title 13, CCR, §2025), the purpose of which is to reduce DPM, NOx and other criteria pollutants from in-use (on-road) diesel-fueled vehicles. On-road heavy-duty trucks shall comply with the State On-Road Regulation.
c. All commercial off-road and on-road diesel vehicles are subject, respectively, to Title 13, CCR, §2449(d)(3) and §2485, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever locally available.
d. Diesel equipment meeting the ARB Tier 3 or higher emission standards for off-road heavy-duty diesel engines shall be used to the extent locally available.
e. On-road heavy-duty equipment with model year 2010 engines or newer shall be used to the extent locally available.
f. Diesel powered equipment shall be replaced by electric equipment whenever available.
g. Equipment/vehicles using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel, shall be used on-site where locally available.
h. Catalytic converters shall be installed on gasoline-powered equipment, if available, and in accordance with manufacturer's recommendations.
i. All construction equipment shall be maintained in tune per the manufacturer's specifications.
j. The engine size of construction equipment shall be the minimum practical size.
k. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
l. The proposed project shall comply with SJVAPCD Regulation VIII for the control of fugitive dust emissions. Regulation VIII can be obtained on the SJVAPCD's website at website URL: https://www.valleyair.org/rules/1ruleslist.htm. At a minimum, the following measures shall be implemented:
    - All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
    - All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- On-road vehicle speeds on unpaved surfaces of the project site shall be limited to 15 mph.
- Sandbags or other erosion control measures shall be installed sufficient to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Excavation and grading activities shall be suspended when winds exceed 20 mph (Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).

Significance After Mitigation

Implementation of Mitigation Measure AQ-1 would include measures to reduce construction-generated emissions that could contribute to increases in localized pollutant concentrations at nearby sensitive receptors. These measures include SJVAPCD-recommended measures, which would help to ensure compliance with applicable SJVAPCD rules and regulations. With mitigation, this impact would be considered *less than significant*.

Impact AQ-D. Would the project result in other emissions (such as those leading to odors) affecting a substantial number of people?

Other emissions potentially associated with the proposed project would be predominantly associated to the generation of odors during project construction. The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

Construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. In addition, pavement coatings and architectural coatings used during project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. In addition, no major sources of odors have been identified in the project area. This impact would be considered *less than significant*.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- Carbon Dioxide. Carbon dioxide (CO_2) is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2018).

- Methane. Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2018).

- Nitrous Oxide. Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 114 years (U.S. EPA 2018).

- Hydrofluorocarbons. Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 270 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2018).

- Perfluorocarbons. Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F1_4). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2018).

- Nitrogen Trifluoride. Nitrogen trifluoride (NF_3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells. It has a global warming potential of 16,100 carbon dioxide equivalents (CO_2e). While NF_3 may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF_3 was listed by California as a high global warming potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).

- Sulfur Hexafluoride. Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide. Leaks of SF_6 occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (U.S. EPA 2018).

- Black Carbon. Black carbon is the strongest light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands) (CCAC 2018, U.S. EPA 2018).

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in CO_2e, which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Table 8 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, Methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHG with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

Table 8. Global Warming Potential for Greenhouse Gases

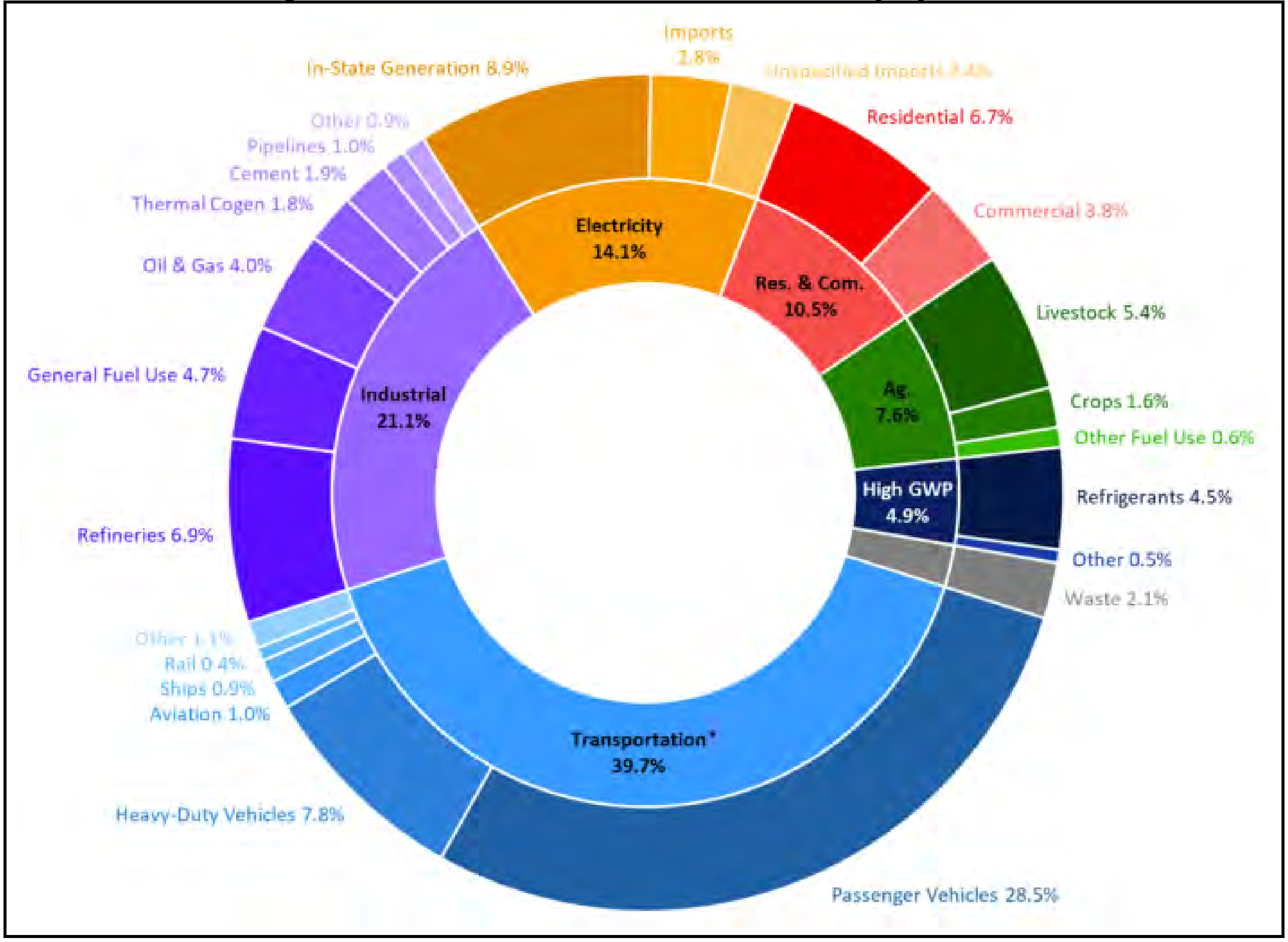
Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Dioxide (N_2O)	298
**Based on IPCC GWP values for 100-year time horizon Source: IPCC 2007*	

SOURCES OF GHG EMISSIONS

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. Worldwide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2018).

In 2019, GHG emissions within California totaled 418.2 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 4. Within California, the transportation sector is the largest contributor, accounting for approximately 40 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 21 percent. Electricity generation totaled roughly 14 percent (ARB 2021a).

Figure 4. California GHG Emissions Inventory by Sector



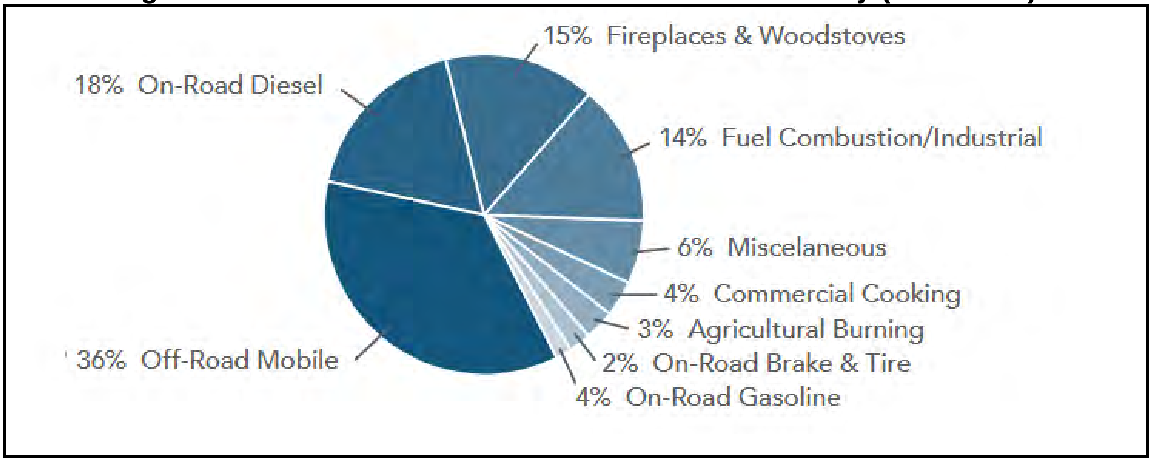
Source: ARB 2021b

SHORT-LIVED CLIMATE POLLUTANTS

Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and CH_4 also have a dramatic effect on climate change. Though short-lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support the implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 5. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes (ARB 2021c).

Figure 5. California Black Carbon Emissions Inventory (Year 2013)



Source: ARB 2021c

Effects of Global Climate Change

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea-level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of the precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snowpack is a principal supply of water for the state, providing roughly 50 percent of the state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. Earlier snowmelt would also impact the State's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. Early exhaustion of the Sierra snowpack may force electricity producers to switch to more costly or non-renewable forms of electricity generation during the spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.

REGULATORY FRAMEWORK

Federal

Executive Order 13514

Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs, and operations. In addition, the executive order directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the FCAA and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles, which was published on September 15, 2009. On May 7, 2010, the final Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards were published in the Federal Register.

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

U.S. EPA Strategic Plan

The EPA's *Fiscal Year (FY) 2022-2026 Strategic Plan (Strategic Plan)* provides a roadmap to achieve EPA's and the Biden-Harris Administration's environmental priorities over the next four years. The *Strategic Plan* furthers the agency's commitment to protecting human health and the environment for all people, with an emphasis on historically overburdened and underserved communities. For the first time, EPA's *Strategic Plan* includes a strategic goal focused exclusively on addressing climate change, with three primary objectives: 1) Reduce Emissions that Cause Climate Change; 2) Accelerate Resilience and Adaptation to Climate Change Impacts; and 3) Advance International and Subnational Climate Efforts.

STATE

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply; an increase in air pollution caused by higher temperatures; harm to agriculture; an increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the FCAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

In 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Executive Order B-30-15

In 2015, Governor Brown signed Executive Order B-30-15, which establishes a California GHG reduction target of 40 percent below 1990 levels by 2030.

Executive Order B-55-18

In 2018, Governor Brown signed Executive Order B-55-18, which set a target of statewide carbon neutrality by 2045.

Executive Order No. N-19-19

Executive Order N-19-19 (State of California) calls for actions from multiple state agencies to reduce greenhouse gas (GHG) emissions and mitigate the impacts of climate change. This includes a direct acknowledgment of the role the transportation sector must play in tackling climate change.

This executive order empowers the California State Transportation Agency (CalSTA) to leverage more than $5 billion in discretionary state transportation funds to reduce GHG emissions in the transportation sector and adapt to climate change. Accordingly, CalSTA will work to align transportation spending with the state's Climate Change Scoping Plan where feasible; direct investments to strategically support smart growth to increase infill housing production; reduce congestion through strategies that encourage a reduction in driving and invest further in walking, biking, and transit; and ensure that overall transportation costs for low income Californians do not increase as a result of these policies.

Executive Order N-79-20

Executive Order N-79-20 (State of California) calls to accelerate the transition away from fossil fuels by requiring all new cars sold in California to be zero-emission by 2035, all new commercial trucks sold in the state to be zero-emission by 2045 for all operations where feasible, and all new off-road vehicles and equipment sold to be zero-emission by 2035 where feasible. EO N-79-20 reaffirms the state's commitment to implementing EO N-19-19.

Executive Order N-79-20 reiterates the message of EO N-19-19 by highlighting three strategies to expand clean transportation options from the Climate Action Plan for Transportation Infrastructure, while also emphasizing the importance of CAPTI and the urgency of climate change. Executive Order N-79-20 furthers the state's climate goals by explicitly pointing to the critical role of transit, passenger rail, active transportation, Complete Streets, and micromobility as tools to expand mobility options, encourage mode shift, and reduce overall vehicle miles traveled (VMT).

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, NF_3, and SF_6. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan

In October 2008, ARB published its Climate Change Proposed Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with the implementation of Senate Bill (SB) 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals., The most recent update released by ARB is the 2017 Climate Change Scoping Plan, which was released in November 2017. The 2017 Climate Change Scoping Plan incorporates strategies for achieving the 2030 GHG-reduction target established in SB 32 and Executive Order B-30-15. Most notably, the 2017 Climate Change Scoping Plan encourages zero net increases in GHG emissions. However, the 2017 Climate Change Scoping Plan recognizes that achieving net zero increases in GHG emissions may not be feasible or appropriate for all projects and that the inability of a project to mitigate its GHG emissions to zero would not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.

On November 16, 2022, the ARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality. The 2022 Scoping Plan continues the path to achieve the SB 32 2030 target and expands upon earlier plans by targeting an 85 percent reduction in GHG below 1990 levels by 2045 (ARB 2022).

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. Statute SB X1-2 superseded this Executive Order in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020. The State's Clean Energy Standards, adopted in 2018, require the state's utilities to generate 100 percent clean electricity by 2045 and to increase the States RPS requirements to 60 percent by 2030.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commissions and California Public Utilities Commission serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

The California Global Warming Solutions Act (AB 32, 2006) requires the reporting of GHGs by major sources to the ARB. Major sources required to report GHG emissions include industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce

GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 97

SB 97 was enacted in 2007. SB 97 required the Office of Planning and Research to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

Senate Bill 100

SB 100 was signed by Governor Jerry Brown on September 10, 2018. SB 100 sets a goal of phasing out all fossil fuels from the state's electricity sector by 2045. SB 100 increases to 60 percent, from 50 percent, how much of California's electricity portfolio must come from renewables by 2030. It establishes a further goal to have an electric grid that is entirely powered by clean energy by 2045, which could include other carbon-free sources, like nuclear power, that are not renewable.

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land-use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld. In 2018, ARB adopted updated SB 375 targets.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Code is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction of GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions. In recommending a green building strategy as one element of the scoping plan, ARB estimated that green building standards would reduce GHG emissions by approximately 26 MMT of CO2e by 2020.

The green buildings standards were most recently updated on May 2018. Referred to as the 2019 Building Energy Efficiency Standards, this most recent update focus on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. Under the newly adopted standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades. The recently updated 2019 Building Energy Efficiency Standards also require new homes built after January 1, 2020 to be equipped with solar photovoltaic (PV) systems. The solar PV systems are to be sized based on the buildings annual electricity demand, the building square footage, and the climate zone within which the home is located. However, under the 2019 Building Energy Efficiency Standards, homes may still rely on other energy sources, such as natural gas. Compliance with the 2019 Building Energy Efficiency Standards, including the solar PV system mandate, residential dwellings will use approximately 50 to 53 percent less energy than those under the 2016 standards. Actual reduction will vary depending on various factors (e.g., building orientation, sun exposure). Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2019).

The recently updated 2022 Building Energy Efficiency Standards (2022 Standards), which were approved in December 2021, encourages efficient electric heat pumps, establishes electric-ready requirements when natural gas is installed and to support the future installation of battery storage, and further expands solar photovoltaic and battery storage standards. The 2022 Standards extend solar PV system requirements, as well as battery storage capabilities for select land uses, including high-rise multi-family and non-residential land uses, such as office buildings, schools, restaurants, warehouses, theaters, grocery stores, and more. Depending on the land use and other factors, solar systems should be sized to meet targets of up to 60 percent of the structure's loads. These new solar requirements will become effective January 1, 2023 and contribute to California's goal of reaching net-zero carbon footprint by 2045 (CEC 2022).

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, the ARB adopted the Short-Lived Climate Pollutant Reduction Strategy (SLCP Strategy) establishing a path to decrease GHG emissions and displace fossil-based natural gas use. Strategies include avoiding landfill methane emissions by reducing the disposal of organics through edible food recovery, composting, in-vessel digestion, and other processes; and recovering methane from wastewater treatment facilities, and manure methane at dairies, and using the methane as a renewable source of natural gas to fuel vehicles or generate electricity. The SLCP Strategy also identifies steps to reduce natural gas leaks from oil and gas wells, pipelines, valves, and pumps to improve safety, avoid energy losses, and reduce methane emissions associated with natural gas use. Lastly, the SLCP Strategy also identifies measures that can reduce HFC emissions at national and international levels, in addition to State-level action that includes an incentive program to encourage the use of low-GWP refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (ARB 2021c).

San Joaquin Valley Air Pollution Control District

SJVAPCD Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved the SJVAPCD's *Climate Change Action Plan* with the following goals and actions:

Goals:

- Assist local land-use agencies with California Environmental Quality Act (CEQA) issues relative to projects with GHG emissions increases.
- Assist Valley businesses in complying with mandates of AB 32.
- Ensure that climate protection measures do not cause increase in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

Actions:

- Authorize the Air Pollution Control Officer to develop GHG significance threshold(s) or other mechanisms to address CEQA projects with GHG emissions increases. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in the spring of 2009.
- Authorize the Air Pollution Control Officer to develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary GHG reductions created in the Valley. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in spring 2009.
- Authorize the Air Pollution Control Officer to enhance the SJVAPCD's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB32 emission reporting requirements to submit simultaneous streamlined reports to the SJVAPCD and the state of California with minimal duplication.
- Authorize the Air Pollution Control Officer to develop and administer voluntary GHG emission reduction agreements to mitigate proposed GHG increases from new projects.
- Direct the Air Pollution Control Officer to support climate protection measures that reduce GHG emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted area.

SJVAPCD CEQA Greenhouse Gas Guidance.

On December 17, 2009, the SJVAPCD Governing Board adopted "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA" and the policy, "District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency." The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project specific greenhouse gas emissions have on global climatic change. The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, that their incremental contribution to global climatic change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their greenhouse gas emissions, whether through project design elements or mitigation.

The SJVAPCD's approach is intended to streamline the process of determining if project-specific greenhouse gas emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified final CEQA document.

Best performance standards (BPS) would be established according to performance-based determinations. Projects complying with BPS would not require specific quantification of greenhouse gas emissions and would be determined to have a less than significant cumulative impact for greenhouse gas emissions. Projects not complying with BPS would require quantification of greenhouse gas emissions and demonstration that greenhouse gas emissions have been reduced or mitigated by 29 percent, as targeted by ARB's AB 32 Scoping Plan. Furthermore, quantification of greenhouse gas emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates Best Performance Standards.

For stationary source permitting projects, best performance standards are "the most stringent of the identified alternatives for control of greenhouse gas emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions unit class." For development projects, best performance standards are "any combination of identified greenhouse gas emission reduction measures, including project design elements and land use decisions that reduce project specific greenhouse gas emission reductions by at least 29 percent compared with business as usual." The SJVAPCD proposes to create a list of all approved Best Performance Standards to help in the determination as to whether a proposed project has reduced its GHG emissions by 29 percent.

2022 Regional Transportation Plan and Sustainable Communities Strategy

The Fresno Council of Governments (FCOG)'s *2022 Regional Transportation Plans and Sustainable Communities Strategy* (RTP/SCS) is a comprehensive planning document that outlines the transportation goals, policies, and projects for the Fresno County region over the next 20 years. The plan emphasizes sustainable development and community design that promotes walking, biking, and transit use, while also supporting economic growth and reducing congestion.

The plan promotes sustainable development and community design that encourages walking, biking, and transit use, while supporting economic growth and reducing congestion. It also includes various strategies and programs aimed at reducing GHG emissions, such as expanding and enhancing public transit services, promoting active transportation options, implementing transportation demand management programs, and improving goods movement.

IMPACTS & MITIGATION MEASURES

Methodology

Short-term Impacts

Short-term construction emissions associated with the proposed project were calculated using the CalEEMod computer program. Modeling includes emissions generated during site preparation/grading, paving, construction, and application of architectural coatings. Construction of Phase 1 is anticipated to begin in the winter of 2024 and be completed in approximately 14 months. The construction schedule of Phase 2 is speculative, but to be conservative it is anticipated to begin in the winter of 2026 and be completed in approximately 14 months. Detailed construction information, including construction schedules and equipment requirements, has not been identified for the proposed project. Default construction phases and equipment assumptions contained in the CalEEMod model were, therefore, relied upon for the calculation of construction-generated emissions. Modeling assumptions and output files are included in Appendix A of this report.

Long-term Impacts

Long-term operational GHG emissions associated with the proposed project were calculated using the CalEEMod computer program. Modeling assumptions were based on project information provided, trip data was provided in the traffic report, and the default parameters contained in the CalEEMod computer model. To be conservative, complete operation of the project was assumed to begin in 2028. Modeling assumptions and output files are included in Appendix A of this report.

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or,

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

In accordance with the SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* (SJVAPCD 2009), a project would be considered to have a less than significant impact on climate change if it would comply with at least one of the following criteria:

- Comply with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency, or
- Implement approved best performance standards, or
- Quantify project GHG emissions and reduce those emissions by at least 29 percent compared to BAU.

The SJVAPCD has not yet adopted BPS for development projects. The quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals is considered appropriate in some instances. However, based on the California Supreme Court's decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 224 Cal.App.4th 1105 (CBD vs. CDFW;* also known as the *"Newhall Ranch case")*, substantial evidence would need to be provided to document that project-level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included a qualitative approach based on consistency with statewide, regional, and local plans.

As of April 2023, neither the City or ARB have adopted recommended numerical GHG significance thresholds applicable to development projects for CEQA purposes. Therefore, the methodology for evaluating the project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans that have been adopted for the purposes of reducing and mitigating GHG emissions. This approach has been deemed appropriate for analyzing a project's GHG impact by the Governor's Office of Planning and Research (OPR) and has been upheld in court challenges (OPR 2018) (Mission Bay Alliance v. Office of Community Investment & Infrastructure, 2016). The evaluation of consistency with such plans serves as the sole basis for determining the significance of the project's GHG-related impacts to the environment. The project's GHG emissions have been quantified and are included in this report for informational purposes.

PROJECT IMPACTS

Impact GHG-A.	*Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? and*

Impact GHG-B.	*Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

Below is a discussion and quantification of the project's GHG emissions.

Short-term Construction

Construction-generated GHG emissions are summarized in Table 9. As depicted, construction of the facility would generate a total of approximately 749.8 $MTCO_2e$. Amortized GHG emissions, when averaged over an assumed 30-year life of the project, would total approximately 25.0 $MTCO_2e$/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Construction-generated emissions would vary, depending on the final construction schedules, equipment required, and activities conducted.

Table 9. Construction GHG Emissions

Construction Year	Annual Emissions ($MTCO_2e$/Year)
2024	333.0
2025	26.8
2026	279.0
2027	111.0
Total Construction Emissions:	749.8
Amortized Net Change in Construction Emissions[1]:	25.0

1. Amortized emissions are quantified based on an estimated 30-year project life.
Refer to Appendix A for emissions modeling assumptions and results.

Long-term Operation

Operational GHG emissions for the facilities operational years 2028 and 2030 are summarized in Table 10. With the inclusion of amortized construction-generated emissions, the facility would generate a total of approximately 2,085.0 $MTCO_2e$/year under year 2028 conditions and approximately 2,032.8 $MTCO_2e$/year under year 2030 conditions. A majority of the project's emissions, roughly 96%, would be associated with the operation of motor vehicles and energy use. Based on the modeling conducted, approximately 58.3% of GHG emissions are generated from mobile sources and 37.9% are the result of energy use. It is important to mention that the inclusion of Mitigation Measure GHG-1 and project compliance with the 2022 Building Energy Efficiency Standards which are anticipated to include requirements for the future installation of onsite solar photovoltaic (PV) systems and an energy storage system (ESS), would further reduce operational GHG emissions.

Table 10. Operational GHG Emissions (Unmitigated)

Emissions Source	GHG Emissions ($MTCO_2e$ per year)[1]		Percent of Total GHG Emissions
	Year 2028	Year 2030	
Mobile Sources[2]	1,220.0	1,171.0	58.3%
Area Sources	2.1	2.2	0.1%
Energy Use	760.0	760.0	37.9%
Water Use[3]	34.0	30.7	1.5%
Waste Generation	43.8	43.8	2.2%
Refrigerant	0.1	0.1	<0.01%
Total:	2,060	2,007.8	
Amortized Construction Emissions:	25.0	25.0	
Total Emissions:	2,085.0	2,032.8	
Service Population (SP)[4]:	677	677	
Project GHG Efficiency ($MTCO_2e$/SP/yr):	3.08	3.00	

1. Project-generated emissions were quantified using the CalEEMod computer program. Totals may not sum due to rounding.
2. Fleet distribution data for the project is not available. Mobile source emissions are conservatively based on default vehicle fleet distribution for Fresno County, which includes all vehicle types/classifications, including medium and heavy-duty vehicles. Actual emissions would likely be lower.
3. Includes installation of low-flow water fixtures and water-efficient irrigation systems, per California's 2015 water-efficiency standards.
4. Service population for Phase 1 was included in the traffic report and Phase 2 was based on study of office employees done by San Diego Association of Governments.
Refer to Appendix A for modeling results and assumptions.

CONSISTENCY WITH APPLICABLE PLANS

As discussed above, adherence with applicable GHG emissions reduction plans would correspond in a less than significant impact for project-generated GHG emissions. The City has not adopted a Climate Action Plan or other GHG reduction plan. Applicable GHG-reduction plans related to reducing operational GHG emissions include the FCOG's *2022 Regional Transportation Plan and Sustainable Communities Strategies* (2022 RTP/SCS) and the ARB's *2022 Climate Change Scoping Plan*. Project consistency with these plans is discussed in greater detail, as follows:

FCOG 2022 Regional Transportation Plan and Sustainable Communities Strategies

FCOG's 2022 RTP/SCS provides transportation strategies to reduce regional GHG emissions. As discussed in the traffic report, the vehicle miles traveled (VMT) as a result of the project would be below the City's adopted VMT threshold. The consistency with the VMT Threshold ensures that the project would not conflict with planned growth and applicable goals contained in the FCOG's 2022 RTP/SCS. For this reason, the proposed project would be considered consistent with FCOG's 2022 RTP/SCS.

ARB California's 2022 Climate Change Scoping Plan

The previously adopted 2017 Climate Change Scoping Plan incorporated the State's GHG emissions reductions target of 40 percent below 1990 emissions levels by 2030, as mandated by SB 32. On November 16, 2022, the ARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality. The recently adopted 2022 Scoping Plan continues the path to achieve the SB 32 2030 target and expands upon earlier Scoping Plans by targeting an 85 percent reduction in GHG below 1990 levels by 2045.

A significant part of achieving the SB 32 goals are strategies to promote sustainable communities, such as the promotion of zero net energy buildings, and improved transportation choices that result in reducing VMT. Other measures include the increased use of low-carbon fuels and cleaner vehicles.

To support the State's GHG emissions reduction goals, including the goals mandated by SB 32, California established the Sustainable Communities and Climate Protection Act (SB 375). SB 375 requires regional metropolitan planning organizations, such as FCOG, to develop SCSs which align transportation, housing, and land use decisions toward achieving the State's GHG emissions-reduction targets. Under SB 375, the development and implementation of SCSs, which link transportation, land use, housing, and climate policy at the regional level, are designed to reduce per capita mobile-source GHG emissions, which is accomplished through implementation of measures that would result in reductions in per capita VMT.

For land use development projects, additional reductions in GHG emissions maybe required in order to meet the project's fair share of the statewide reductions required to achieve carbon neutrality, consistent with Executive Order B-55-18 and ARB's 2022 Climate Change Scoping Plan. Neither the SJVAPCD nor the City have developed recommended thresholds of significance that are based on achieving an 85 percent reduction by the year 2045. However, other air districts in the State, including the Bay Area Air Quality Management District (BAAQMD) has recently released recommended GHG significance thresholds that are based on a "fair share" approach for achieving carbon neutrality goals. Consistent with this approach, new land use development projects would be considered to be consistent with the State's carbon neutrality goals and would be considered to have a less than significant impact if: 1) the project is deemed consistent with regional VMT-reduction targets; 2) the project prohibits the installation of natural gas infrastructure; and 3) the project would not result in a wasteful, inefficient, or unnecessary energy use as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. Similarly, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has also recently released Best Management Practices (BMPs), which also include the prohibited installation of natural gas infrastructure for development projects, as well as, a requirement that project's meet current CalGreen Tier 2 standards for electric vehicle (EV) spaces, except that EV-capable spaces shall instead be EV ready. This additional requirement requires the installation of electrical infrastructure sufficient to service the future installation of EV chargers. The BAAQMD and SMAQMD thresholds are based on an approach endorsed by the Supreme Court in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015).

Although not located within the above jurisdictions, development in Clovis would be subject to the same statewide building standards (i.e., CalGreen). As a result, development within the City of Clovis and associated GHG emissions would be substantially similar to and comparable to emissions generated by developments within other areas of the state, including the BAAQMD and SMAQMD jurisdictions. Given that climate change is inherently a cumulative impact that occurs on a global scale, these BMPs would, likewise, be considered representative of the project's "fair share" of what would be required to assist the State in meeting it's long-term climate goals, including achieving carbon neutrality by 2045, as identified by the BAAQMD and the SMAQMD.

As noted above, the proposed project would be consistent with the regional VMT-reduction targets. However, the proposed project does not include BMP's that would constitute its "fair share" of what would be required to assist the State in meeting it's long-term climate goals, including achieving carbon neutrality by 2045. As a result, this impact would be considered potentially significant.

Mitigation Measures

GHG-1: In addition to implementation of Mitigation Measure AQ-1, the following additional measures shall be implemented to ensure the project includes BMP's:

a. Building mechanical equipment and appliances shall be electrically powered. The installation of natural-gas service/infrastructure shall be prohibited.
b. Meet current CALGreen Tier 2 standards for electric vehicle (EV) parking spaces, except that all EV parking spaces required by the code shall be "EV-capable" instead of "EV-ready".

Significance After Mitigation

Implementation of Mitigation Measure GHG-1 would prohibit the installation of natural-gas fueled appliances and building mechanical equipment and ensure the insulation of EV-capable parking spaces. These measures would further reduce on-site emissions of GHGs in from the project. With mitigation, the proposed project would not conflict with ARB's *2022 Climate Change Scoping Plan* and would be contributing its fair share toward assisting the State in meeting it's goal of carbon neutrality by 2045, per Executive Order B-55-18.

The project's design and implementation of Mitigation Measures ensure alignment with both statewide and regional climate change policies, plans, and strategies. The analysis conducted to assess the consistency of the project with relevant plans, policies, and regulations, including the *2022 Climate Change Scoping Plan* and the FCOG's *2022 RTP/SCS*, confirms that the project complies with these regulatory requirements, with recommended mitigation measures incorporated. With mitigation, the project's GHG emissions would not result in a significant impact on the environment nor conflict with applicable GHG-reduction policies, plans, or regulations.

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APPENDIX A

EMISSIONS MODELING & DOCUMENTATION

CUSD Special Education Administration and Online School Buildings Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CUSD Special Education Administration and Online School Buildings
Construction Start Date	1/1/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	21.4
Location	36.835234667902185, -119.68112749607162
County	Fresno
City	Clovis
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2444
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.7

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

High School	24.2	1000sqft	6.58	24,167	40,000	0.00	—	Special Education Administration Building
Library	27.4	1000sqft	6.58	27,399	46,000	—	—	Online School Building
Parking Lot	3.44	Acre	3.44	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Energy	E-2	Require Energy Efficient Appliances
Energy	E-7*	Require Higher Efficacy Public Street and Area Lighting
Water	W-4	Require Low-Flow Water Fixtures
Refrigerants	R-5	Reduce Service Leak Emissions
Refrigerants	R-6	Reduce Operational Leak Emissions
Area Sources	AS-2	Use Low-VOC Paints

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.55	1.31	11.5	14.1	0.02	0.50	0.15	0.65	0.46	0.04	0.49	—	2,645	2,645	0.11	0.04	0.83	2,661
Mit.	0.67	0.64	12.9	15.8	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,645	2,645	0.11	0.04	0.83	2,661
% Reduced	57%	51%	-12%	-12%	—	-8%	—	-6%	-6%	—	-6%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.52	28.2	39.2	34.2	0.06	1.65	20.4	22.1	1.52	10.3	11.8	—	7,854	7,854	0.27	0.44	0.16	7,991
Mit.	1.26	26.1	30.4	36.0	0.06	1.25	8.41	9.39	1.12	4.14	5.02	—	7,854	7,854	0.27	0.44	0.16	7,991
% Reduced	72%	8%	22%	-5%	—	24%	59%	57%	26%	60%	57%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.23	1.04	9.32	10.7	0.02	0.40	0.31	0.71	0.37	0.12	0.49	—	2,000	2,000	0.08	0.03	0.26	2,011
Mit.	0.49	0.78	9.70	11.6	0.02	0.41	0.18	0.59	0.37	0.06	0.43	—	2,000	2,000	0.08	0.03	0.26	2,011
% Reduced	61%	25%	-4%	-9%	—	-1%	41%	17%	< 0.5%	48%	12%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.23	0.19	1.70	1.95	< 0.005	0.07	0.06	0.13	0.07	0.02	0.09	—	331	331	0.01	0.01	0.04	333
Mit.	0.09	0.14	1.77	2.12	< 0.005	0.07	0.03	0.11	0.07	0.01	0.08	—	331	331	0.01	0.01	0.04	333
% Reduced	61%	25%	-4%	-9%	—	-1%	41%	17%	< 0.5%	48%	12%	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—

Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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	1.55	1.31	11.5	14.1	0.02	0.50	0.15	0.65	0.46	0.04	0.49	—	2,645	2,645	0.11	0.04	0.83	2,661
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.52	3.77	39.2	34.2	0.06	1.65	20.4	22.1	1.52	10.3	11.8	—	7,854	7,854	0.27	0.44	0.16	7,991
2025	1.44	28.2	10.7	13.8	0.02	0.43	0.15	0.58	0.40	0.04	0.43	—	2,626	2,626	0.11	0.04	0.02	2,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.23	1.04	9.32	10.7	0.02	0.40	0.31	0.71	0.37	0.12	0.49	—	2,000	2,000	0.08	0.03	0.26	2,011
2025	0.09	0.87	0.69	0.91	< 0.005	0.03	0.01	0.04	0.03	< 0.005	0.03	—	161	161	0.01	< 0.005	0.02	162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.23	0.19	1.70	1.95	< 0.005	0.07	0.06	0.13	0.07	0.02	0.09	—	331	331	0.01	0.01	0.04	333
2025	0.02	0.16	0.13	0.17	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	0.01	—	26.7	26.7	< 0.005	< 0.005	< 0.005	26.8

2.3. Construction Emissions by Year, Mitigated

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	0.67	0.64	12.9	15.8	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,645	2,645	0.11	0.04	0.83	2,661
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.26	1.26	30.4	36.0	0.06	1.25	8.41	9.39	1.12	4.14	5.02	—	7,854	7,854	0.27	0.44	0.16	7,991
2025	0.65	26.1	12.9	15.6	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,626	2,626	0.11	0.04	0.02	2,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.49	0.47	9.70	11.6	0.02	0.41	0.18	0.59	0.37	0.06	0.43	—	2,000	2,000	0.08	0.03	0.26	2,011
2025	0.04	0.78	0.82	1.00	< 0.005	0.04	0.01	0.04	0.03	< 0.005	0.03	—	161	161	0.01	< 0.005	0.02	162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.09	1.77	2.12	< 0.005	0.07	0.03	0.11	0.07	0.01	0.08	—	331	331	0.01	0.01	0.04	333
2025	0.01	0.14	0.15	0.18	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	26.7	26.7	< 0.005	< 0.005	< 0.005	26.8

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.12	4.10	2.45	18.0	0.04	0.07	1.06	1.14	0.07	0.19	0.26	33.7	4,475	4,509	3.66	0.19	11.8	4,670
Mit.	3.12	4.10	2.45	18.0	0.04	0.07	1.06	1.14	0.07	0.19	0.26	33.4	4,475	4,508	3.62	0.19	11.7	4,668
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	—	< 0.5%	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.43	3.44	2.69	14.3	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,185	4,218	3.69	0.21	0.50	4,373
Mit.	2.43	3.43	2.69	14.3	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,184	4,218	3.65	0.21	0.46	4,371

% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	—	9%	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.66	3.66	2.57	15.1	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,268	4,302	3.67	0.20	5.20	4,458
Mit.	2.66	3.65	2.57	15.1	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,268	4,301	3.64	0.20	5.15	4,457
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	—	1%	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.49	0.67	0.47	2.76	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.58	707	712	0.61	0.03	0.86	738
Mit.	0.49	0.67	0.47	2.76	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.53	707	712	0.60	0.03	0.85	738
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	< 0.5%	1%	< 0.5%
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.65	2.51	1.83	15.2	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,431	3,431	0.16	0.18	11.6	3,500
Area	0.40	1.56	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.26
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034

Water	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	3.12	4.10	2.45	18.0	0.04	0.07	1.06	1.14	0.07	0.19	0.26	33.7	4,475	4,509	3.66	0.19	11.8	4,670
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.37	2.21	2.09	13.8	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,150	3,150	0.19	0.19	0.30	3,212
Area	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	2.43	3.44	2.69	14.3	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,185	4,218	3.69	0.21	0.50	4,373
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.40	2.25	1.97	13.5	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,229	3,229	0.18	0.18	5.00	3,294
Area	0.20	1.37	0.01	1.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.55	4.55	< 0.005	< 0.005	—	4.56
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	2.66	3.66	2.57	15.1	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,268	4,302	3.67	0.20	5.20	4,458
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.44	0.41	0.36	2.47	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	535	535	0.03	0.03	0.83	545
Area	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.76
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	171
Water	—	—	—	—	—	—	—	—	—	—	—	0.53	0.87	1.40	0.05	< 0.005	—	3.14
Waste	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.49	0.67	0.47	2.76	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.58	707	712	0.61	0.03	0.86	738

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.65	2.51	1.83	15.2	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,431	3,431	0.16	0.18	11.6	3,500
Area	0.40	1.55	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.26
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	3.12	4.10	2.45	18.0	0.04	0.07	1.06	1.14	0.07	0.19	0.26	33.4	4,475	4,508	3.62	0.19	11.7	4,668
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.37	2.21	2.09	13.8	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,150	3,150	0.19	0.19	0.30	3,212
Area	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.43	3.43	2.69	14.3	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,184	4,218	3.65	0.21	0.46	4,371
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.40	2.25	1.97	13.5	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,229	3,229	0.18	0.18	5.00	3,294

Area	0.20	1.37	0.01	1.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.55	4.55	< 0.005	< 0.005	—	4.56
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.66	3.65	2.57	15.1	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,268	4,301	3.64	0.20	5.15	4,457
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.44	0.41	0.36	2.47	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	535	535	0.03	0.03	0.83	545
Area	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.76
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	171
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.81	1.28	0.05	< 0.005	—	2.84
Waste	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.49	0.67	0.47	2.76	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.53	707	712	0.60	0.03	0.85	738

3. Construction Emissions Details

3.1. Demolition (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.12	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437

Demolitio	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.17	0.14	1.36	1.19	< 0.005	0.06	—	0.06	0.05	—	0.05	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.4	82.4	< 0.005	< 0.005	0.01	83.7
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.68	4.68	< 0.005	< 0.005	0.01	4.76
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.79
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

3.2. Demolition (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.72	17.3	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.04	0.04	0.95	1.00	< 0.005	0.04	—	0.04	0.04	—	0.04	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.17	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.4	82.4	< 0.005	< 0.005	0.01	83.7
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.68	4.68	< 0.005	< 0.005	0.01	4.76
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.79
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
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	0.02	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	29.0	29.0	< 0.005	< 0.005	—	29.1
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—	—
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	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.80	4.80	< 0.005	< 0.005	—	4.82
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.57	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.01	97.6
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	0.11	0.05	3.18	0.72	0.02	0.05	0.64	0.69	0.05	0.18	0.22	—	2,462	2,462	0.05	0.39	0.15	2,580
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.01	14.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.23	2.23	< 0.005	< 0.005	< 0.005	2.34

3.4. Site Preparation (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.90	24.0	28.3	0.05	0.94	—	0.94	0.84	—	0.84	—	5,296	5,296	0.21	0.04	—	5,314

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	29.0	29.0	< 0.005	< 0.005	—	29.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.80	4.80	< 0.005	< 0.005	—	4.82
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.57	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.01	97.6
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	0.11	0.05	3.18	0.72	0.02	0.05	0.64	0.69	0.05	0.18	0.22	—	2,462	2,462	0.05	0.39	0.15	2,580

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.01	14.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.23	2.23	< 0.005	< 0.005	< 0.005	2.34

3.5. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
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	0.05	0.04	0.38	0.33	< 0.005	0.02	—	0.02	0.01	—	0.01	—	72.3	72.3	< 0.005	< 0.005	—	72.6

Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.04	0.04	—	—	—	—	—	—	—
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	0.01	0.07	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	0.01	0.01	112
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.27
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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

3.6. Grading (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	1.18	30.3	35.3	0.06	1.25	—	1.25	1.12	—	1.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.33	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.3	72.3	< 0.005	< 0.005	—	72.6
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	0.01	0.01	112
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.27
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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

3.7. 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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	0.92	0.77	7.20	8.42	0.02	0.32	—	0.32	0.29	—	0.29	—	1,539	1,539	0.06	0.01	—	1,544
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	0.17	0.14	1.31	1.54	< 0.005	0.06	—	0.06	0.05	—	0.05	—	255	255	0.01	< 0.005	—	256
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	0.10	0.05	0.88	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	0.01	0.54	137
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.29	118
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	0.09	0.07	0.71	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	0.01	0.01	121
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118
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	0.06	0.06	0.04	0.46	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	79.1	79.1	0.01	< 0.005	0.15	80.5
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.7	72.7	< 0.005	0.01	0.08	76.0
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	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.6
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

3.8. Building Construction (2024) - Mitigated

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	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.36	0.34	8.10	9.52	0.02	0.34	—	0.34	0.31	—	0.31	—	1,539	1,539	0.06	0.01	—	1,544
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	0.07	0.06	1.48	1.74	< 0.005	0.06	—	0.06	0.06	—	0.06	—	255	255	0.01	< 0.005	—	256
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	0.10	0.05	0.88	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	0.01	0.54	137
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.29	118
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	0.09	0.07	0.71	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	0.01	0.01	121
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118
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	0.06	0.06	0.04	0.46	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	79.1	79.1	0.01	< 0.005	0.15	80.5
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.7	72.7	< 0.005	0.01	0.08	76.0

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	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.6
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	0.06	0.05	0.45	0.56	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	104
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	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.1	17.1	< 0.005	< 0.005	—	17.1
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

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	0.01	0.01	0.01	118
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.01	116
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.20	5.20	< 0.005	< 0.005	0.01	5.28
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.79	4.79	< 0.005	< 0.005	0.01	5.01
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83
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

3.10. Building Construction (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.02	0.02	0.54	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	104
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	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.1	17.1	< 0.005	< 0.005	—	17.1
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	0.01	0.01	0.01	118
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.01	116
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.20	5.20	< 0.005	< 0.005	0.01	5.28
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.79	4.79	< 0.005	< 0.005	0.01	5.01
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83
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

3.11. Paving (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.02	0.20	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.01	82.0
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.29	2.29	< 0.005	< 0.005	< 0.005	2.33
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
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

3.12. Paving (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.32	0.32	8.62	10.6	0.01	0.39	—	0.39	0.36	—	0.36	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.24	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.01	82.0
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.29	2.29	< 0.005	< 0.005	< 0.005	2.33
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	28.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	< 0.005	23.7
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	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

3.14. Architectural Coating (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	26.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	< 0.005	23.7
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	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	0.97	0.92	0.67	5.58	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,258	1,258	0.06	0.07	4.24	1,283
Library	1.68	1.59	1.16	9.64	0.02	0.02	0.67	0.69	0.02	0.12	0.13	—	2,173	2,173	0.10	0.11	7.33	2,217
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	0.00	0.00	0.00
Total	2.65	2.51	1.83	15.2	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,431	3,431	0.16	0.18	11.6	3,500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.87	0.81	0.77	5.05	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,155	1,155	0.07	0.07	0.11	1,178
Library	1.50	1.40	1.33	8.73	0.02	0.02	0.67	0.69	0.02	0.12	0.13	—	1,995	1,995	0.12	0.12	0.19	2,034
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	0.00	0.00	0.00
Total	2.37	2.21	2.09	13.8	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,150	3,150	0.19	0.19	0.30	3,212
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.16	0.15	0.13	0.90	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	196	196	0.01	0.01	0.30	200
Library	0.28	0.26	0.23	1.56	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	—	339	339	0.02	0.02	0.52	345
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	0.00	0.00	0.00
Total	0.44	0.41	0.36	2.47	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	535	535	0.03	0.03	0.83	545

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.97	0.92	0.67	5.58	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,258	1,258	0.06	0.07	4.24	1,283

Library	1.68	1.59	1.16	9.64	0.02	0.02	0.67	0.69	0.02	0.12	0.13	—	2,173	2,173	0.10	0.11	7.33	2,217
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	0.00	0.00	0.00
Total	2.65	2.51	1.83	15.2	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,431	3,431	0.16	0.18	11.6	3,500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.87	0.81	0.77	5.05	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,155	1,155	0.07	0.07	0.11	1,178
Library	1.50	1.40	1.33	8.73	0.02	0.02	0.67	0.69	0.02	0.12	0.13	—	1,995	1,995	0.12	0.12	0.19	2,034
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	0.00	0.00	0.00
Total	2.37	2.21	2.09	13.8	0.03	0.03	1.06	1.09	0.02	0.19	0.21	—	3,150	3,150	0.19	0.19	0.30	3,212
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.16	0.15	0.13	0.90	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	196	196	0.01	0.01	0.30	200
Library	0.28	0.26	0.23	1.56	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	—	339	339	0.02	0.02	0.52	345
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	0.00	0.00	0.00
Total	0.44	0.41	0.36	2.47	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	535	535	0.03	0.03	0.83	545

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4

Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Library	—	—	—	—	—	—	—	—	—	—	—	—	30.1	30.1	< 0.005	< 0.005	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	12.1	12.1	< 0.005	< 0.005	—	12.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.9	52.9	0.01	< 0.005	—	53.5

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Library	—	—	—	—	—	—	—	—	—	—	—	—	30.1	30.1	< 0.005	< 0.005	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	12.1	12.1	< 0.005	< 0.005	—	12.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.9	52.9	0.01	< 0.005	—	53.5

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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

Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.9	57.9	0.01	< 0.005	—	58.1
Library	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	59.6	59.6	0.01	< 0.005	—	59.7
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
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	0.01	< 0.005	—	118

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.9	57.9	0.01	< 0.005	—	58.1
Library	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	59.6	59.6	0.01	< 0.005	—	59.7
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
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	0.01	< 0.005	—	118

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.40	0.37	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.26
Total	0.40	1.56	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.26
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.76
Total	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.76

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.40	0.37	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.26
Total	0.40	1.55	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.26
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.76
Total	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.76

4.4. Water Emissions by Land Use

4.4.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.54	2.51	4.05	0.16	< 0.005	—	9.13
Library	—	—	—	—	—	—	—	—	—	—	—	1.64	2.74	4.38	0.17	< 0.005	—	9.81
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.54	2.51	4.05	0.16	< 0.005	—	9.13
Library	—	—	—	—	—	—	—	—	—	—	—	1.64	2.74	4.38	0.17	< 0.005	—	9.81
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.25	0.42	0.67	0.03	< 0.005	—	1.51
Library	—	—	—	—	—	—	—	—	—	—	—	0.27	0.45	0.73	0.03	< 0.005	—	1.62
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.53	0.87	1.40	0.05	< 0.005	—	3.14

4.4.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.38	2.33	3.70	0.14	< 0.005	—	8.26
Library	—	—	—	—	—	—	—	—	—	—	—	1.47	2.55	4.02	0.15	< 0.005	—	8.89
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.38	2.33	3.70	0.14	< 0.005	—	8.26
Library	—	—	—	—	—	—	—	—	—	—	—	1.47	2.55	4.02	0.15	< 0.005	—	8.89
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.23	0.39	0.61	0.02	< 0.005	—	1.37
Library	—	—	—	—	—	—	—	—	—	—	—	0.24	0.42	0.67	0.03	< 0.005	—	1.47
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.81	1.28	0.05	< 0.005	—	2.84

4.5. Waste Emissions by Land Use

4.5.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	2.80	0.00	2.80	0.28	0.00	—	9.81
Library	—	—	—	—	—	—	—	—	—	—	—	2.25	0.00	2.25	0.23	0.00	—	7.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

4.5.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	2.80	0.00	2.80	0.28	0.00	—	9.81
Library	—	—	—	—	—	—	—	—	—	—	—	2.25	0.00	2.25	0.23	0.00	—	7.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Demolition	Demolition	1/1/2024	1/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2024	2/1/2024	5.00	2.00	—
Grading	Grading	2/2/2024	2/7/2024	5.00	4.00	—
Building Construction	Building Construction	2/8/2024	1/22/2025	5.00	250	—
Paving	Paving	1/23/2025	2/5/2025	5.00	10.0	—
Architectural Coating	Architectural Coating	2/6/2025	2/19/2025	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

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 3	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 3	2.00	8.00	367	0.40

Site Preparation	Rubber Tired Dozers	Diesel	Tier 3	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 3	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 3	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 3	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 3	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 3	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 3	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 3	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 3	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 3	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 3	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 3	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 3	1.00	6.00	37.0	0.48
Demolition	Excavators	Diesel	Tier 3	3.00	8.00	36.0	0.38
Grading	Excavators	Diesel	Tier 3	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Tier 3	2.00	8.00	423	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	7.70	LDA,LDT1,LDT2
Demolition	Vendor	—	4.00	HHDT,MHDT

Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	34.5	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.7	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	8.45	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.33	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	7.70	LDA,LDT1,LDT2
Demolition	Vendor	—	4.00	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	34.5	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.7	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	8.45	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.33	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	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	77,349	25,783	8,991

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)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	551	—	1.88	0.00	—
Grading	—	—	12.0	0.00	—
Paving	0.00	0.00	0.00	0.00	3.44

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%
Library	0.00	0%
Parking Lot	3.44	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

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
High School	253	253	253	92,355	1,407	1,407	1,407	513,724
Library	437	437	437	159,510	2,431	2,431	2,431	887,270
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	253	253	253	92,355	1,407	1,407	1,407	513,724
Library	437	437	437	159,510	2,431	2,431	2,431	887,270
Parking Lot	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

5.10.1.2. Mitigated

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	77,349	25,783	8,991

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

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)

High School	115,850	204	0.0330	0.0040	1,091,049
Library	325,065	204	0.0330	0.0040	1,122,601
Parking Lot	131,265	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
High School	115,850	204	0.0330	0.0040	1,091,049
Library	325,065	204	0.0330	0.0040	1,122,601
Parking Lot	131,265	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	802,457	549,088
Library	857,285	631,452
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	719,322	549,088
Library	768,470	631,452
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	31.42	0.00
Library	25.23	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	31.42	0.00
Library	25.23	0.00
Parking Lot	0.00	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
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	—	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	2.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	—	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	2.00	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	—	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	2.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	—	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	2.00	20.0

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

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	33.7	annual days of extreme heat
Extreme Precipitation	1.40	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.7
AQ-PM	95.5
AQ-DPM	48.2
Drinking Water	47.6
Lead Risk Housing	5.27
Pesticides	0.00
Toxic Releases	61.1
Traffic	18.2
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	53.5
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	46.5
Cardio-vascular	31.0
Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	30.9
Housing	2.13
Linguistic	0.00
Poverty	33.0
Unemployment	53.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.9095342
Employed	84.28076479
Median HI	70.66598229
Education	—
Bachelor's or higher	60.74682407
High school enrollment	100
Preschool enrollment	27.71718209

Transportation	—
Auto Access	89.83703323
Active commuting	1.039394328
Social	—
2-parent households	58.59104324
Voting	63.19774156
Neighborhood	—
Alcohol availability	64.1986398
Park access	49.65995124
Retail density	33.55575516
Supermarket access	27.89683049
Tree canopy	70.01154883
Housing	—
Homeownership	85.85910432
Housing habitability	97.80572308
Low-inc homeowner severe housing cost burden	97.8570512
Low-inc renter severe housing cost burden	97.71589888
Uncrowded housing	77.4541255
Health Outcomes	—
Insured adults	89.88836135
Arthritis	49.4
Asthma ER Admissions	42.3
High Blood Pressure	66.9
Cancer (excluding skin)	27.6
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	68.2

Diagnosed Diabetes	85.5
Life Expectancy at Birth	25.6
Cognitively Disabled	93.6
Physically Disabled	49.3
Heart Attack ER Admissions	48.8
Mental Health Not Good	68.6
Chronic Kidney Disease	85.5
Obesity	68.0
Pedestrian Injuries	50.2
Physical Health Not Good	81.0
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	7.5
Current Smoker	76.6
No Leisure Time for Physical Activity	79.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	56.5
English Speaking	98.1
Foreign-born	4.6
Outdoor Workers	34.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	51.0
Traffic Density	7.2
Traffic Access	0.0

Other Indices	—
Hardship	23.4
Other Decision Support	—
2016 Voting	60.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	17.0
Healthy Places Index Score for Project Location (b)	71.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Defaults were adjusted to match 14 month estimated construction schedule.
Land Use	Lot acreage includes total site plan to account for the grading of future administration offices.
Construction: Dust From Material Movement	Based on information provided.

Operations: Vehicle Data	Based on trip rates from the TIA report. VMT for employees was provided, but could not be broken down into trip length.

CUSD Phase 2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CUSD Phase 2
Construction Start Date	1/6/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	21.4
Location	36.835889345370376, -119.68014227348462
County	Fresno
City	Clovis
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2444
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.8

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

Government Office Building	90.0	1000sqft	2.07	90,000	10,000	—	—	—
Parking Lot	108	1000sqft	2.48	0.00	1,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Energy	E-7*	Require Higher Efficacy Public Street and Area Lighting
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes
Area Sources	AS-2	Use Low-VOC Paints

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.42	1.20	10.2	14.1	0.02	0.38	0.21	0.59	0.35	0.05	0.40	—	2,759	2,759	0.11	0.06	1.04	2,779

Mit.	0.69	0.66	13.0	15.9	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,759	2,759	0.11	0.06	1.04	2,779
% Reduced	51%	45%	-27%	-13%	—	-41%	—	-27%	-39%	—	-34%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.20	26.1	15.9	23.2	0.04	0.58	0.31	0.90	0.53	0.08	0.61	—	4,186	4,186	0.17	0.07	0.03	4,211
Mit.	1.09	24.7	20.8	25.6	0.04	0.88	0.31	1.20	0.80	0.08	0.88	—	4,186	4,186	0.17	0.07	0.03	4,211
% Reduced	50%	5%	-31%	-10%	—	-52%	—	-34%	-50%	—	-44%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.86	1.53	6.23	8.47	0.02	0.23	0.12	0.36	0.21	0.03	0.24	—	1,671	1,671	0.07	0.03	0.27	1,683
Mit.	0.41	1.36	7.91	9.60	0.02	0.33	0.12	0.45	0.30	0.03	0.33	—	1,671	1,671	0.07	0.03	0.27	1,683
% Reduced	52%	11%	-27%	-13%	—	-41%	—	-27%	-39%	—	-34%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.16	0.28	1.14	1.55	< 0.005	0.04	0.02	0.06	0.04	0.01	0.04	—	277	277	0.01	0.01	0.05	279
Mit.	0.08	0.25	1.44	1.75	< 0.005	0.06	0.02	0.08	0.05	0.01	0.06	—	277	277	0.01	0.01	0.05	279
% Reduced	52%	11%	-27%	-13%	—	-41%	—	-27%	-39%	—	-34%	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.42	1.20	10.2	14.1	0.02	0.38	0.21	0.59	0.35	0.05	0.40	—	2,759	2,759	0.11	0.06	1.04	2,779

2027	1.36	1.15	9.74	14.0	0.02	0.34	0.21	0.55	0.31	0.05	0.36	—	2,751	2,751	0.11	0.05	0.93	2,770
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.40	1.18	10.2	13.9	0.02	0.38	0.21	0.59	0.35	0.05	0.40	—	2,740	2,740	0.11	0.06	0.03	2,759
2027	2.20	26.1	15.9	23.2	0.04	0.58	0.31	0.90	0.53	0.08	0.61	—	4,186	4,186	0.17	0.07	0.03	4,211
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.86	0.72	6.23	8.47	0.02	0.23	0.12	0.36	0.21	0.03	0.24	—	1,671	1,671	0.07	0.03	0.27	1,683
2027	0.34	1.53	2.42	3.47	0.01	0.09	0.05	0.14	0.08	0.01	0.09	—	664	664	0.03	0.01	0.10	668
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.16	0.13	1.14	1.55	< 0.005	0.04	0.02	0.06	0.04	0.01	0.04	—	277	277	0.01	0.01	0.05	279
2027	0.06	0.28	0.44	0.63	< 0.005	0.02	0.01	0.02	0.01	< 0.005	0.02	—	110	110	< 0.005	< 0.005	0.02	111

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.69	0.66	13.0	15.9	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,759	2,759	0.11	0.06	1.04	2,779
2027	0.68	0.65	13.0	15.9	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,751	2,751	0.11	0.05	0.93	2,770
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.67	0.65	13.0	15.8	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,740	2,740	0.11	0.06	0.03	2,759
2027	1.09	24.7	20.8	25.6	0.04	0.88	0.31	1.20	0.80	0.08	0.88	—	4,186	4,186	0.17	0.07	0.03	4,211
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.41	0.39	7.91	9.60	0.02	0.33	0.12	0.45	0.30	0.03	0.33	—	1,671	1,671	0.07	0.03	0.27	1,683

2027	0.17	1.36	3.21	3.89	0.01	0.13	0.05	0.19	0.12	0.01	0.13	—	664	664	0.03	0.01	0.10	668
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08	0.07	1.44	1.75	< 0.005	0.06	0.02	0.08	0.05	0.01	0.06	—	277	277	0.01	0.01	0.05	279
2027	0.03	0.25	0.59	0.71	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	110	110	< 0.005	< 0.005	0.02	111

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.39	7.05	5.02	31.1	0.07	0.20	1.99	2.19	0.20	0.35	0.55	79.4	9,746	9,826	8.70	0.43	17.5	10,188
Mit.	5.39	7.04	5.02	31.1	0.07	0.20	1.99	2.19	0.20	0.35	0.55	76.0	9,742	9,818	8.36	0.42	17.5	10,169
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	2%	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.23	5.92	5.41	24.8	0.07	0.19	1.99	2.18	0.19	0.35	0.54	79.4	9,227	9,306	8.75	0.45	0.67	9,659
Mit.	4.23	5.92	5.41	24.8	0.07	0.19	1.99	2.18	0.19	0.35	0.54	76.0	9,223	9,299	8.41	0.44	0.67	9,641
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	2%	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.46	5.21	4.29	19.8	0.05	0.18	1.42	1.60	0.18	0.25	0.43	79.4	7,721	7,801	8.64	0.34	5.55	8,125
Mit.	3.46	5.21	4.29	19.8	0.05	0.18	1.42	1.60	0.18	0.25	0.43	76.0	7,717	7,793	8.30	0.34	5.55	8,106
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	2%	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.63	0.95	0.78	3.61	0.01	0.03	0.26	0.29	0.03	0.05	0.08	13.1	1,278	1,292	1.43	0.06	0.92	1,345
Mit.	0.63	0.95	0.78	3.61	0.01	0.03	0.26	0.29	0.03	0.05	0.08	12.6	1,278	1,290	1.37	0.06	0.92	1,342
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	2%	—	< 0.5%

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.48	4.24	3.06	25.6	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	6,154	6,154	0.27	0.31	17.3	6,272
Area	0.70	2.70	0.03	3.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	16.1	16.1	< 0.005	< 0.005	—	16.2
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	34.3	39.6	73.8	3.52	0.08	—	187
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	5.39	7.05	5.02	31.1	0.07	0.20	1.99	2.19	0.20	0.35	0.55	79.4	9,746	9,826	8.70	0.43	17.5	10,188
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.02	3.76	3.48	23.1	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,651	5,651	0.32	0.34	0.45	5,760
Area	—	2.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	34.3	39.6	73.8	3.52	0.08	—	187
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	4.23	5.92	5.41	24.8	0.07	0.19	1.99	2.18	0.19	0.35	0.54	79.4	9,227	9,306	8.75	0.45	0.67	9,659

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.91	2.73	2.34	16.2	0.04	0.03	1.42	1.45	0.03	0.25	0.28	—	4,138	4,138	0.21	0.23	5.33	4,217
Area	0.34	2.37	0.02	1.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.94	7.94	< 0.005	< 0.005	—	7.97
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	34.3	39.6	73.8	3.52	0.08	—	187
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	3.46	5.21	4.29	19.8	0.05	0.18	1.42	1.60	0.18	0.25	0.43	79.4	7,721	7,801	8.64	0.34	5.55	8,125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.53	0.50	0.43	2.96	0.01	0.01	0.26	0.27	0.01	0.05	0.05	—	685	685	0.04	0.04	0.88	698
Area	0.06	0.43	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.31	1.31	< 0.005	< 0.005	—	1.32
Energy	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	585	585	0.07	< 0.005	—	589
Water	—	—	—	—	—	—	—	—	—	—	—	5.67	6.55	12.2	0.58	0.01	—	30.9
Waste	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	0.63	0.95	0.78	3.61	0.01	0.03	0.26	0.29	0.03	0.05	0.08	13.1	1,278	1,292	1.43	0.06	0.92	1,345

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.48	4.24	3.06	25.6	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	6,154	6,154	0.27	0.31	17.3	6,272
Area	0.70	2.70	0.03	3.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	16.1	16.1	< 0.005	< 0.005	—	16.2
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168

Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	5.39	7.04	5.02	31.1	0.07	0.20	1.99	2.19	0.20	0.35	0.55	76.0	9,742	9,818	8.36	0.42	17.5	10,169
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.02	3.76	3.48	23.1	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,651	5,651	0.32	0.34	0.45	5,760
Area	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	4.23	5.92	5.41	24.8	0.07	0.19	1.99	2.18	0.19	0.35	0.54	76.0	9,223	9,299	8.41	0.44	0.67	9,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.91	2.73	2.34	16.2	0.04	0.03	1.42	1.45	0.03	0.25	0.28	—	4,138	4,138	0.21	0.23	5.33	4,217
Area	0.34	2.37	0.02	1.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.94	7.94	< 0.005	< 0.005	—	7.97
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	3.46	5.21	4.29	19.8	0.05	0.18	1.42	1.60	0.18	0.25	0.43	76.0	7,717	7,793	8.30	0.34	5.55	8,106
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.53	0.50	0.43	2.96	0.01	0.01	0.26	0.27	0.01	0.05	0.05	—	685	685	0.04	0.04	0.88	698
Area	0.06	0.43	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.31	1.31	< 0.005	< 0.005	—	1.32
Energy	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	585	585	0.07	< 0.005	—	589
Water	—	—	—	—	—	—	—	—	—	—	—	5.11	5.89	11.0	0.53	0.01	—	27.9
Waste	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

Total	0.63	0.95	0.78	3.61	0.01	0.03	0.26	0.29	0.03	0.05	0.08	12.6	1,278	1,290	1.37	0.06	0.92	1,342

3. Construction Emissions Details

3.1. Building Construction (2026) - 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	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	0.78	0.65	6.00	7.89	0.01	0.23	—	0.23	0.21	—	0.21	—	1,459	1,459	0.06	0.01	—	1,464
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	0.14	0.12	1.09	1.44	< 0.005	0.04	—	0.04	0.04	—	0.04	—	242	242	0.01	< 0.005	—	242

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	0.06	0.99	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	171	171	0.01	0.01	0.59	174
Vendor	0.02	0.01	0.30	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	190	190	< 0.005	0.03	0.44	199
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	0.11	0.10	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	152	152	0.01	0.01	0.02	154
Vendor	0.01	0.01	0.32	0.14	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	191	191	< 0.005	0.03	0.01	199
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	0.07	0.06	0.04	0.49	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.7	95.7	< 0.005	< 0.005	0.16	97.3
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.12	121
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	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.8	15.8	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.02	20.1
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

3.2. Building Construction (2026) - Mitigated

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	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.34	0.33	7.68	9.02	0.01	0.33	—	0.33	0.30	—	0.30	—	1,459	1,459	0.06	0.01	—	1,464
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	0.06	0.06	1.40	1.65	< 0.005	0.06	—	0.06	0.05	—	0.05	—	242	242	0.01	< 0.005	—	242
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	0.06	0.99	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	171	171	0.01	0.01	0.59	174
Vendor	0.02	0.01	0.30	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	190	190	< 0.005	0.03	0.44	199
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	0.11	0.10	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	152	152	0.01	0.01	0.02	154
Vendor	0.01	0.01	0.32	0.14	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	191	191	< 0.005	0.03	0.01	199
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	0.07	0.06	0.04	0.49	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.7	95.7	< 0.005	< 0.005	0.16	97.3
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.12	121
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	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.8	15.8	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.02	20.1
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. Building Construction (2027) - 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	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
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	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
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	0.26	0.22	2.00	2.76	< 0.005	0.07	—	0.07	0.07	—	0.07	—	511	511	0.02	< 0.005	—	513
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	0.05	0.04	0.37	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	—	84.7	84.7	< 0.005	< 0.005	—	84.9
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	0.11	0.11	0.05	0.91	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	< 0.005	0.01	0.54	170
Vendor	0.02	0.01	0.29	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	186	186	< 0.005	0.03	0.39	195
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	0.10	0.09	0.07	0.74	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	149	149	0.01	0.01	0.01	151
Vendor	0.01	0.01	0.31	0.14	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	187	187	< 0.005	0.03	0.01	195
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	0.02	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.4
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.8	39.8	< 0.005	0.01	0.04	41.6

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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.44	5.44	< 0.005	< 0.005	0.01	5.53
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.88
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

3.4. Building Construction (2027) - Mitigated

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	0.55	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.55	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.12	0.11	2.69	3.16	< 0.005	0.11	—	0.11	0.10	—	0.10	—	511	511	0.02	< 0.005	—	513
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	0.02	0.02	0.49	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	84.7	84.7	< 0.005	< 0.005	—	84.9
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	0.11	0.11	0.05	0.91	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	< 0.005	0.01	0.54	170
Vendor	0.02	0.01	0.29	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	186	186	< 0.005	0.03	0.39	195
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	0.10	0.09	0.07	0.74	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	149	149	0.01	0.01	0.01	151
Vendor	0.01	0.01	0.31	0.14	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	187	187	< 0.005	0.03	0.01	195
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	0.02	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.4
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.8	39.8	< 0.005	0.01	0.04	41.6
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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.44	5.44	< 0.005	< 0.005	0.01	5.53
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.88
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. Paving (2027) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	6.09	8.83	0.01	0.24	—	0.24	0.22	—	0.22	—	1,350	1,350	0.05	0.01	—	1,355
Paving	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.03	0.30	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.51	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	0.01	0.01	105

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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.27	5.27	< 0.005	< 0.005	0.01	5.36
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.89
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

3.6. Paving (2027) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.34	7.77	9.35	0.01	0.35	—	0.35	0.32	—	0.32	—	1,350	1,350	0.05	0.01	—	1,355
Paving	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.38	0.46	< 0.005	0.02	—	0.02	0.02	—	0.02	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.51	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	0.01	0.01	105
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.27	5.27	< 0.005	< 0.005	0.01	5.36
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.89
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

3.7. Architectural Coating (2027) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	24.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	—	6.61
Architectural Coatings	—	1.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.09
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.7	29.7	< 0.005	< 0.005	< 0.005	30.2
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.54
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
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

3.8. Architectural Coating (2027) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	24.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	—	6.61
Architectural Coatings	—	1.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.09
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.7	29.7	< 0.005	< 0.005	< 0.005	30.2

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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.54
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
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

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	4.48	4.24	3.06	25.6	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	6,154	6,154	0.27	0.31	17.3	6,272
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	0.00	0.00	0.00
Total	4.48	4.24	3.06	25.6	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	6,154	6,154	0.27	0.31	17.3	6,272

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	4.02	3.76	3.48	23.1	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,651	5,651	0.32	0.34	0.45	5,760
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	0.00	0.00	0.00
Total	4.02	3.76	3.48	23.1	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,651	5,651	0.32	0.34	0.45	5,760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.53	0.50	0.43	2.96	0.01	0.01	0.26	0.27	0.01	0.05	0.05	—	685	685	0.04	0.04	0.88	698
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	0.00	0.00	0.00
Total	0.53	0.50	0.43	2.96	0.01	0.01	0.26	0.27	0.01	0.05	0.05	—	685	685	0.04	0.04	0.88	698

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	4.48	4.24	3.06	25.6	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	6,154	6,154	0.27	0.31	17.3	6,272
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	0.00	0.00	0.00
Total	4.48	4.24	3.06	25.6	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	6,154	6,154	0.27	0.31	17.3	6,272

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	4.02	3.76	3.48	23.1	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,651	5,651	0.32	0.34	0.45	5,760
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	0.00	0.00	0.00
Total	4.02	3.76	3.48	23.1	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,651	5,651	0.32	0.34	0.45	5,760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.53	0.50	0.43	2.96	0.01	0.01	0.26	0.27	0.01	0.05	0.05	—	685	685	0.04	0.04	0.88	698
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	0.00	0.00	0.00
Total	0.53	0.50	0.43	2.96	0.01	0.01	0.26	0.27	0.01	0.05	0.05	—	685	685	0.04	0.04	0.88	698

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,179	1,179	0.19	0.02	—	1,191
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	52.8	52.8	0.01	< 0.005	—	53.3

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,232	1,232	0.20	0.02	—	1,244
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,179	1,179	0.19	0.02	—	1,191
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	52.8	52.8	0.01	< 0.005	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,232	1,232	0.20	0.02	—	1,244
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.03	< 0.005	—	197
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.75	8.75	< 0.005	< 0.005	—	8.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	204	204	0.03	< 0.005	—	206

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,179	1,179	0.19	0.02	—	1,191
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	52.8	52.8	0.01	< 0.005	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,232	1,232	0.20	0.02	—	1,244

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,179	1,179	0.19	0.02	—	1,191
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	52.8	52.8	0.01	< 0.005	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,232	1,232	0.20	0.02	—	1,244
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.03	< 0.005	—	197
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.75	8.75	< 0.005	< 0.005	—	8.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	204	204	0.03	< 0.005	—	206

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
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
Total	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
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
Total	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	381	381	0.03	< 0.005	—	383
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
Total	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	381	381	0.03	< 0.005	—	383

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
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
Total	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
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
Total	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	381	381	0.03	< 0.005	—	383
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
Total	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	381	381	0.03	< 0.005	—	383

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.70	0.64	0.03	3.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	16.1	16.1	< 0.005	< 0.005	—	16.2
Total	0.70	2.70	0.03	3.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	16.1	16.1	< 0.005	< 0.005	—	16.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.31	1.31	< 0.005	< 0.005	—	1.32
Total	0.06	0.43	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.31	1.31	< 0.005	< 0.005	—	1.32

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	—	1.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.70	0.64	0.03	3.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	16.1	16.1	< 0.005	< 0.005	—	16.2
Total	0.70	2.70	0.03	3.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	16.1	16.1	< 0.005	< 0.005	—	16.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.31	1.31	< 0.005	< 0.005	—	1.32
Total	0.06	0.43	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.31	1.31	< 0.005	< 0.005	—	1.32

4.4. Water Emissions by Land Use

4.4.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	34.3	39.5	73.8	3.52	0.08	—	187
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.02	0.02	< 0.005	< 0.005	—	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	34.3	39.6	73.8	3.52	0.08	—	187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	34.3	39.5	73.8	3.52	0.08	—	187
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.02	0.02	< 0.005	< 0.005	—	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	34.3	39.6	73.8	3.52	0.08	—	187
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	5.67	6.55	12.2	0.58	0.01	—	30.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	5.67	6.55	12.2	0.58	0.01	—	30.9

4.4.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.01	0.01	< 0.005	< 0.005	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.01	0.01	< 0.005	< 0.005	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	5.11	5.89	11.0	0.53	0.01	—	27.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	5.11	5.89	11.0	0.53	0.01	—	27.9

4.5. Waste Emissions by Land Use

4.5.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1

4.5.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Building Construction	Building Construction	2/24/2026	4/19/2027	5.00	300	—
Paving	Paving	1/13/2027	2/7/2027	5.00	18.0	—
Architectural Coating	Architectural Coating	2/8/2027	3/3/2027	5.00	18.0	—

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
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29

Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Tier 3	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 3	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 3	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 3	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 3	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 3	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Tier 3	2.00	6.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 3	1.00	8.00	84.0	0.37

Architectural Coating	Air Compressors	Diesel	Tier 3	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	28.8	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	14.8	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.76	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	28.8	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	14.8	4.00	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.76	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	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	135,000	45,000	6,474

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Paving	0.00	0.00	0.00	0.00	2.48

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Government Office Building	0.00	0%
Parking Lot	2.48	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

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
Government Office Building	1,293	0.00	0.00	337,182	7,194	0.00	0.00	1,875,563
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Government Office Building	1,293	0.00	0.00	337,182	7,194	0.00	0.00	1,875,563
Parking Lot	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

5.10.1.2. Mitigated

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	135,000	45,000	6,474

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

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)

Government Office Building	2,110,174	204	0.0330	0.0040	3,594,518
Parking Lot	94,520	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
Government Office Building	2,110,174	204	0.0330	0.0040	3,594,518
Parking Lot	94,520	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Government Office Building	17,879,372	137,272
Parking Lot	0.00	13,727

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Government Office Building	16,118,254	62,412
Parking Lot	0.00	6,241

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Government Office Building	83.70	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Government Office Building	83.70	0.00
Parking Lot	0.00	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
Government Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Government Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Government Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Government Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

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

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	33.7	annual days of extreme heat
Extreme Precipitation	1.40	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A

Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.7
AQ-PM	95.5
AQ-DPM	48.2
Drinking Water	47.6
Lead Risk Housing	5.27
Pesticides	0.00
Toxic Releases	61.1
Traffic	18.2
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00

Haz Waste Facilities/Generators	53.5
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	46.5
Cardio-vascular	31.0
Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	30.9
Housing	2.13
Linguistic	0.00
Poverty	33.0
Unemployment	53.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.9095342
Employed	84.28076479
Median HI	70.66598229
Education	—
Bachelor's or higher	60.74682407
High school enrollment	100
Preschool enrollment	27.71718209
Transportation	—
Auto Access	89.83703323

Active commuting	1.039394328
Social	—
2-parent households	58.59104324
Voting	63.19774156
Neighborhood	—
Alcohol availability	64.1986398
Park access	49.65995124
Retail density	33.55575516
Supermarket access	27.89683049
Tree canopy	70.01154883
Housing	—
Homeownership	85.85910432
Housing habitability	97.80572308
Low-inc homeowner severe housing cost burden	97.8570512
Low-inc renter severe housing cost burden	97.71589888
Uncrowded housing	77.4541255
Health Outcomes	—
Insured adults	89.88836135
Arthritis	49.4
Asthma ER Admissions	42.3
High Blood Pressure	66.9
Cancer (excluding skin)	27.6
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	68.2
Diagnosed Diabetes	85.5
Life Expectancy at Birth	25.6

Cognitively Disabled	93.6
Physically Disabled	49.3
Heart Attack ER Admissions	48.8
Mental Health Not Good	68.6
Chronic Kidney Disease	85.5
Obesity	68.0
Pedestrian Injuries	50.2
Physical Health Not Good	81.0
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	7.5
Current Smoker	76.6
No Leisure Time for Physical Activity	79.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	56.5
English Speaking	98.1
Foreign-born	4.6
Outdoor Workers	34.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	51.0
Traffic Density	7.2
Traffic Access	0.0
Other Indices	—
Hardship	23.4

Other Decision Support	—
2016 Voting	60.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	17.0
Healthy Places Index Score for Project Location (b)	71.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Grading and site prep are completed in Phase 1.
Operations: Vehicle Data	Trip rate is based on traffic report.

CUSD Phase 1 2028 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CUSD Phase 1 2028
Construction Start Date	1/1/2024
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	21.4
Location	36.835234667902185, -119.68112749607162
County	Fresno
City	Clovis
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2444
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.8

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

High School	24.2	1000sqft	6.58	24,167	40,000	0.00	—	Special Education Administration Building
Library	27.4	1000sqft	6.58	27,399	46,000	—	—	Online School Building
Parking Lot	3.44	Acre	3.44	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Energy	E-2	Require Energy Efficient Appliances
Energy	E-7*	Require Higher Efficacy Public Street and Area Lighting
Water	W-4	Require Low-Flow Water Fixtures
Refrigerants	R-5	Reduce Service Leak Emissions
Refrigerants	R-6	Reduce Operational Leak Emissions
Area Sources	AS-2	Use Low-VOC Paints

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.55	1.31	11.5	14.1	0.02	0.50	0.15	0.65	0.46	0.04	0.49	—	2,645	2,645	0.11	0.04	0.83	2,661
Mit.	0.67	0.64	12.9	15.8	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,645	2,645	0.11	0.04	0.83	2,661
% Reduced	57%	51%	-12%	-12%	—	-8%	—	-6%	-6%	—	-6%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.52	28.2	39.2	34.2	0.06	1.65	20.4	22.1	1.52	10.3	11.8	—	7,854	7,854	0.27	0.44	0.16	7,991
Mit.	1.26	26.1	30.4	36.0	0.06	1.25	8.41	9.39	1.12	4.14	5.02	—	7,854	7,854	0.27	0.44	0.16	7,991
% Reduced	72%	8%	22%	-5%	—	24%	59%	57%	26%	60%	57%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.23	1.04	9.32	10.7	0.02	0.40	0.31	0.71	0.37	0.12	0.49	—	2,000	2,000	0.08	0.03	0.26	2,011
Mit.	0.49	0.78	9.70	11.6	0.02	0.41	0.18	0.59	0.37	0.06	0.43	—	2,000	2,000	0.08	0.03	0.26	2,011
% Reduced	61%	25%	-4%	-9%	—	-1%	41%	17%	< 0.5%	48%	12%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.23	0.19	1.70	1.95	< 0.005	0.07	0.06	0.13	0.07	0.02	0.09	—	331	331	0.01	0.01	0.04	333
Mit.	0.09	0.14	1.77	2.12	< 0.005	0.07	0.03	0.11	0.07	0.01	0.08	—	331	331	0.01	0.01	0.04	333
% Reduced	61%	25%	-4%	-9%	—	-1%	41%	17%	< 0.5%	48%	12%	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—

Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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	1.55	1.31	11.5	14.1	0.02	0.50	0.15	0.65	0.46	0.04	0.49	—	2,645	2,645	0.11	0.04	0.83	2,661
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.52	3.77	39.2	34.2	0.06	1.65	20.4	22.1	1.52	10.3	11.8	—	7,854	7,854	0.27	0.44	0.16	7,991
2025	1.44	28.2	10.7	13.8	0.02	0.43	0.15	0.58	0.40	0.04	0.43	—	2,626	2,626	0.11	0.04	0.02	2,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.23	1.04	9.32	10.7	0.02	0.40	0.31	0.71	0.37	0.12	0.49	—	2,000	2,000	0.08	0.03	0.26	2,011
2025	0.09	0.87	0.69	0.91	< 0.005	0.03	0.01	0.04	0.03	< 0.005	0.03	—	161	161	0.01	< 0.005	0.02	162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.23	0.19	1.70	1.95	< 0.005	0.07	0.06	0.13	0.07	0.02	0.09	—	331	331	0.01	0.01	0.04	333
2025	0.02	0.16	0.13	0.17	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	0.01	—	26.7	26.7	< 0.005	< 0.005	< 0.005	26.8

2.3. Construction Emissions by Year, Mitigated

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	0.67	0.64	12.9	15.8	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,645	2,645	0.11	0.04	0.83	2,661
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.26	1.26	30.4	36.0	0.06	1.25	8.41	9.39	1.12	4.14	5.02	—	7,854	7,854	0.27	0.44	0.16	7,991
2025	0.65	26.1	12.9	15.6	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,626	2,626	0.11	0.04	0.02	2,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.49	0.47	9.70	11.6	0.02	0.41	0.18	0.59	0.37	0.06	0.43	—	2,000	2,000	0.08	0.03	0.26	2,011
2025	0.04	0.78	0.82	1.00	< 0.005	0.04	0.01	0.04	0.03	< 0.005	0.03	—	161	161	0.01	< 0.005	0.02	162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.09	1.77	2.12	< 0.005	0.07	0.03	0.11	0.07	0.01	0.08	—	331	331	0.01	0.01	0.04	333
2025	0.01	0.14	0.15	0.18	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	26.7	26.7	< 0.005	< 0.005	< 0.005	26.8

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.90	3.90	2.24	16.5	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,329	4,363	3.64	0.18	9.47	4,518
Mit.	2.90	3.89	2.24	16.5	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,329	4,362	3.61	0.18	9.42	4,516
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	—	< 0.5%	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.24	3.26	2.45	12.9	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,052	4,086	3.67	0.19	0.44	4,235
Mit.	2.24	3.26	2.45	12.9	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,052	4,085	3.63	0.19	0.40	4,234

% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	—	10%	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.47	3.48	2.35	13.8	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,132	4,166	3.65	0.19	4.20	4,317
Mit.	2.47	3.47	2.35	13.8	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,132	4,165	3.62	0.19	4.16	4,315
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	—	1%	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45	0.64	0.43	2.52	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.58	684	690	0.60	0.03	0.70	715
Mit.	0.45	0.63	0.43	2.52	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.53	684	690	0.60	0.03	0.69	714
% Reduced	—	< 0.5%	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	< 0.5%	1%	< 0.5%
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.43	2.30	1.63	13.8	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,286	3,286	0.15	0.17	9.27	3,348
Area	0.40	1.56	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.49
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034

Water	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	2.90	3.90	2.24	16.5	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,329	4,363	3.64	0.18	9.47	4,518
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.18	2.04	1.85	12.4	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,017	3,017	0.17	0.18	0.24	3,075
Area	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	2.24	3.26	2.45	12.9	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,052	4,086	3.67	0.19	0.44	4,235
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.21	2.07	1.75	12.2	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,093	3,093	0.16	0.17	4.00	3,152
Area	0.20	1.37	0.01	1.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.55	4.55	< 0.005	< 0.005	—	4.68
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Total	2.47	3.48	2.35	13.8	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.7	4,132	4,166	3.65	0.19	4.20	4,317
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.38	0.32	2.23	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	512	512	0.03	0.03	0.66	522
Area	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.77
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	171
Water	—	—	—	—	—	—	—	—	—	—	—	0.53	0.87	1.40	0.05	< 0.005	—	3.14
Waste	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.45	0.64	0.43	2.52	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.58	684	690	0.60	0.03	0.70	715

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.43	2.30	1.63	13.8	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,286	3,286	0.15	0.17	9.27	3,348
Area	0.40	1.55	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.49
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.90	3.89	2.24	16.5	0.04	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,329	4,362	3.61	0.18	9.42	4,516
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.18	2.04	1.85	12.4	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,017	3,017	0.17	0.18	0.24	3,075
Area	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.24	3.26	2.45	12.9	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,052	4,085	3.63	0.19	0.40	4,234
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.21	2.07	1.75	12.2	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,093	3,093	0.16	0.17	4.00	3,152

Area	0.20	1.37	0.01	1.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.55	4.55	< 0.005	< 0.005	—	4.68
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.47	3.47	2.35	13.8	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,132	4,165	3.62	0.19	4.16	4,315
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.38	0.32	2.23	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	512	512	0.03	0.03	0.66	522
Area	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.77
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	171
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.81	1.28	0.05	< 0.005	—	2.84
Waste	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.45	0.63	0.43	2.52	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.53	684	690	0.60	0.03	0.69	714

3. Construction Emissions Details

3.1. Demolition (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.12	2.62	24.9	21.7	0.03	1.06	—	1.06	0.98	—	0.98	—	3,425	3,425	0.14	0.03	—	3,437

Demolitio	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.17	0.14	1.36	1.19	< 0.005	0.06	—	0.06	0.05	—	0.05	—	188	188	0.01	< 0.005	—	188
Demolitio n	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolitio n	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.4	82.4	< 0.005	< 0.005	0.01	83.7
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.68	4.68	< 0.005	< 0.005	0.01	4.76
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.79
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

3.2. Demolition (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.72	17.3	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	—	3,437
Demolitio n	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.04	0.04	0.95	1.00	< 0.005	0.04	—	0.04	0.04	—	0.04	—	188	188	0.01	< 0.005	—	188
Demolitio n	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.17	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.4	82.4	< 0.005	< 0.005	0.01	83.7
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.68	4.68	< 0.005	< 0.005	0.01	4.76
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.79
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
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	0.02	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	29.0	29.0	< 0.005	< 0.005	—	29.1
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—	—
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	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.80	4.80	< 0.005	< 0.005	—	4.82
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.57	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.01	97.6
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	0.11	0.05	3.18	0.72	0.02	0.05	0.64	0.69	0.05	0.18	0.22	—	2,462	2,462	0.05	0.39	0.15	2,580
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.01	14.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.23	2.23	< 0.005	< 0.005	< 0.005	2.34

3.4. Site Preparation (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.90	24.0	28.3	0.05	0.94	—	0.94	0.84	—	0.84	—	5,296	5,296	0.21	0.04	—	5,314

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	29.0	29.0	< 0.005	< 0.005	—	29.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.80	4.80	< 0.005	< 0.005	—	4.82
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.57	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.01	97.6
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	0.11	0.05	3.18	0.72	0.02	0.05	0.64	0.69	0.05	0.18	0.22	—	2,462	2,462	0.05	0.39	0.15	2,580

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.01	14.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.23	2.23	< 0.005	< 0.005	< 0.005	2.34

3.5. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
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	0.05	0.04	0.38	0.33	< 0.005	0.02	—	0.02	0.01	—	0.01	—	72.3	72.3	< 0.005	< 0.005	—	72.6

Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.04	0.04	—	—	—	—	—	—	—
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	0.01	0.07	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	0.01	0.01	112
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.27
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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

3.6. Grading (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	1.18	30.3	35.3	0.06	1.25	—	1.25	1.12	—	1.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.33	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.3	72.3	< 0.005	< 0.005	—	72.6
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	0.01	0.01	112
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.27
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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

3.7. 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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	0.92	0.77	7.20	8.42	0.02	0.32	—	0.32	0.29	—	0.29	—	1,539	1,539	0.06	0.01	—	1,544
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	0.17	0.14	1.31	1.54	< 0.005	0.06	—	0.06	0.05	—	0.05	—	255	255	0.01	< 0.005	—	256
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	0.10	0.05	0.88	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	0.01	0.54	137
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.29	118
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	0.09	0.07	0.71	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	0.01	0.01	121
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118
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	0.06	0.06	0.04	0.46	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	79.1	79.1	0.01	< 0.005	0.15	80.5
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.7	72.7	< 0.005	0.01	0.08	76.0
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	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.6
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

3.8. Building Construction (2024) - Mitigated

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	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.36	0.34	8.10	9.52	0.02	0.34	—	0.34	0.31	—	0.31	—	1,539	1,539	0.06	0.01	—	1,544
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	0.07	0.06	1.48	1.74	< 0.005	0.06	—	0.06	0.06	—	0.06	—	255	255	0.01	< 0.005	—	256
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	0.10	0.05	0.88	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	0.01	0.54	137
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.29	118
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	0.09	0.07	0.71	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	0.01	0.01	121
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118
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	0.06	0.06	0.04	0.46	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	79.1	79.1	0.01	< 0.005	0.15	80.5
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.7	72.7	< 0.005	0.01	0.08	76.0

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	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.6
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	0.06	0.05	0.45	0.56	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	104
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	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.1	17.1	< 0.005	< 0.005	—	17.1
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

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	0.01	0.01	0.01	118
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.01	116
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.20	5.20	< 0.005	< 0.005	0.01	5.28
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.79	4.79	< 0.005	< 0.005	0.01	5.01
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83
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

3.10. Building Construction (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.02	0.02	0.54	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	104
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	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.1	17.1	< 0.005	< 0.005	—	17.1
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	0.01	0.01	0.01	118
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.01	116
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.20	5.20	< 0.005	< 0.005	0.01	5.28
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.79	4.79	< 0.005	< 0.005	0.01	5.01
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83
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

3.11. Paving (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.02	0.20	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.01	82.0
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.29	2.29	< 0.005	< 0.005	< 0.005	2.33
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
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

3.12. Paving (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.32	0.32	8.62	10.6	0.01	0.39	—	0.39	0.36	—	0.36	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.24	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.01	82.0
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.29	2.29	< 0.005	< 0.005	< 0.005	2.33
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	28.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	< 0.005	23.7
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	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

3.14. Architectural Coating (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	26.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	< 0.005	23.7
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	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	0.89	0.84	0.60	5.04	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,205	1,205	0.05	0.06	3.40	1,228
Library	1.54	1.46	1.03	8.71	0.02	0.02	0.67	0.69	0.01	0.12	0.13	—	2,081	2,081	0.09	0.11	5.87	2,120
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	0.00	0.00	0.00
Total	2.43	2.30	1.63	13.8	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,286	3,286	0.15	0.17	9.27	3,348
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.80	0.75	0.68	4.56	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,106	1,106	0.06	0.07	0.09	1,128
Library	1.38	1.29	1.17	7.88	0.02	0.02	0.67	0.69	0.01	0.12	0.13	—	1,911	1,911	0.11	0.11	0.15	1,948
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	0.00	0.00	0.00
Total	2.18	2.04	1.85	12.4	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,017	3,017	0.17	0.18	0.24	3,075
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.15	0.14	0.12	0.82	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	188	188	0.01	0.01	0.24	191
Library	0.25	0.24	0.20	1.41	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	—	324	324	0.02	0.02	0.42	331
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	0.00	0.00	0.00
Total	0.40	0.38	0.32	2.23	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	512	512	0.03	0.03	0.66	522

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.89	0.84	0.60	5.04	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,205	1,205	0.05	0.06	3.40	1,228

Library	1.54	1.46	1.03	8.71	0.02	0.02	0.67	0.69	0.01	0.12	0.13	—	2,081	2,081	0.09	0.11	5.87	2,120
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	0.00	0.00	0.00
Total	2.43	2.30	1.63	13.8	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,286	3,286	0.15	0.17	9.27	3,348
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.80	0.75	0.68	4.56	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,106	1,106	0.06	0.07	0.09	1,128
Library	1.38	1.29	1.17	7.88	0.02	0.02	0.67	0.69	0.01	0.12	0.13	—	1,911	1,911	0.11	0.11	0.15	1,948
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	0.00	0.00	0.00
Total	2.18	2.04	1.85	12.4	0.03	0.02	1.06	1.09	0.02	0.19	0.21	—	3,017	3,017	0.17	0.18	0.24	3,075
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.15	0.14	0.12	0.82	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	188	188	0.01	0.01	0.24	191
Library	0.25	0.24	0.20	1.41	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	—	324	324	0.02	0.02	0.42	331
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	0.00	0.00	0.00
Total	0.40	0.38	0.32	2.23	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	512	512	0.03	0.03	0.66	522

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4

Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Library	—	—	—	—	—	—	—	—	—	—	—	—	30.1	30.1	< 0.005	< 0.005	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	12.1	12.1	< 0.005	< 0.005	—	12.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.9	52.9	0.01	< 0.005	—	53.5

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Library	—	—	—	—	—	—	—	—	—	—	—	—	30.1	30.1	< 0.005	< 0.005	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	12.1	12.1	< 0.005	< 0.005	—	12.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.9	52.9	0.01	< 0.005	—	53.5

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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

Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.9	57.9	0.01	< 0.005	—	58.1
Library	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	59.6	59.6	0.01	< 0.005	—	59.7
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
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	0.01	< 0.005	—	118

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.9	57.9	0.01	< 0.005	—	58.1
Library	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	59.6	59.6	0.01	< 0.005	—	59.7
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
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	0.01	< 0.005	—	118

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.40	0.37	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.49
Total	0.40	1.56	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.49
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.77
Total	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.77

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.40	0.37	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.49
Total	0.40	1.55	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.49
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.77
Total	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.77

4.4. Water Emissions by Land Use

4.4.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.54	2.51	4.05	0.16	< 0.005	—	9.13
Library	—	—	—	—	—	—	—	—	—	—	—	1.64	2.74	4.38	0.17	< 0.005	—	9.81
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.54	2.51	4.05	0.16	< 0.005	—	9.13
Library	—	—	—	—	—	—	—	—	—	—	—	1.64	2.74	4.38	0.17	< 0.005	—	9.81
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.18	5.25	8.43	0.33	0.01	—	18.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.25	0.42	0.67	0.03	< 0.005	—	1.51
Library	—	—	—	—	—	—	—	—	—	—	—	0.27	0.45	0.73	0.03	< 0.005	—	1.62
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.53	0.87	1.40	0.05	< 0.005	—	3.14

4.4.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.38	2.33	3.70	0.14	< 0.005	—	8.26
Library	—	—	—	—	—	—	—	—	—	—	—	1.47	2.55	4.02	0.15	< 0.005	—	8.89
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.38	2.33	3.70	0.14	< 0.005	—	8.26
Library	—	—	—	—	—	—	—	—	—	—	—	1.47	2.55	4.02	0.15	< 0.005	—	8.89
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.23	0.39	0.61	0.02	< 0.005	—	1.37
Library	—	—	—	—	—	—	—	—	—	—	—	0.24	0.42	0.67	0.03	< 0.005	—	1.47
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.81	1.28	0.05	< 0.005	—	2.84

4.5. Waste Emissions by Land Use

4.5.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	2.80	0.00	2.80	0.28	0.00	—	9.81
Library	—	—	—	—	—	—	—	—	—	—	—	2.25	0.00	2.25	0.23	0.00	—	7.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

4.5.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	2.80	0.00	2.80	0.28	0.00	—	9.81
Library	—	—	—	—	—	—	—	—	—	—	—	2.25	0.00	2.25	0.23	0.00	—	7.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.20	0.20
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Demolition	Demolition	1/1/2024	1/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2024	2/1/2024	5.00	2.00	—
Grading	Grading	2/2/2024	2/7/2024	5.00	4.00	—
Building Construction	Building Construction	2/8/2024	1/22/2025	5.00	250	—
Paving	Paving	1/23/2025	2/5/2025	5.00	10.0	—
Architectural Coating	Architectural Coating	2/6/2025	2/19/2025	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

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 3	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 3	2.00	8.00	367	0.40

Site Preparation	Rubber Tired Dozers	Diesel	Tier 3	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 3	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 3	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 3	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 3	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 3	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 3	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 3	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 3	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 3	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 3	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 3	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 3	1.00	6.00	37.0	0.48
Demolition	Excavators	Diesel	Tier 3	3.00	8.00	36.0	0.38
Grading	Excavators	Diesel	Tier 3	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Tier 3	2.00	8.00	423	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	7.70	LDA,LDT1,LDT2
Demolition	Vendor	—	4.00	HHDT,MHDT

Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	34.5	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.7	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	8.45	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.33	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	7.70	LDA,LDT1,LDT2
Demolition	Vendor	—	4.00	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	34.5	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.7	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	8.45	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.33	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	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	77,349	25,783	8,991

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)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	551	—	1.88	0.00	—
Grading	—	—	12.0	0.00	—
Paving	0.00	0.00	0.00	0.00	3.44

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%
Library	0.00	0%
Parking Lot	3.44	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

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
High School	253	253	253	92,355	1,407	1,407	1,407	513,724
Library	437	437	437	159,510	2,431	2,431	2,431	887,270
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	253	253	253	92,355	1,407	1,407	1,407	513,724
Library	437	437	437	159,510	2,431	2,431	2,431	887,270
Parking Lot	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

5.10.1.2. Mitigated

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	77,349	25,783	8,991

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

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)

High School	115,850	204	0.0330	0.0040	1,091,049
Library	325,065	204	0.0330	0.0040	1,122,601
Parking Lot	131,265	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
High School	115,850	204	0.0330	0.0040	1,091,049
Library	325,065	204	0.0330	0.0040	1,122,601
Parking Lot	131,265	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	802,457	549,088
Library	857,285	631,452
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	719,322	549,088
Library	768,470	631,452
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	31.42	0.00
Library	25.23	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	31.42	0.00
Library	25.23	0.00
Parking Lot	0.00	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
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	—	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	2.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	—	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	2.00	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	—	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	2.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	—	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	2.00	20.0

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

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	33.7	annual days of extreme heat
Extreme Precipitation	1.40	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.7
AQ-PM	95.5
AQ-DPM	48.2
Drinking Water	47.6
Lead Risk Housing	5.27
Pesticides	0.00
Toxic Releases	61.1
Traffic	18.2
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	53.5
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	46.5
Cardio-vascular	31.0
Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	30.9
Housing	2.13
Linguistic	0.00
Poverty	33.0
Unemployment	53.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.9095342
Employed	84.28076479
Median HI	70.66598229
Education	—
Bachelor's or higher	60.74682407
High school enrollment	100
Preschool enrollment	27.71718209

Transportation	—
Auto Access	89.83703323
Active commuting	1.039394328
Social	—
2-parent households	58.59104324
Voting	63.19774156
Neighborhood	—
Alcohol availability	64.1986398
Park access	49.65995124
Retail density	33.55575516
Supermarket access	27.89683049
Tree canopy	70.01154883
Housing	—
Homeownership	85.85910432
Housing habitability	97.80572308
Low-inc homeowner severe housing cost burden	97.8570512
Low-inc renter severe housing cost burden	97.71589888
Uncrowded housing	77.4541255
Health Outcomes	—
Insured adults	89.88836135
Arthritis	49.4
Asthma ER Admissions	42.3
High Blood Pressure	66.9
Cancer (excluding skin)	27.6
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	68.2

Diagnosed Diabetes	85.5
Life Expectancy at Birth	25.6
Cognitively Disabled	93.6
Physically Disabled	49.3
Heart Attack ER Admissions	48.8
Mental Health Not Good	68.6
Chronic Kidney Disease	85.5
Obesity	68.0
Pedestrian Injuries	50.2
Physical Health Not Good	81.0
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	7.5
Current Smoker	76.6
No Leisure Time for Physical Activity	79.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	56.5
English Speaking	98.1
Foreign-born	4.6
Outdoor Workers	34.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	51.0
Traffic Density	7.2
Traffic Access	0.0

Other Indices	—
Hardship	23.4
Other Decision Support	—
2016 Voting	60.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	17.0
Healthy Places Index Score for Project Location (b)	71.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Defaults were adjusted to match 14 month estimated construction schedule.
Land Use	Lot acreage includes total site plan to account for the grading of future administration offices.
Construction: Dust From Material Movement	Based on information provided.

Operations: Vehicle Data	Based on trip rates from the TIA report. VMT for employees was provided, but could not be broken down into trip length.

CUSD Phase 1 2030 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CUSD Phase 1 2030
Construction Start Date	1/1/2024
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	21.4
Location	36.835234667902185, -119.68112749607162
County	Fresno
City	Clovis
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2444
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.8

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

High School	24.2	1000sqft	6.58	24,167	40,000	0.00	—	Special Education Administration Building
Library	27.4	1000sqft	6.58	27,399	46,000	—	—	Online School Building
Parking Lot	3.44	Acre	3.44	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Energy	E-2	Require Energy Efficient Appliances
Energy	E-7*	Require Higher Efficacy Public Street and Area Lighting
Water	W-4	Require Low-Flow Water Fixtures
Refrigerants	R-5	Reduce Service Leak Emissions
Refrigerants	R-6	Reduce Operational Leak Emissions
Area Sources	AS-2	Use Low-VOC Paints

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.67	0.64	12.9	15.8	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,645	2,645	0.11	0.04	0.83	2,661
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	1.26	26.1	30.4	36.0	0.06	1.25	8.41	9.39	1.12	4.14	5.02	—	7,854	7,854	0.27	0.44	0.16	7,991
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.49	0.78	9.70	11.6	0.02	0.41	0.18	0.59	0.37	0.06	0.43	—	2,000	2,000	0.08	0.03	0.26	2,011
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.09	0.14	1.77	2.12	< 0.005	0.07	0.03	0.11	0.07	0.01	0.08	—	331	331	0.01	0.01	0.04	333
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—

Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.3. Construction Emissions by Year, Mitigated

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	0.67	0.64	12.9	15.8	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,645	2,645	0.11	0.04	0.83	2,661
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.26	1.26	30.4	36.0	0.06	1.25	8.41	9.39	1.12	4.14	5.02	—	7,854	7,854	0.27	0.44	0.16	7,991
2025	0.65	26.1	12.9	15.6	0.02	0.54	0.15	0.68	0.49	0.04	0.52	—	2,626	2,626	0.11	0.04	0.02	2,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.49	0.47	9.70	11.6	0.02	0.41	0.18	0.59	0.37	0.06	0.43	—	2,000	2,000	0.08	0.03	0.26	2,011
2025	0.04	0.78	0.82	1.00	< 0.005	0.04	0.01	0.04	0.03	< 0.005	0.03	—	161	161	0.01	< 0.005	0.02	162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.09	1.77	2.12	< 0.005	0.07	0.03	0.11	0.07	0.01	0.08	—	331	331	0.01	0.01	0.04	333
2025	0.01	0.14	0.15	0.18	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	26.7	26.7	< 0.005	< 0.005	< 0.005	26.8

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	2.67	3.68	2.08	15.4	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,198	4,232	3.59	0.17	7.43	4,381
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	2.05	3.08	2.26	11.9	0.03	0.07	1.06	1.13	0.07	0.19	0.25	33.4	3,931	3,965	3.62	0.18	0.34	4,110
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	2.27	3.29	2.17	12.8	0.03	0.07	1.06	1.13	0.07	0.19	0.25	33.4	4,009	4,042	3.60	0.18	3.30	4,188
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.42	0.60	0.40	2.34	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.53	664	669	0.60	0.03	0.55	693
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.21	2.09	1.47	12.6	0.03	0.02	1.06	1.08	0.02	0.19	0.21	—	3,155	3,155	0.13	0.16	7.27	3,212
Area	0.40	1.55	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.96
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.67	3.68	2.08	15.4	0.03	0.07	1.06	1.13	0.07	0.19	0.26	33.4	4,198	4,232	3.59	0.17	7.43	4,381
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.99	1.86	1.67	11.4	0.03	0.02	1.06	1.08	0.02	0.19	0.21	—	2,897	2,897	0.16	0.17	0.19	2,951
Area	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.05	3.08	2.26	11.9	0.03	0.07	1.06	1.13	0.07	0.19	0.25	33.4	3,931	3,965	3.62	0.18	0.34	4,110
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.01	1.89	1.57	11.2	0.03	0.02	1.06	1.08	0.02	0.19	0.21	—	2,970	2,970	0.14	0.16	3.14	3,025
Area	0.20	1.37	0.01	1.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.55	4.55	< 0.005	< 0.005	—	4.91
Energy	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,029	1,029	0.11	0.01	—	1,034
Water	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1

Waste	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	2.27	3.29	2.17	12.8	0.03	0.07	1.06	1.13	0.07	0.19	0.25	33.4	4,009	4,042	3.60	0.18	3.30	4,188
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.37	0.35	0.29	2.04	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	492	492	0.02	0.03	0.52	501
Area	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.81
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	171
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.81	1.28	0.05	< 0.005	—	2.84
Waste	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.42	0.60	0.40	2.34	0.01	0.01	0.19	0.21	0.01	0.03	0.05	5.53	664	669	0.60	0.03	0.55	693

3. Construction Emissions Details

3.1. Demolition (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.2. Demolition (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.72	17.3	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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	0.04	0.04	0.95	1.00	< 0.005	0.04	—	0.04	0.04	—	0.04	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.17	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.4	82.4	< 0.005	< 0.005	0.01	83.7
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.68	4.68	< 0.005	< 0.005	0.01	4.76
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.79
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.4. Site Preparation (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.90	24.0	28.3	0.05	0.94	—	0.94	0.84	—	0.84	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	29.0	29.0	< 0.005	< 0.005	—	29.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.80	4.80	< 0.005	< 0.005	—	4.82
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.57	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.01	97.6
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	0.11	0.05	3.18	0.72	0.02	0.05	0.64	0.69	0.05	0.18	0.22	—	2,462	2,462	0.05	0.39	0.15	2,580
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.01	14.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.23	2.23	< 0.005	< 0.005	< 0.005	2.34

3.5. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.6. Grading (2024) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	1.18	30.3	35.3	0.06	1.25	—	1.25	1.12	—	1.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.33	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.3	72.3	< 0.005	< 0.005	—	72.6

Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
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	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	0.01	0.01	112
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.27
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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

3.7. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.8. Building Construction (2024) - Mitigated

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	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.56	0.54	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.36	0.34	8.10	9.52	0.02	0.34	—	0.34	0.31	—	0.31	—	1,539	1,539	0.06	0.01	—	1,544
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	0.07	0.06	1.48	1.74	< 0.005	0.06	—	0.06	0.06	—	0.06	—	255	255	0.01	< 0.005	—	256
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	0.10	0.05	0.88	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	0.01	0.01	0.54	137
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.29	118
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	0.09	0.07	0.71	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	0.01	0.01	0.01	121
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118
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	0.06	0.06	0.04	0.46	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	79.1	79.1	0.01	< 0.005	0.15	80.5
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.7	72.7	< 0.005	0.01	0.08	76.0
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	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.6
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.10. Building Construction (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,398	2,398	0.10	0.02	—	2,406
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	0.02	0.02	0.54	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	104
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	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.1	17.1	< 0.005	< 0.005	—	17.1

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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	0.01	0.01	0.01	118
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	< 0.005	0.02	0.01	116
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.20	5.20	< 0.005	< 0.005	0.01	5.28
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.79	4.79	< 0.005	< 0.005	0.01	5.01
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.83
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

3.11. Paving (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.12. Paving (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.32	8.62	10.6	0.01	0.39	—	0.39	0.36	—	0.36	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.24	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.01	82.0
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.29	2.29	< 0.005	< 0.005	< 0.005	2.33
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.14. Architectural Coating (2025) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	26.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	< 0.005	23.7
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	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.81	0.77	0.54	4.63	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,157	1,157	0.05	0.06	2.67	1,178
Library	1.40	1.33	0.93	7.99	0.02	0.01	0.67	0.69	0.01	0.12	0.13	—	1,998	1,998	0.08	0.10	4.61	2,034
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	0.00	0.00	0.00
Total	2.21	2.09	1.47	12.6	0.03	0.02	1.06	1.08	0.02	0.19	0.21	—	3,155	3,155	0.13	0.16	7.27	3,212
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.73	0.68	0.61	4.18	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,062	1,062	0.06	0.06	0.07	1,082
Library	1.26	1.18	1.05	7.21	0.02	0.01	0.67	0.69	0.01	0.12	0.13	—	1,835	1,835	0.10	0.11	0.12	1,869
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	0.00	0.00	0.00
Total	1.99	1.86	1.67	11.4	0.03	0.02	1.06	1.08	0.02	0.19	0.21	—	2,897	2,897	0.16	0.17	0.19	2,951
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.13	0.13	0.10	0.75	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	180	180	0.01	0.01	0.19	184

Library	0.23	0.22	0.18	1.30	< 0.005	< 0.005	0.12	0.13	< 0.005	0.02	0.02	—	311	311	0.02	0.02	0.33	317
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	0.00	0.00	0.00
Total	0.37	0.35	0.29	2.04	0.01	< 0.005	0.19	0.20	< 0.005	0.03	0.04	—	492	492	0.02	0.03	0.52	501

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4

Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	64.7	64.7	0.01	< 0.005	—	65.4
Library	—	—	—	—	—	—	—	—	—	—	—	—	182	182	0.03	< 0.005	—	183
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	73.4	73.4	0.01	< 0.005	—	74.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	320	320	0.05	0.01	—	323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Library	—	—	—	—	—	—	—	—	—	—	—	—	30.1	30.1	< 0.005	< 0.005	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	12.1	12.1	< 0.005	< 0.005	—	12.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.9	52.9	0.01	< 0.005	—	53.5

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.03	0.02	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	350	350	0.03	< 0.005	—	351
Library	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	360	360	0.03	< 0.005	—	361
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
Total	0.07	0.03	0.59	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	709	709	0.06	< 0.005	—	711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.9	57.9	0.01	< 0.005	—	58.1
Library	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	59.6	59.6	0.01	< 0.005	—	59.7

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
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	0.01	< 0.005	—	118

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.40	0.37	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.96
Total	0.40	1.55	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.22	9.22	< 0.005	< 0.005	—	9.96
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.81
Total	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.75	0.75	< 0.005	< 0.005	—	0.81

4.4. Water Emissions by Land Use

4.4.2. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.38	2.33	3.70	0.14	< 0.005	—	8.26
Library	—	—	—	—	—	—	—	—	—	—	—	1.47	2.55	4.02	0.15	< 0.005	—	8.89
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.38	2.33	3.70	0.14	< 0.005	—	8.26

Library	—	—	—	—	—	—	—	—	—	—	—	1.47	2.55	4.02	0.15	< 0.005	—	8.89
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.85	4.87	7.72	0.29	0.01	—	17.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.23	0.39	0.61	0.02	< 0.005	—	1.37
Library	—	—	—	—	—	—	—	—	—	—	—	0.24	0.42	0.67	0.03	< 0.005	—	1.47
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.81	1.28	0.05	< 0.005	—	2.84

4.5. Waste Emissions by Land Use

4.5.2. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.5.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	16.9	0.00	16.9	1.69	0.00	—	59.2
Library	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.05	0.00	—	107
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	2.80	0.00	2.80	0.28	0.00	—	9.81
Library	—	—	—	—	—	—	—	—	—	—	—	2.25	0.00	2.25	0.23	0.00	—	7.88
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.05	0.00	5.05	0.51	0.00	—	17.7

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme nt Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Demolition	Demolition	1/1/2024	1/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2024	2/1/2024	5.00	2.00	—
Grading	Grading	2/2/2024	2/7/2024	5.00	4.00	—
Building Construction	Building Construction	2/8/2024	1/22/2025	5.00	250	—
Paving	Paving	1/23/2025	2/5/2025	5.00	10.0	—
Architectural Coating	Architectural Coating	2/6/2025	2/19/2025	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
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Grading	Tractors/Loaders/Backh	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 3	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 3	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Tier 3	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 3	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 3	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 3	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 3	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 3	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 3	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 3	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 3	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 3	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 3	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 3	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 3	1.00	6.00	37.0	0.48
Demolition	Excavators	Diesel	Tier 3	3.00	8.00	36.0	0.38
Grading	Excavators	Diesel	Tier 3	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Tier 3	2.00	8.00	423	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	7.70	LDA,LDT1,LDT2
Demolition	Vendor	—	4.00	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	34.5	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2

Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.7	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	8.45	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.33	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	7.70	LDA,LDT1,LDT2
Demolition	Vendor	—	4.00	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—

Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	34.5	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.7	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	8.45	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.33	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	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	77,349	25,783	8,991

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)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	551	—	1.88	0.00	—
Grading	—	—	12.0	0.00	—
Paving	0.00	0.00	0.00	0.00	3.44

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%
Library	0.00	0%
Parking Lot	3.44	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

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
High School	253	253	253	92,355	1,407	1,407	1,407	513,724
Library	437	437	437	159,510	2,431	2,431	2,431	887,270
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	253	253	253	92,355	1,407	1,407	1,407	513,724
Library	437	437	437	159,510	2,431	2,431	2,431	887,270
Parking Lot	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

5.10.1.2. Mitigated

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	77,349	25,783	8,991

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

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)
High School	115,850	204	0.0330	0.0040	1,091,049
Library	325,065	204	0.0330	0.0040	1,122,601
Parking Lot	131,265	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
High School	115,850	204	0.0330	0.0040	1,091,049

Library	325,065	204	0.0330	0.0040	1,122,601
Parking Lot	131,265	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	802,457	549,088
Library	857,285	631,452
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	719,322	549,088
Library	768,470	631,452
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	31.42	0.00
Library	25.23	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	31.42	0.00
Library	25.23	0.00
Parking Lot	0.00	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
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	—	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	2.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	—	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	2.00	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	—	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	2.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	—	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	2.00	20.0

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

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	33.7	annual days of extreme heat
Extreme Precipitation	1.40	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.7
AQ-PM	95.5
AQ-DPM	48.2
Drinking Water	47.6
Lead Risk Housing	5.27
Pesticides	0.00
Toxic Releases	61.1
Traffic	18.2
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	53.5
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	46.5
Cardio-vascular	31.0

Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	30.9
Housing	2.13
Linguistic	0.00
Poverty	33.0
Unemployment	53.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.9095342
Employed	84.28076479
Median HI	70.66598229
Education	—
Bachelor's or higher	60.74682407
High school enrollment	100
Preschool enrollment	27.71718209
Transportation	—
Auto Access	89.83703323
Active commuting	1.039394328
Social	—
2-parent households	58.59104324
Voting	63.19774156
Neighborhood	—
Alcohol availability	64.1986398

Park access	49.65995124
Retail density	33.55575516
Supermarket access	27.89683049
Tree canopy	70.01154883
Housing	—
Homeownership	85.85910432
Housing habitability	97.80572308
Low-inc homeowner severe housing cost burden	97.8570512
Low-inc renter severe housing cost burden	97.71589888
Uncrowded housing	77.4541255
Health Outcomes	—
Insured adults	89.88836135
Arthritis	49.4
Asthma ER Admissions	42.3
High Blood Pressure	66.9
Cancer (excluding skin)	27.6
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	68.2
Diagnosed Diabetes	85.5
Life Expectancy at Birth	25.6
Cognitively Disabled	93.6
Physically Disabled	49.3
Heart Attack ER Admissions	48.8
Mental Health Not Good	68.6
Chronic Kidney Disease	85.5
Obesity	68.0

Pedestrian Injuries	50.2
Physical Health Not Good	81.0
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	7.5
Current Smoker	76.6
No Leisure Time for Physical Activity	79.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	56.5
English Speaking	98.1
Foreign-born	4.6
Outdoor Workers	34.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	51.0
Traffic Density	7.2
Traffic Access	0.0
Other Indices	—
Hardship	23.4
Other Decision Support	—
2016 Voting	60.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	17.0

Healthy Places Index Score for Project Location (b)	71.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Defaults were adjusted to match 14 month estimated construction schedule.
Land Use	Lot acreage includes total site plan to account for the grading of future administration offices.
Construction: Dust From Material Movement	Based on information provided.
Operations: Vehicle Data	Based on trip rates from the TIA report. VMT for employees was provided, but could not be broken down into trip length.

CUSD Phase 2 2030 2.0 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CUSD Phase 2 2030 2.0
Construction Start Date	1/6/2026
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	21.4
Location	36.835889345370376, -119.68014227348462
County	Fresno
City	Clovis
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2444
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.8

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

Government Office Building	90.0	1000sqft	2.07	90,000	10,000	—	—	—
Parking Lot	108	1000sqft	2.48	0.00	1,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Energy	E-7*	Require Higher Efficacy Public Street and Area Lighting
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes
Area Sources	AS-2	Use Low-VOC Paints

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mit.	0.69	0.66	13.0	15.9	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,759	2,759	0.11	0.06	1.04	2,779
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	1.09	24.7	20.8	25.6	0.04	0.88	0.31	1.20	0.80	0.08	0.88	—	4,186	4,186	0.17	0.07	0.03	4,211
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.41	1.36	7.91	9.60	0.02	0.33	0.12	0.45	0.30	0.03	0.33	—	1,671	1,671	0.07	0.03	0.27	1,683
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.08	0.25	1.44	1.75	< 0.005	0.06	0.02	0.08	0.05	0.01	0.06	—	277	277	0.01	0.01	0.05	279
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.69	0.66	13.0	15.9	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,759	2,759	0.11	0.06	1.04	2,779
2027	0.68	0.65	13.0	15.9	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,751	2,751	0.11	0.05	0.93	2,770
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.67	0.65	13.0	15.8	0.02	0.54	0.21	0.74	0.49	0.05	0.54	—	2,740	2,740	0.11	0.06	0.03	2,759
2027	1.09	24.7	20.8	25.6	0.04	0.88	0.31	1.20	0.80	0.08	0.88	—	4,186	4,186	0.17	0.07	0.03	4,211
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.41	0.39	7.91	9.60	0.02	0.33	0.12	0.45	0.30	0.03	0.33	—	1,671	1,671	0.07	0.03	0.27	1,683
2027	0.17	1.36	3.21	3.89	0.01	0.13	0.05	0.19	0.12	0.01	0.13	—	664	664	0.03	0.01	0.10	668
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08	0.07	1.44	1.75	< 0.005	0.06	0.02	0.08	0.05	0.01	0.06	—	277	277	0.01	0.01	0.05	279
2027	0.03	0.25	0.59	0.71	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	110	110	< 0.005	< 0.005	0.02	111

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	4.29	6.02	4.68	25.1	0.07	0.19	1.99	2.17	0.18	0.35	0.54	76.0	9,481	9,557	8.33	0.40	13.8	9,898
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	3.88	5.60	5.06	22.8	0.06	0.19	1.99	2.17	0.18	0.35	0.54	76.0	8,998	9,074	8.38	0.42	0.57	9,409
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	2.86	4.65	4.04	16.5	0.05	0.18	1.42	1.59	0.17	0.25	0.42	76.0	7,545	7,621	8.28	0.32	4.40	7,928
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	0.52	0.85	0.74	3.01	0.01	0.03	0.26	0.29	0.03	0.05	0.08	12.6	1,249	1,262	1.37	0.05	0.73	1,313
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.07	3.86	2.75	23.5	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,910	5,910	0.25	0.30	13.5	6,017
Area	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	4.29	6.02	4.68	25.1	0.07	0.19	1.99	2.17	0.18	0.35	0.54	76.0	9,481	9,557	8.33	0.40	13.8	9,898

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.67	3.44	3.13	21.2	0.05	0.04	1.99	2.03	0.04	0.35	0.39	—	5,426	5,426	0.29	0.32	0.35	5,528
Area	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	3.88	5.60	5.06	22.8	0.06	0.19	1.99	2.17	0.18	0.35	0.54	76.0	8,998	9,074	8.38	0.42	0.57	9,409
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.65	2.49	2.10	14.9	0.04	0.03	1.42	1.45	0.03	0.25	0.28	—	3,973	3,973	0.19	0.22	4.18	4,047
Area	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	3,536	3,536	0.40	0.03	—	3,555
Water	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Waste	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	2.86	4.65	4.04	16.5	0.05	0.18	1.42	1.59	0.17	0.25	0.42	76.0	7,545	7,621	8.28	0.32	4.40	7,928
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.48	0.45	0.38	2.72	0.01	0.01	0.26	0.26	< 0.005	0.05	0.05	—	658	658	0.03	0.04	0.69	670
Area	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	585	585	0.07	< 0.005	—	589
Water	—	—	—	—	—	—	—	—	—	—	—	5.11	5.89	11.0	0.53	0.01	—	27.9
Waste	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	0.52	0.85	0.74	3.01	0.01	0.03	0.26	0.29	0.03	0.05	0.08	12.6	1,249	1,262	1.37	0.05	0.73	1,313

3. Construction Emissions Details

3.1. Building Construction (2026) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.2. Building Construction (2026) - Mitigated

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	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.56	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.34	0.33	7.68	9.02	0.01	0.33	—	0.33	0.30	—	0.30	—	1,459	1,459	0.06	0.01	—	1,464
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	0.06	0.06	1.40	1.65	< 0.005	0.06	—	0.06	0.05	—	0.05	—	242	242	0.01	< 0.005	—	242
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	0.06	0.99	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	171	171	0.01	0.01	0.59	174
Vendor	0.02	0.01	0.30	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	190	190	< 0.005	0.03	0.44	199
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	0.11	0.10	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	152	152	0.01	0.01	0.02	154
Vendor	0.01	0.01	0.32	0.14	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	191	191	< 0.005	0.03	0.01	199
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	0.07	0.06	0.04	0.49	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.7	95.7	< 0.005	< 0.005	0.16	97.3
Vendor	0.01	0.01	0.19	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.12	121
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	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.8	15.8	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.02	20.1
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. Building Construction (2027) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.4. Building Construction (2027) - Mitigated

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	0.55	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.55	0.53	12.6	14.8	0.02	0.54	—	0.54	0.49	—	0.49	—	2,397	2,397	0.10	0.02	—	2,405
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	0.12	0.11	2.69	3.16	< 0.005	0.11	—	0.11	0.10	—	0.10	—	511	511	0.02	< 0.005	—	513

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	0.02	0.02	0.49	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	84.7	84.7	< 0.005	< 0.005	—	84.9
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	0.11	0.11	0.05	0.91	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	< 0.005	0.01	0.54	170
Vendor	0.02	0.01	0.29	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	186	186	< 0.005	0.03	0.39	195
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	0.10	0.09	0.07	0.74	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	149	149	0.01	0.01	0.01	151
Vendor	0.01	0.01	0.31	0.14	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	187	187	< 0.005	0.03	0.01	195
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	0.02	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.4
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.8	39.8	< 0.005	0.01	0.04	41.6
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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.44	5.44	< 0.005	< 0.005	0.01	5.53
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.88
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. Paving (2027) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.6. Paving (2027) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.34	7.77	9.35	0.01	0.35	—	0.35	0.32	—	0.32	—	1,350	1,350	0.05	0.01	—	1,355
Paving	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.38	0.46	< 0.005	0.02	—	0.02	0.02	—	0.02	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.51	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	0.01	0.01	105
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	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.27	5.27	< 0.005	< 0.005	0.01	5.36
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.87	0.87	< 0.005	< 0.005	< 0.005	0.89
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

3.7. Architectural Coating (2027) - 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

3.8. Architectural Coating (2027) - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	24.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	—	6.61
Architectural Coatings	—	1.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.09
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.7	29.7	< 0.005	< 0.005	< 0.005	30.2
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	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.54
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
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

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	4.07	3.86	2.75	23.5	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,910	5,910	0.25	0.30	13.5	6,017
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	0.00	0.00	0.00
Total	4.07	3.86	2.75	23.5	0.06	0.04	1.99	2.03	0.04	0.35	0.39	—	5,910	5,910	0.25	0.30	13.5	6,017
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	3.67	3.44	3.13	21.2	0.05	0.04	1.99	2.03	0.04	0.35	0.39	—	5,426	5,426	0.29	0.32	0.35	5,528
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	0.00	0.00	0.00

Total	3.67	3.44	3.13	21.2	0.05	0.04	1.99	2.03	0.04	0.35	0.39	—	5,426	5,426	0.29	0.32	0.35	5,528
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.48	0.45	0.38	2.72	0.01	0.01	0.26	0.26	< 0.005	0.05	0.05	—	658	658	0.03	0.04	0.69	670
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	0.00	0.00	0.00
Total	0.48	0.45	0.38	2.72	0.01	0.01	0.26	0.26	< 0.005	0.05	0.05	—	658	658	0.03	0.04	0.69	670

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,179	1,179	0.19	0.02	—	1,191
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	52.8	52.8	0.01	< 0.005	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,232	1,232	0.20	0.02	—	1,244
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,179	1,179	0.19	0.02	—	1,191
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	52.8	52.8	0.01	< 0.005	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,232	1,232	0.20	0.02	—	1,244
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	195	195	0.03	< 0.005	—	197
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.75	8.75	< 0.005	< 0.005	—	8.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	204	204	0.03	< 0.005	—	206

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
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
Total	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
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

Total	0.21	0.11	1.93	1.62	0.01	0.15	—	0.15	0.15	—	0.15	—	2,304	2,304	0.20	< 0.005	—	2,310
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	381	381	0.03	< 0.005	—	383
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
Total	0.04	0.02	0.35	0.30	< 0.005	0.03	—	0.03	0.03	—	0.03	—	381	381	0.03	< 0.005	—	383

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.2. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.01	0.01	< 0.005	< 0.005	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Government Office Building	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.01	0.01	< 0.005	< 0.005	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	30.9	35.6	66.5	3.17	0.08	—	168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	5.11	5.89	11.0	0.53	0.01	—	27.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	5.11	5.89	11.0	0.53	0.01	—	27.9

4.5. Waste Emissions by Land Use

4.5.2. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.5.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	45.1	0.00	45.1	4.51	0.00	—	158
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.47	0.00	7.47	0.75	0.00	—	26.1

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	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme nt Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	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. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Building Construction	Building Construction	2/24/2026	4/19/2027	5.00	300	—
Paving	Paving	1/13/2027	2/7/2027	5.00	18.0	—
Architectural Coating	Architectural Coating	2/8/2027	3/3/2027	5.00	18.0	—

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
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38

Paving	Tractors/Loaders/Backh	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Tier 3	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 3	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 3	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 3	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 3	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 3	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Tier 3	2.00	6.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 3	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 3	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	28.8	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	14.8	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.76	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	28.8	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	14.8	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.76	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	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	135,000	45,000	6,474

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Paving	0.00	0.00	0.00	0.00	2.48

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Government Office Building	0.00	0%
Parking Lot	2.48	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

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
Government Office Building	1,293	0.00	0.00	337,182	7,194	0.00	0.00	1,875,563
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Government Office Building	1,293	0.00	0.00	337,182	7,194	0.00	0.00	1,875,563
Parking Lot	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

5.10.1.2. Mitigated

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	135,000	45,000	6,474

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

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)
Government Office Building	2,110,174	204	0.0330	0.0040	3,594,518
Parking Lot	94,520	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
Government Office Building	2,110,174	204	0.0330	0.0040	3,594,518
Parking Lot	94,520	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Government Office Building	17,879,372	137,272
Parking Lot	0.00	13,727

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Government Office Building	16,118,254	62,412
Parking Lot	0.00	6,241

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Government Office Building	83.70	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Government Office Building	83.70	0.00
Parking Lot	0.00	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
Government Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Government Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Government Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Government Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

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

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	33.7	annual days of extreme heat
Extreme Precipitation	1.40	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.7
AQ-PM	95.5
AQ-DPM	48.2
Drinking Water	47.6
Lead Risk Housing	5.27
Pesticides	0.00
Toxic Releases	61.1
Traffic	18.2
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	53.5
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	46.5
Cardio-vascular	31.0

Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	30.9
Housing	2.13
Linguistic	0.00
Poverty	33.0
Unemployment	53.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.9095342
Employed	84.28076479
Median HI	70.66598229
Education	—
Bachelor's or higher	60.74682407
High school enrollment	100
Preschool enrollment	27.71718209
Transportation	—
Auto Access	89.83703323
Active commuting	1.039394328
Social	—
2-parent households	58.59104324
Voting	63.19774156
Neighborhood	—
Alcohol availability	64.1986398

Park access	49.65995124
Retail density	33.55575516
Supermarket access	27.89683049
Tree canopy	70.01154883
Housing	—
Homeownership	85.85910432
Housing habitability	97.80572308
Low-inc homeowner severe housing cost burden	97.8570512
Low-inc renter severe housing cost burden	97.71589888
Uncrowded housing	77.4541255
Health Outcomes	—
Insured adults	89.88836135
Arthritis	49.4
Asthma ER Admissions	42.3
High Blood Pressure	66.9
Cancer (excluding skin)	27.6
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	68.2
Diagnosed Diabetes	85.5
Life Expectancy at Birth	25.6
Cognitively Disabled	93.6
Physically Disabled	49.3
Heart Attack ER Admissions	48.8
Mental Health Not Good	68.6
Chronic Kidney Disease	85.5
Obesity	68.0

Pedestrian Injuries	50.2
Physical Health Not Good	81.0
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	7.5
Current Smoker	76.6
No Leisure Time for Physical Activity	79.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	56.5
English Speaking	98.1
Foreign-born	4.6
Outdoor Workers	34.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	51.0
Traffic Density	7.2
Traffic Access	0.0
Other Indices	—
Hardship	23.4
Other Decision Support	—
2016 Voting	60.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	17.0

Healthy Places Index Score for Project Location (b)	71.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Grading and site prep are completed in Phase 1.
Operations: Vehicle Data	Trip rate is based on traffic report.

Initial Study Appendix B

Clovis Unified School District

New District Facilities Project

Biological Resource Evaluation

Biological Resource Evaluation

New District Facilities Project
Clovis, California

Prepared for

Clovis Unified School District
Denver Stairs, Assistant Superintendent, Facility Services
1450 Herndon Avenue
Clovis, CA 93611

CLOVIS UNIFIED SCHOOL DISTRICT

Prepared by

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November 7, 2022

Table of Contents

Executive Summary

This Biological Resource Evaluation (BRE) report provides the results of a biological survey conducted by Odell Planning & Research for the Clovis Unified School District New District Facilities Project. In order to comply with the California Environmental Quality Act (CEQA) a biological evaluation was conducted to identify the potential for sensitive biological resources to be adversely affected on or near the Project.

The proposed project site consists of approximately 16.61 acres of vacant land located southeast of the intersection of North Fowler and East Herndon Avenues in the City of Clovis, Fresno County, California. Nearby land uses include commercial shopping centers to the north and west, and urban residences to the east and south.

The District proposes to construct and operate a Special Education Administration building (24,167 square feet) and an Online School building (27,399 square feet) on the site and construct associated site improvements under Phase 1 of the project. A future phase would consist of the construction and operation of District administrative offices in several buildings totaling approximately 90,000 square feet.

A review of the literature and agency databases was conducted to obtain information on the occurrences of natural communities and special-status species known from the vicinity of the proposed project. A biological survey of the proposed project site was conducted on September 13, 2022, to determine the locations and extent of habitat natural vegetation communities, determine the potential for occurrences of special-status plant and wildlife species, and to verify the presence of wetlands and jurisdictional waters of the U.S. No special-status species or diagnostic sign of special-status species was observed. The proposed project will likely have no impact to special-status plant or wildlife species, wetlands, riparian habitat, or natural vegetation communities. The report makes recommendations for Best Management Practices to be taken during construction to protect wildlife species.

1.0 Introduction

Clovis Unified School District (District) is proposing to construct new District facilities on 16.61 acres southeast of N. Fowler and E. Herndon Avenues in the City of Clovis. Under Phase 1, the District will construct two buildings: a special education administration building and an online school building and will make associated site improvements for a future phase to include District administrative offices. To comply with the California Environmental Quality Act (CEQA), this Biological Resource Evaluation was conducted to identify the potential for sensitive biological resources to occur on or near the proposed project.

1.1 Project Location

The proposed project site is located southeast of the intersection of N. Fowler and E. Herndon Avenues and is offset from the intersection with frontage on both streets (Figure 2). Nearby land uses include commercial shopping centers to the north and west, and urban residences to the east and south. A small commercial area that includes a bank, restaurant, and other uses is located on the southeast corner of N. Fowler and E. Herndon Avenues adjacent to the proposed project site. North of the proposed project site, across Herndon Avenue, is a major commercial shopping center. Land use to the east and south is residential, and to the west, across N. Fowler Avenue is another major commercial shopping center.

1.2 Project Description

Phase 1 of the proposed project would include a new special education building and an online school building. The special education building would house Main Administration, School Services, Operations, and the Clovis Infant Toddler Intervention (CITI) Kids. This building would include a lobby, a conference room, and several general administrative offices and will total about 24,167 square feet. The online school building would provide space for administration, classrooms, offices, workrooms, and computer and STEM (Science, Technology, Engineering, and Math) labs. This facility would total about 27,399 square feet. A future phase, which would consist of District administrative offices in several buildings totaling 90,000 square feet, is also part of the proposed project.

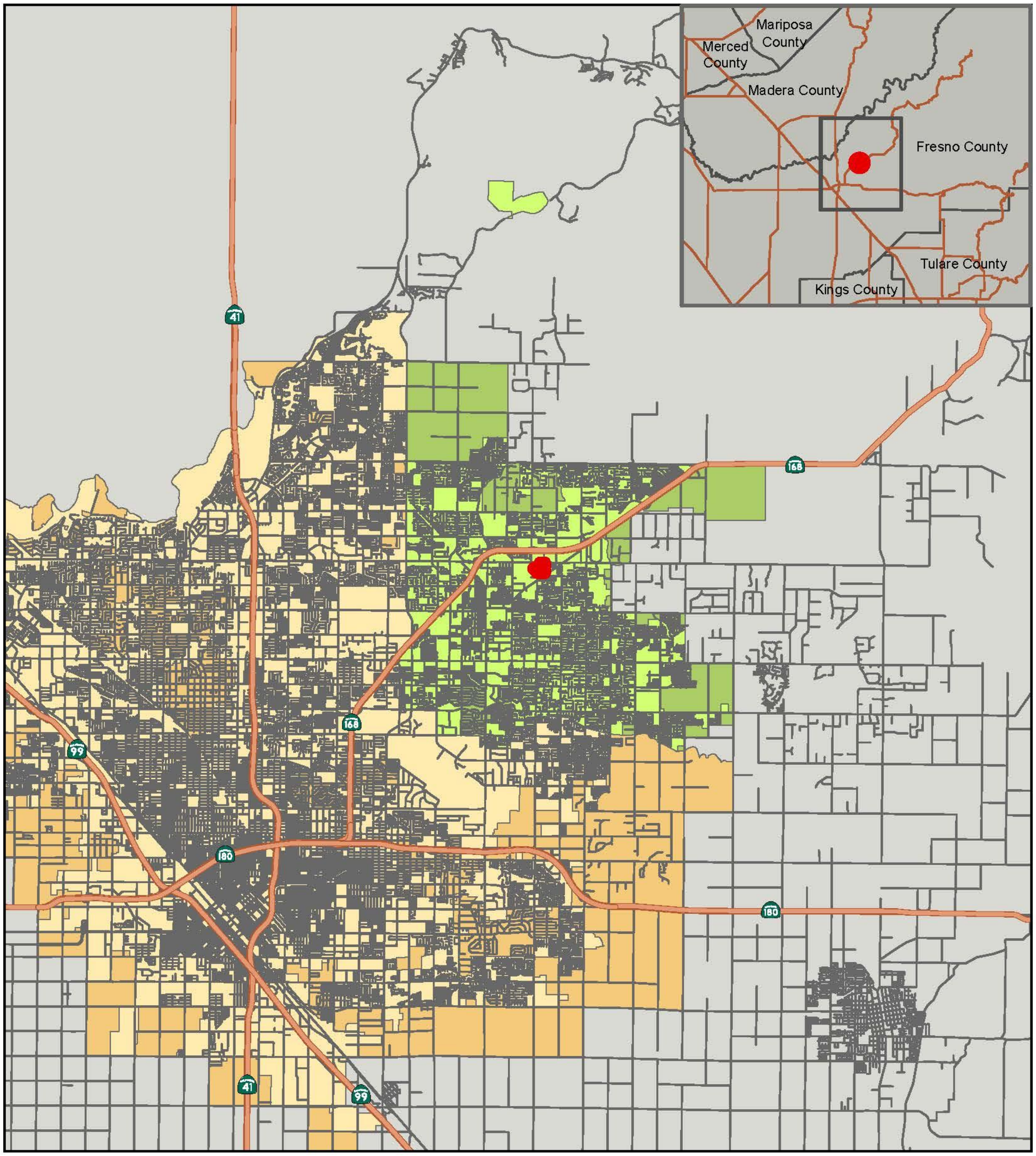
1.3 Purpose, Goals, and Objectives for this Report

This Biological Resource Evaluation provides information about potential sensitive biological resources including sensitive natural communities, special-status plant and wildlife species, wildlife movement corridors and nursery sites, and wetlands and waters. Information on these topics was obtained by conducting a desktop review of existing databases and literature, then verifying and augmenting those findings by conducting an on-site biological survey.

2.0 Methods

2.1 Definition of Biological Study Area

The Biological Study Area (BSA) consists of the entire 16.61-acre proposed project site, which includes the area of Phase I, the future phase, as well as a 200-foot buffer surrounding the entire site.



Project Location

Figure 1

Clovis Unified District Facilities Project
Clovis Unified School District

ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

Project Site
Clovis City Limits
Clovis Sphere of Influence
Fresno City Limits
Fresno Sphere of Influence

N

0 1 2 4 Miles

Project Site

Figure 2

Clovis Unified District Facilities Project
Clovis Unified School District

ODELL Planning & Research, Inc.
Environmental Planning • School Facility Planning • Demographics

2.2 Literature Review and Database Analysis

The following sources were reviewed to obtain information on sensitive biological resources occurring in the vicinity:

- California Department of Fish and Wildlife (CDFW). 2022a. California Natural Diversity Database.
- California Department of Fish and Wildlife. 2022b. California Department of Fish and Wildlife's Special Animals List, July 2022.
- California Department of Fish and Wildlife. 2022c. State and Federally Listed Endangered and Threatened Animals of California, July 2022.
- California Department of Fish and Wildlife. 2022d. State and Federally Listed Endangered, Threatened, and Rare Plants of California.
- California Native Plant Society (CNPS). 2022. Inventory of Rare and Endangered Plants of California.
- United States Fish and Wildlife Service (USFWS). 2022. Information for Planning and Consultation system.
- United States Department of Agriculture, Natural Resources Conservation Service (NRCS). 2022. Web Soil Survey.
- Western Region Climate Center (WRCC). 2022. Cooperative Climatological Data Summary.

For each of these data sources, the search was focused on the Clovis USGS 7.5-minute topographic quadrangle in which the proposed project is located plus the surrounding eight topographic quadrangles (Lanes Bridge, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, and Fresno North). For the California Natural Diversity Database (CNDDB) query, a 10-mile search radius was also used to identify natural communities and special-status species records nearest to the site.

2.3 Reconnaissance Level Field Survey

A biological survey of the proposed project site was conducted on September 13, 2022, by Odell Planning & Research Senior Project Manager David Young. The survey consisted of walking transects spaced about 100 feet apart. Tasks completed during the survey included documenting current land use, plant species, wildlife species, and wildlife sign (e.g., scat, burrows, nests, feathers, tracks, etc.), and characterizing habitat conditions. Photographs of the site were obtained and are provided below in Section 3.0 Environmental Setting. The eastern and southern setting of the buffer area is residential. The northern buffer area is also vacant land. The west buffer area is N. Fowler Avenue.

3.0 Environmental Setting

This section describes the conditions observed during the biological survey and information from various sources of literature, and databases described in Section 2.2 Literature Review and Database Analysis. Weather conditions during the survey were sunny and hot, with temperatures in the mid-90s (95 - 97° Fahrenheit). Photographs 1 through 4, taken on September 13, 2022, present the setting of the site.

Photo 1 View Looking East

Photo 2 View Looking North

Photo 3 View Facing South

Photo 4. Old Alignment of N. Fowler Avenue. Facing North

3.1 Topography

The proposed project site occurs on relatively flat, level terrain at an approximate elevation of 360 feet above mean sea level. The site has been previously disturbed by historical agriculture activities and adjacent commercial and residential development.

3.2 Climate

The climate of Clovis is dry and mild in winter and hot in summer. Nearly nine-tenths of the annual precipitation falls in the six months from November to April. Due to clear skies during the summer and the protection of the San Joaquin Valley from marine effects, the normal daily maximum temperature reaches the high 90s during the latter part of July. The daily maximum temperature during the warmest month has ranged from 76 to 115 degrees. Winter temperatures are usually mild with infrequent cold spells dropping below freezing. Heavy frost occurs almost every year, and the first frost usually occurs during the last week of November. The average annual precipitation is 9.94 inches, with the most rain occurring from October through April. Summers are hot and dry with maximum temperatures often exceeding 100°F. The average maximum temperatures range from approximately 54.6°F in January to 98.3°F in July (NCDC 2022).

3.3 Land Use

The proposed project site is vacant. Nearby land uses include commercial shopping centers to the north and west and urban residences to the east and south. A bank and small restaurant commercial shopping area are located on the southeast corner of N. Fowler and Herndon Avenues and adjacent to the site (Figure 2 and Photograph 4). The City of Clovis 2014 General Plan Land Use Designation for the site is G-C (General Commercial). The City's Zoning District is R-A (Single-Family Residential Very Low Density) and R-1 (Single-Family Residential Low Density).

An asphalt road is present in the northwest corner of the site. It is the old alignment of N. Fowler Avenue before it was curved to connect to the alignment of Fowler Avenue north of Herndon Avenue (See Photograph 4). There are two Fresno Irrigation District (FID) easements for underground pipelines. Several pipeline features such as box structures and standpipes are found on the north and west sides of the proposed project area.

3.4 Soils

The proposed project site is underlain by three soil types: Ramona sandy loam, Ramona sandy loam, hard substratum, and San Joaquin loam (Table 3.1, NRCS 2022).

Table 3.1

Map Unit Symbol	Map Unit Name	Acres in Project Site	Percent of Project Site
Ra	Ramona sandy loam	5.6	33.6%
Rb	Ramona sandy loam, hard substratum	6.4	38.4%
SeA	San Joaquin loam	4.7	28.0%
Total for Project Site		**16.7[1]**	**100.0%**

[1] Total acreage based on NRCS web soil survey shapefile.

The Ramona series consists of nearly level to moderately steep, well-drained soils that formed in alluvium derived mostly from granitic and related rock sources. Ramona soil characteristics including texture, material and mineral composition, color, acidity, and structure vary widely between soil horizons. Ramona soils are found on terraces and fans at elevations of 250 to 3,500 feet. This soil type is used mostly for the production of grain, pasture, irrigated citrus, olives, truck crops, and deciduous fruits. Uncultivated areas have a cover of annual grasses, forbs, chamise, or chaparral. This is not hydric soil (NRCS 2022).

The San Joaquin loam series consists of moderately deep to duripan, well and moderately well-drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources. They are on undulating low terraces with slopes of 0 to 9 percent at elevations of about 20 to 500 feet. They formed in alluvium from mixed but mainly granitic rock sources. They are well and moderately well drained, with medium to very high runoff and very slow permeability. This soil type is used mostly for cropland and livestock grazing; crops are small grains, irrigated pasture, rice, vineyards, fruit, and nut crops (NRCS 2022).

3.5 Hydrology

The proposed project site is located within the San Joaquin River watershed, which encompasses about 31,800 square miles The watershed is in the South Valley Floor Hydrologic Unit, within the Tulare Lake Hydrologic Region (DWR 2022). Water supply for the City is obtained from groundwater and surface water from the San Joaquin

River. The City obtains surface water from the San Joaquin River with an agreement with Fresno Irrigation District (FID).

No surface water features occur on the site. However, two buried FID pipelines traverse the site. The Clovis No. 115 runs westerly along the south side of Herndon Avenue and traverses the north side of the subject property in a 17-feet wide exclusive easement. The Clovis S. Branch No. 115 runs southernly from Clovis No. 115 and traverses the property in a 15-feet wide exclusive easement to N. Fowler Avenue (FID 2022).

3.6 General Biological Conditions

The proposed project site is surrounded by commercial shopping centers to the north and west, and urban residences to the east and south. No natural plant communities occur in the area of the site. The topography is level and vacant, and the site has been plowed. A few ruderal and ornamental species such as Russian thistle (*Salsola kali*), Black locust (*Robinia pseudoacacia*), European privet (*Ligustrum vulgare*), Moonflower (*Datura innoxia*), Common tarweed (*Centromadia sp*.), Canadian horseweed (*Conyza canadensis*), and Bermuda grass (*Cynodon dactylon*) were observed. One burrow was noted adjacent to an FID box structure (Photograph 5). A western fence lizard (*Sceloporus occidentalis*) was seen, and a flock of Canadian geese (*Branta canadensis*) was observed flying overhead. No other animals were observed at the time of the site visit. Neighbors living in the area have reported anecdotal information about the occurrence of coyote (*Canis latrans*), red fox (*Vulpes vulpes*), California ground squirrel (*Otospermophilus beecheyi*) cottontail rabbits (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), red-tailed hawk (*Buteo jamaicensis*), and Cooper's hawk (*Accipiter cooperii*) sightings. In addition, animals such as raccoons (*Procyon lotor*) and Virginia opossums (*Didelphis virginiana*) are common to urban environments and likely breed and forage in the urban area for human-generated food and have been documented (City of Clovis 2014a). Other small mammals documented occurring in rural residential areas include deer mice (*Peromyscus maniculatus*), Norway rats (*Rattus norvegicus*), house mice (*Mus musculus*), Botta's pocket gophers (*Thomomys bottae*), and broad-footed moles (S*capanus latimanus*), and are common in residential garden beds and lawns.

Photograph 5 Burrow Adjacent to FID Box Structure

4.0 Findings

4.1 Special Status Plant Species

There were 15 special-status plant species identified in the literature and database review that are historically known or have the potential to occur within the nine topographic map quadrangles surrounding the proposed project site (Table 4-1).

Table 4-1
Special-Status Plant Species That May Occur Near the Site

Scientific Name	Common Name	Status
Calycadenia hooveri	Hoover's calycadenia	1B.3
Carex comosa	Bristly sedge	2B.1
Castilleja campestris var. succulenta	succulent owl's-clover	FT, SE
Caulanthus californicus	California jewelflower	FE, SE, 1B.1
Downingia pusilla	dwarf downingia	2B.2
Eryngium spinosepalum	spiny-sepaled button-celery	1B.2
Imperata brevifolia	California satintail	2B.1
Lagophylla dichotoma	forked hare-leaf	1B.1
Leptosiphon serrulatus	Madera leptosiphon	1B.2
Navarretia myersii ssp. myersii	pincushion navarretia	1B.1
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	FT, SE, 1B.1
Orcuttia pilosa	hairy Orcutt grass	FE, SE, 1B.1
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE, SE, 1B.1
Sagittaria sanfordii	Sanford's arrowhead	1B.2
Tuctoria greenei	Greene's tuctoria	FE, 1B.1

Abbreviations:
FE Federal Endangered Species
FT Federal Threatened Species
SE California Endangered Species
1B.1 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Seriously Endangered in California
1B.2 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Fairly Endangered in California.
1B.3 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Not Very Endangered in California
2B.1 California Native Plant Society List 2B Species-Plants Categorized as Endangered in California; Seriously Endangered
2B.2 Native Plant Society List 2B Species-Plants Categorized as Endangered in California; Fairly Endangered in California

No special-status plant species were observed within the proposed project area. Although the field survey did not coincide with the optimum survey period for all sensitive plant species, there is no habitat present on the site that would support special status plant species. The site is very degraded from past land uses (reference photographs 1-4 above).

4.2 Special Status Wildlife Species

There were 38 special-status wildlife species identified in the literature and database review that are historically known or have the potential to occur within the nine topographic map quadrangles surrounding the proposed project site (Table 4-2). No special-status wildlife species were observed. There are no vernal pools or wetlands that would support aquatic species such as the crustaceans, western pond turtle (*Emys marmorata*), giant garter snake (*Thamnophis gigas*), western spadefoot (*Spea hammondii*), California tiger salamander (*Ambystoma californiense*), and California red-legged frog (*Rana draytonii*) and no bodies of water suitable for the hardhead (*Mylopharodon conocephalus*) or delta smelt (*Hypomesus transpacificus*) within the BSA. There are no grasslands or native shrub habitats that would support California glossy snake (*Arizona elegans occidentalis*), northern

California legless lizard (*Anniella pulchra*), coast horned lizard (*Phrynosoma blainvillii*), and blunt-nosed leopard lizard (*Gambelia sila*).

The proposed project site is highly disturbed and contains no habitat that would support the special-status wildlife species listed in Table 4-2.

Table 4-2
Special-Status Wildlife Species That May Occur Near the Site

Scientific Name	Common Name	Status
Invertebrates		
Bombus crotchii	Crotch bumble bee	S1, S2
Danaus plexippus	monarch butterfly	Candidate
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT
Efferia antiochi	Antioch efferian robberfly	S1, S2
Lytta molesta	Moestan blister beetle	S2
Metapogon hurdi	Hurd's metapogon robberfly	S1, S2
Crustaceans		
Branchinecta conservatio	conservancy fairy shrimp	FE
Branchinecta lynchi	vernal pool fairy shrimp	FT
Amphibians		
Ambystoma californiense	California tiger salamander	FT, ST
Spea hammondii	western spadefoot toad	S3
Rana draytonii	California red-legged frog	FT
Reptiles		
Anniella pulchra	northern California legless lizard	S3
Emys marmorata	western pond turtle	S3
Gambelia sila	blunt-nosed leopard lizard	FE, SE
Thamnophis gigas	giant gartersnake	FT, ST
Fish		
Hypomesus transpacificus	delta smelt	FT, SE
Mylopharodon conocephalus	hardhead	S3
Birds		
Aechmophorus occidentalis	western grebe	FP
Agelaius tricolor	tricolored blackbird	FP, ST
Aquila chrysaetos	golden eagle	FP
Athene cunicularia	burrowing owl	S3
Baeolophus inornatus	oak titmouse	FP
Buteo swainsoni	Swainson's hawk	ST
Carduelis lawrencei	Lawrence goldfinch	FP
Coccyzus americanus	western yellow-billed cuckoo	FT, SE
Contopus cooperi	olive-sided flycatcher	FP
Geothlypis trichas sinuosa	common yellowthroat	FP
Haliaeetus leucocephalus	bald eagle	FP, SE
Icterus bullockii	Bullock's oriole	FP
Limnodromus griseus	short-billed dowitcher	FP
Passerculus sandwichensis beldingi	Belding's Savannah sparrow	FP

Pica nuttallii	yellow-billed magpie	FP
Picoides nuttallii	Nuttall's woodpecker	FP
Vireo bellii pusillu	least Bell's vireo	FE, SE
Mammals		
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE, SE
Euderma maculatum	spotted bat	S3
Taxidea taxu	American badger	S3
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST

Sources:
California Department of Fish and Wildlife. 2022. California Natural Diversity Data Base, California Department of Fish and Wildlife Sacramento, CA. Topographic quadrangles: Clovis, Lanes Bridge, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South, and Fresno North.

Abbreviations
FE Federal Endangered Species
FT Federal Threatened Species
FP Federal Protected or State Fully Protected
SE California Endangered Species
ST California Threatened Species
S1 State Critically Imperiled
S2 State Imperiled
S3 State Vulnerable
Candidate: Taxa proposed for listing as Threatened or Endangered under the federal Endangered Species Act of 1973.

4.3 Nesting Migratory Birds and Raptors

Fourteen migratory bird species identified in the literature and database review that are historically known or have the potential to occur within the nine topographic map quadrangles surrounding the proposed project site (bald eagle, Belding's savannah sparrow, Bullock's oriole, western grebe, common yellowthroat, golden eagle, Lawrence goldfinch, Nuttall's woodpecker, oak titmouse, olive-sided flycatcher, short-billed dowitcher, tricolored blackbird, western grebe, and yellow-billed magpie). These species are federally- or state-protected.

During the site visit, a flock of Canadian geese (*Branta canadensis*), a migratory species, was observed flying overhead. Canada geese are extremely adept at living in human-altered areas and have established breeding colonies in urban areas near the site. No active migratory birds or raptor nests were present onsite. The site lacks any habitat for nesting or migratory birds. Ornamental trees and shrubs along the eastern and southern boundaries (and within residences) would provide nesting habitat. Bird species observed in the area include domestic pigeon (*Columba livia domestica*), crow (*Corvus brachyrhynchos*), mockingbird (*Mimus polyglottos*).

No wetland or riparian habitat exists on-site that would support nesting or foraging of the tricolored blackbird (*Agelaius tricolor*) or least Bell's vireo.

4.4 Riparian and Sensitive Natural Communities.

There are no occurrences of riparian or sensitive natural communities at the proposed project site.

4.5 Wetlands and Waters

There are no wetlands or wetland features on the proposed project site.

4.6 Critical Habitat, Movement Corridors

No designated Critical Habitat occurs on the proposed project site.

5.0 Potential Project Impacts

The proposed project is anticipated to have no impact on sensitive natural communities, special-status plants, special-status wildlife, wetlands, critical habitat, or migratory corridors. Some ground squirrel burrows scattered within the orchards could provide suitable nesting habitat for burrowing owls but the high level of nearby urban activity, e.g., traffic, noise, and the lack of local occurrences make the presence of the burrowing owl unlikely. No special-status wildlife species or diagnostic signs of special-status wildlife species were present on the proposed project site, and the disturbed condition of the site would tend to preclude those species from occurring. The incidental presence of small mammals (e.g., ground squirrels) may attract raptors, coyotes, or foxes. There is a potential for impact on these predators.

6.0 Recommendations

To protect wildlife species, the following Best Management Practices (BMP) are recommended to be implemented during the construction of the proposed project:

- Some wildlife species are attracted to den-like structures such as pipes and may enter stored pipes becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way.
- To prevent inadvertent entrapment of wildlife while work is being conducted, the contractor should cover all excavated, steep-walled holes or trenches more than 2 feet deep at the close of each working day with plywood or similar materials or provide one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, the contractor should thoroughly inspect them for trapped animals.
- All trash and food items should be discarded into closed containers and properly disposed of at the end of each workday.

7.0 References

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Initial Study Appendix C

Clovis Unified School District

New District Facilities Project

Phase I Cultural Resources Survey Report

PHASE I SURVEY,
CLOVIS UNIFIED SCHOOL DISTRICT,
FOWLER-HERNDON FACILITY PROJECT,
FRESNO COUNTY, CALIFORNIA

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March 2023
PN 36090.01

TABLE OF CONTENTS

LIST OF FIGURES

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MANAGEMENT SUMMARY

An intensive Phase I cultural resources survey was conducted for the Clovis Unified School District Fowler-Herndon Facility Project (Project), Clovis, Fresno County, California. This study was conducted by ASM Affiliates, Inc. Peter A. Carey, M.A., RPA, served as Principal Investigator. Background studies and fieldwork for the survey were completed in November 2022. The study was undertaken to assist with California Environmental Quality Act (CEQA) compliance.

ASM consulted an existing records search (22-040) from October 2022 which was requested by ODELL Planning & Research, Inc. (ODELL) for the Project. The records search was conducted by the Southern San Joaquin Valley Information Center (IC), California State University, Bakersfield. The results indicated the study area had not been previously surveyed and no resources were known to exist on it.

A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed in November 2022 by ODELL Planning & Research, Inc. with negative results. Outreach letters were sent to tribes listed on the NAHC contact list. One response was received from the Santa Rosa Rancheria Tachi-Yokut Tribe deferring to tribes more local to the study area.

The Phase I survey fieldwork was conducted on 23 November 2022, with parallel transects spaced at 15-meter (m) intervals across the study area. The total study area survey was approximately 16.2-acres (ac).

No historical resources were discovered within the study area. Based on these findings, the construction of the Project does not have the potential to result in adverse impacts to significant historical resources or properties, and no additional cultural resource studies are recommended. In the unlikely event that cultural resources are identified during the Project, it is recommended that a qualified archaeologist be contacted to evaluate the newly discovered resource.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates was retained by Odell Planning and Research, Inc. to conduct an intensive Phase I cultural resources survey for the Clovis Unified School District Fowler-Herndon Facility Project (Project), Clovis, Fresno County, California. The purpose of this archaeological investigation was to assist with compliance with the California Environmental Quality Act (CEQA).

This current investigation included:

- A background records search and literature review to determine if any known archaeological sites were present in the project zone and/or whether the study area had been previously and systematically studied by archaeologists;
- A search of the NAHC *Sacred Lands File* to determine if any traditional cultural places or cultural landscapes have been identified within the area;
- An on-foot, intensive inventory of the study area to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

This study was conducted by ASM Affiliates, Inc., of Tehachapi, California, in November 2022. Peter A. Carey, M.A., RPA, served as Principal Investigator. ASM Assistant Archaeologist Maria Silva, B.A., conducted the fieldwork.

This manuscript constitutes a report on the Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the study area.

1.1 STUDY AREA LOCATION AND PROJECT DESCRIPTION

The study area is located on the open flats of the San Joaquin Valley, at an elevation of approximately 377-feet (ft) above mean sea level (amsl). More specifically, the study area is located in the northwest corner of Section 3 and the northeast corner of Section 4 in Township 13 South, Range 21 East (T13S/R21E), Mount Diablo Base and Meridian (MDBM), within the city limits of Clovis, Fresno County, California (Figure 1). The study area totals approximately 16.2-ac on the south side of East Herndon Avenue and the east side of North Fowler Avenue with residential neighborhoods on the east and south.

The proposed Project consists of the construction of new facilities for the Special Education Administration Services and the Clovis Online School of the Clovis Unified School District.

1.2 REGULATORY CONTEXT

1.2.1 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when “historically significant” or “unique” cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (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 (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

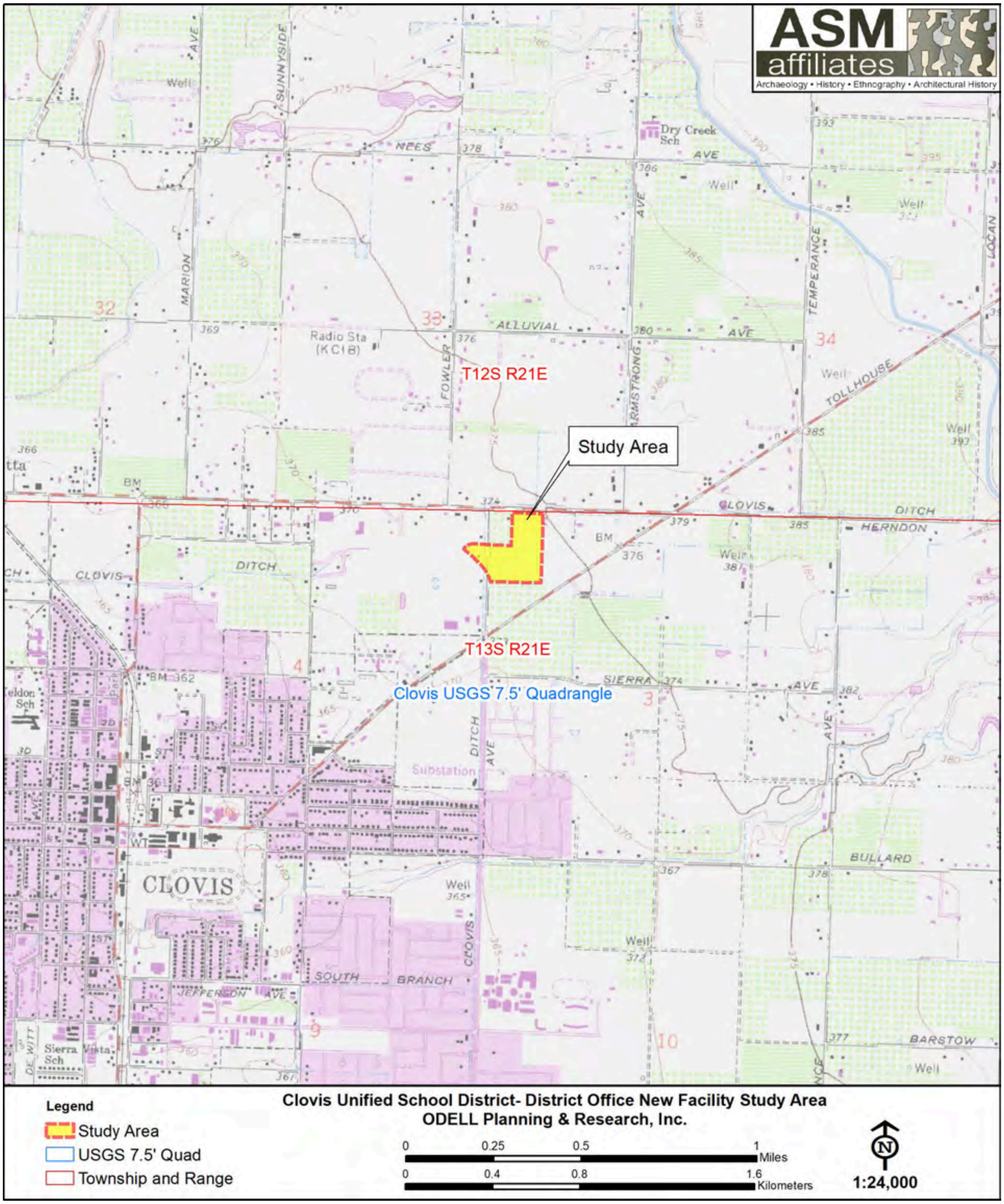

Figure 1. Location of the CUSD Fowler-Herndon Project study area, Clovis, Fresno County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND

As noted above, the study area is located at about 377-ft elevation on the open flats of the San Joaquin Valley, about 8.5-mi northeast of Fresno, within the limits of Clovis, California. Prior to the appearance of agriculture, starting in the nineteenth century, this location would have been prairie grasslands (Preston 1981). The study area and immediate surroundings have been urbanized and/or farmed and grazed for many years and no native vegetation is present. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the study area prior to cultivation.

At the time of the Phase I survey, the Project study area consisted of a cleared and recently disced lot with residences to the south and east. A short, paved cul-de-sac is present in the northwest section of the study area, and concrete city utility infrastructure was also observed in the same vicinity. Although the study area has been impacted by clearing and some level of construction, the landscape has likely not changed much historically. Vegetation in the study area currently consists of sparse forbs and grasses.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977), and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north, as well as other reservations in the foothills and Sierras. The result is an unfortunate scarcity of ethnographic detail on valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

Following Kroeber (1925: Plate 47), the study area most likely lies in Pitkachi (Pitkache in Latta [1977:163]) territory. The village for this group nearest the study area was *Moyoliu* on the north bank of the San Joaquin River, approximately 8.5-mi northwest of the study area.

Most Yokuts groups, regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokut descendants continue to live in Fresno County, either on tribal reservations, or in local towns and communities.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received much less archaeological attention than other areas of the state. In part, this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981; Rosenthal et al. 2007). Indeed, Gifford and Schenk (1926) were the first to identify the similarity between southern San Joaquin Valley prehistory and the archaeological record along the Santa Barbara Channel, a specific observation that was analytically verified more recently by Siefkin (1999). This circumstance, overlooked by some subsequent researchers, has resulted in confusion in the literature due to the application of the Sacramento Delta chronology on the local archaeological record, where it has never really fit. Based on these sources and this observation, the general prehistory of the region can be outlined in south-central California terms, as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper. Both fluted and stemmed points are particularly common around lake margins (e.g., Wallace and Riddell 1993), suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time. Little else is known about these earliest peoples at this point, however, in part because the locations of their recorded sites occur in lakeshore contexts that have experienced repetitive transgressive and regressive shorelines, resulting in mixed archaeological deposits.

Substantial evidence for human occupation of California first occurs during the Early Holocene, roughly 7500 to 4000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates). Little evidence for Early Horizon occupation exists in most inland portions of the state with (again) the exceptions being along lakeshores, partly due to a severe cold and dry paleoclimatic period occurring at this time. Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4000 YBP during the *Middle Horizon* (or Intermediate Period). This period known climatically as the Holocene Maximum (circa 3800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. Archaeologically, it was marked by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture, which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also hypothesized to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise it appears the so-called "Shoshonean Wedge" in southern California or the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam, and Kitanemuk, may have moved into the region at this time, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al. n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes, and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence, and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1500 and 800 YBP, with a consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizon transition (A.D. 800 to 1200) in the understanding of south-central California. This corresponds to the so-called Medieval Climatic Anomaly, a period of climatic instability that included major droughts and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is also believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90 percent of the interior populations in some regions including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of people into fewer but larger villages. What is clear is that Middle Period villages and settlements were widely dispersed across the landscape; many at locations that lack contemporary evidence of fresh water sources. Late Horizon sites, in contrast, are typically located where fresh water was available during the historical period, if not currently.

The Late Horizon then can be best understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend at least 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley. The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (Caltrans 2007).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state-wide ‘No-Fence’ laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866 and built small dams across the Kern River to divert water into the fields. By 1880, 86 different groups were taking water from the Kern River. Ten years later, 15 major canals provided water to thousands of acres in Kern County.

During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. One small agricultural settlement, founded by Colonel Thomas Baker in 1861 after procuring one such grant, took advantage of reclaimed swampland along the Kern River. This settlement became the City of Bakersfield in 1869, and quickly became the center of activity in the southern San Joaquin Valley, and in the newly formed Kern County. Located on the main stage road through the San Joaquin Valley, the town became a primary market and transportation hub for stock and crops, as well as a popular stopping point for travelers on the Los Angeles and Stockton Road. The Southern Pacific Railroad reached the Bakersfield area in 1873, connecting it with important market towns elsewhere in the state, dramatically impacting both agriculture and oil production (Pacific Legacy 2006).

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. Miller and Lux’s impact extended beyond Kern County, however.

The San Joaquin Valley was dominated by agricultural pursuits until the oil boom of the early 1900s, which saw a shift in the region, as some reclaimed lands previously used for farming were leased to oil companies. Nonetheless, the shift of the San Joaquin Valley towards oil production did not halt the continued growth of agriculture (Pacific Legacy 2006). The Great Depression of the 1930s brought with it the arrival of great number of migrants from the drought-affected Dust Bowl region, looking for agricultural labor. These migrants established temporary camps in the valley, staying on long past the end of the drought and the Great Depression, eventually settling in towns such as Bakersfield where their descendants live today (Boyd 1997).

The city of Fresno (originally “Fresno Station”), the county seat for Fresno County, located a short distance east of the APE, was founded in 1872 and incorporated in 1885. It was initially developed as a railway station along the Central Pacific Railroad, but quickly expanded with the development of irrigation in the region. Farmers saw success with the cultivation of wheat, grapes, and cattle. Eventually, Fresno County became one of the most agriculturally-rich counties in the United States (https://www.fresno.gov/darm/historic-preservation/history-of-fresno/). The City of Clovis began in 1890 as a freight stop along the San Joaquin Valley Railroad. A year later, in 1891, a station was constructed and called “Clovis Station,” after Clovis M. Cole, whose farmland was adjacent to the station. Later that year the townsite was mapped out and named “Clovis,” after Clovis Station. Clovis was incorporated in 1912 (Durham 1998).

CUSD was formed in 1959 through a ballot measure which unified six separate school districts consisting of 10 separate elementary schools and Clovis Union High School. The 1960-61 school year was the first for CUSD, and total enrollment was 5,037 students. Within the CUSD, there are now 32 elementary schools, five intermediate schools, five high schools, four alternative schools, one adult school, one online school, the Center for Advanced Research and Technology, and one outdoor and environmental education school (CUSD 2022).

3. ARCHIVAL RECORDS SEARCH AND TRIBAL OUTREACH

3.1 ARCHIVAL RECORDS SEARCH

ASM consulted an existing records search (22-040) from 2022 which was requested by ODELL for the Project. The records search was conducted by the staff of the IC on 31 October 2022, in order to determine whether the study area had been previously surveyed for cultural resources, and/or whether any such resources were known within it, an The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study area; (ii) if the study area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the surrounding region was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to the IC records search, no previous studies had been conducted within the study area and there are no known archaeological resources within the study area. Ten previous cultural resource studies had been conducted within 0.5-miles of the study area, resulting in the recordation of three resources within that same radius. The results of the records search are available in Confidential Appendix A.

3.2 TRIBAL OUTREACH

A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed in November 2022 by ODELL with negative results. Outreach letters were sent to tribes listed on the NAHC contact list. One response was received from the Santa Rosa Rancheria Tachi-Yokut Tribe deferring to tribes more local to the study area. The NAHC response is available in Confidential Appendix A.

4. METHODS AND RESULTS

A Phase I survey of the CUSD Fowler-Herndon Project study area was conducted by ASM Assistant Archaeologist Maria Silva, B.A. The study area was examined by walking parallel 15-meter transects. Ground visibility was generally variable with some of the study area having been overgrown with seasonal grasses. As such, these areas of denser vegetation were examined purposively and opportunistically to determine whether they contained cultural resources, using narrower transects, and with particular attention paid to rodent burrow spoils piles, cut-banks, cleared edges of disturbed areas, and other spots with better ground surface visibility.

The study area was surveyed on 23 November 2022. Soils throughout the study area are alluvial sandy loam with gravels. The study area currently consists of an empty field and road margins (Figure 2). Vegetative cover was minimal and ground surface visibility overall can be considered very good and adequate for Phase I coverage.

No cultural resources of any kind were identified during the field survey.

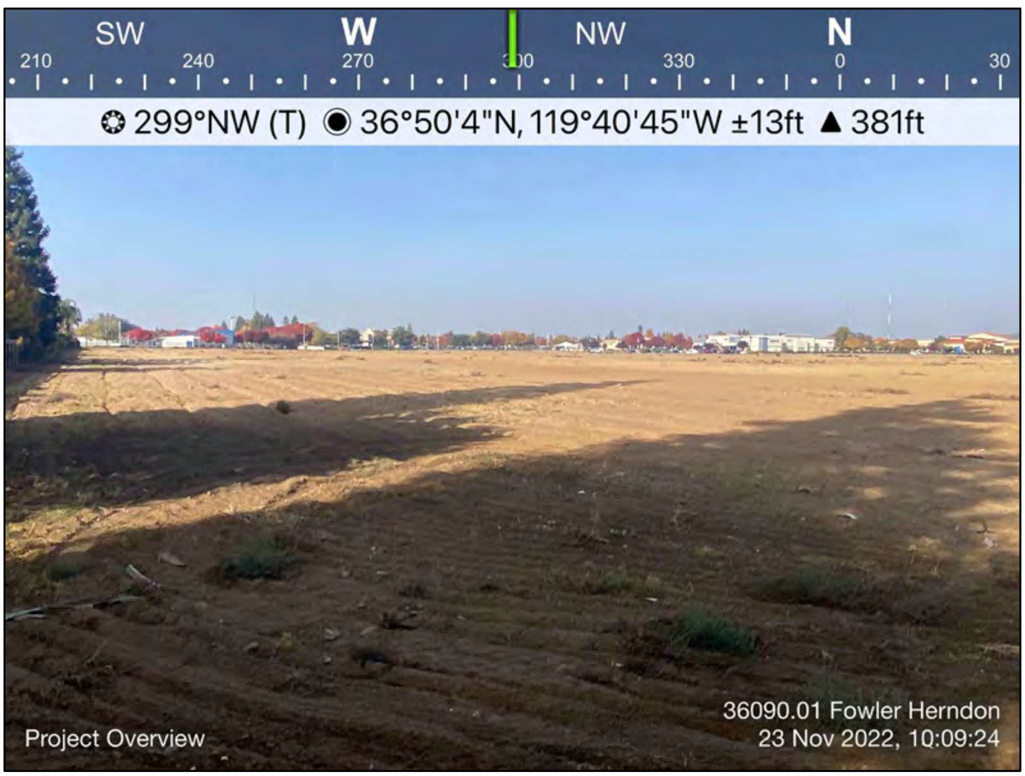

Figure 2. Study area overview. View northwest.

5. SUMMARY AND RECOMMENDATIONS

A Phase I survey was conducted for the CUSD Fowler-Herndon Project, Fresno County, California. ASM consulted an existing records search (22-040) requested by ODELL in October 2022 and conducted by the IC. The results indicated the study area had not been previously surveyed and no resources were known to exist on it. A search of the NAHC *Sacred Lands File* was also completed by ODELL in November 2022 with negative results. Outreach letters were sent to tribes listed on the NAHC contact list. One response was received from the Santa Rosa Rancheria Tachi-Yokut Tribe deferring to tribes more local to the study area.

The Phase I survey fieldwork was conducted with parallel transects spaced at 15-meter intervals across the study area. No cultural resources of any kind were identified within the study area.

5.1 RECOMMENDATIONS

A Phase I survey demonstrated that the CUSD Fowler-Herndon Project study area, Clovis, Fresno County, California, does not contain significant or unique historical resources or historic properties. A finding of No Significant Impact is recommended.

In the unlikely event that archaeological materials are discovered during construction of the project, it is recommended that a qualified archaeologist be contacted to evaluate the discovery.

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Whitley, D.S., G. Gumerman IV, J. Simon and E. Rose
1988 The Late Prehistoric Period in the Coso Range and Environs. *Pacific Coast Archaeological Society Quarterly* 24(1):2-10.

Whitley, D.S., J. Simon and J.H.N. Loubser
2007 The Carrizo Collapse: Art and Politics in the Past. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, ed RL Kaldenberg, pp. 199-208. Ridgecrest: Maturango Museum Publication 20.

CONFIDENTIAL APPENDIX A:

RECORD SEARCH AND TRIBAL OUTREACH

California
Historical
Resources
Information
System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

To: Daniel Brannick
ODELL Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644

Record Search 22-404

Date: October 31, 2022

Re: Fowler-Herndon District Facilities Project (Clovis Unified School District)

County: Fresno

Map(s): Clovis 7.5’

CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System’s (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP’s regulatory authority under federal and state law.

The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, the OHP Built Environment Resources Directory, California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the OHP are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area.

PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there have been no previous cultural resource studies conducted within the project area. There have been ten cultural resource studies conducted within the the one-half mile radius: FR-00272, 00340, 01590, 01806, 02234, 02259, 02727, 02783, 02786, and 03047.

KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there are no recorded resources within the project area, and it is unknown if any exist there. There are three recorded resources in the one-half mile radius: P-10-006897, 006898, and 006899. These resources consist of historic era single-family residences.

There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, for the California State Historic Landmarks.

COMMENTS AND RECOMMENDATIONS

We understand this project consists of construction of new District facilities for the Clovis Unified School District on 16.88 acres of vacant land. Because a cultural resources study has not be completed on this project area, it is unknown if any cultural resources are present. Therefore, we recommend a qualified, professional archaeologist conduct a field survey prior to ground disturbance activities to determine if cultural resources are present. A list of qualified consultants can be found at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission can consult their "Sacred Lands Inventory" file to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:

Celeste M. Thomson, Coordinator **Date**: October 31, 2022

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

NATIVE AMERICAN HERITAGE COMMISSION

November 17, 2022

Scott Odell
Odell Planning & Research, Inc.

Via Email to: scott@odellplanning.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Clovis Unified School District Office New Facility Project, Fresno County

Dear Mr. Odell:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

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

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     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 in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Fresno County
11/17/2022

Contact	Affiliation
Big Sandy Rancheria of Western Mono Indians Elizabeth Kipp, Chairperson P.O. Box 337 Auberry, CA, 93602 Phone: (559) 374 - 0066 Fax: (559) 374-0055 lkipp@bsrnation.com	Western Mono
Cold Springs Rancheria of Mono Indians Carol Bill, Chairperson P.O. Box 209 Tollhouse, CA, 93667 Phone: (559) 855 - 5043 Fax: (559) 855-4445 coldsprgstribe@netptc.net	Mono
Cold Springs Rancheria of Mono Indians Jared Aldern, P. O. Box 209 Tollhouse, CA, 93667 Phone: (559) 855 - 5043 Fax: (559) 855-4445 csrepa@netptc.net	Mono
Dumna Wo-Wah Tribal Government Robert Ledger, Chairperson 2191 West Pico Ave. Fresno, CA, 93705 Phone: (559) 540 - 6346 ledgerrobert@ymail.com	Foothill Yokut Mono
Kings River Choinumni Farm Tribe Stan Alec, 3515 East Fedora Avenue Fresno, CA, 93726 Phone: (559) 647 - 3227	Foothill Yokut
North Fork Rancheria of Mono Indians Elaine Fink, Chairperson P.O .Box 929 North Fork, CA, 93643 Phone: (559) 877 - 2461 Fax: (559) 877-2467 efink@nfr-nsn.gov	Mono
North Valley Yokuts Tribe Timothy Perez, P.O. Box 717 Linden, CA, 95236 Phone: (209) 662 - 2788 huskanam@gmail.com	Costanoan Northern Valley Yokut
North Valley Yokuts Tribe Katherine Perez, Chairperson P.O. Box 717 Linden, CA, 95236 Phone: (209) 887 - 3415 canutes@verizon.net	Costanoan Northern Valley Yokut
Picayune Rancheria of Chukchansi Indians Claudia Gonzales, Chairwoman P.O. Box 2226 Oakhurst, CA, 93644 Phone: (559) 412 - 5590 cgonzales@chukchansitribe.net	Foothill Yokut
Picayune Rancheria of Chukchansi Indians Heather Airey, Tribal Historic Preservation Officer P.O. Box 2226 Oakhurst, CA, 93644 Phone: (559) 795 - 5986 hairey@chukchansi-nsn.gov	Foothill Yokut
Santa Rosa Rancheria Tachi Yokut Tribe Leo Sisco, Chairperson P.O. Box 8 Lemoore, CA, 93245 Phone: (559) 924 - 1278 Fax: (559) 924-3583	Southern Valley Yokut
Table Mountain Rancheria Brenda Lavell, Chairperson P.O. Box 410 Friant, CA, 93626 Phone: (559) 822 - 2587 Fax: (559) 822-2693 rpennell@tmr.org	Yokut

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Clovis Unified School District Office New Facility Project, Fresno County.

Native American Heritage Commission
Native American Contact List
Fresno County
11/17/2022

Table Mountain Rancheria Bob Pennell, Cultural Resource Director P.O. Box 410 Friant, CA, 93626 Phone: (559) 325 - 0351 Fax: (559) 325-0394 rpennell@tmr.org	Yokut
Traditional Choinumni Tribe David Alvarez, Chairperson 2415 E. Houston Avenue Fresno, CA, 93720 Phone: (559) 217 - 0396 Fax: (559) 292-5057 davealvarez@sbcglobal.net	Foothill Yokut
Tule River Indian Tribe Joey Garfield, Tribal Archaeologist P. O. Box 589 Porterville, CA, 93258 Phone: (559) 783 - 8892 Fax: (559) 783-8932 joey.garfield@tulerivertribe-nsn.gov	Yokut
Tule River Indian Tribe Neil Peyron, Chairperson P.O. Box 589 Porterville, CA, 93258 Phone: (559) 781 - 4271 Fax: (559) 781-4610 neil.peyron@tulerivertribe-nsn.gov	Yokut
Tule River Indian Tribe Kerri Vera, Environmental Department P. O. Box 589 Porterville, CA, 93258 Phone: (559) 783 - 8892 Fax: (559) 783-8932 kerri.vera@tulerivertribe-nsn.gov	Yokut
Wuksache Indian Tribe/Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Ct. Salinas, CA, 93906 Phone: (831) 443 - 9702 kwood8934@aol.com	Foothill Yokut Mono

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Clovis Unified School District Office New Facility Project, Fresno County.

November 21, 2022

Big Sandy Rancheria of
Western Mono Indians
Elizabeth Kipp, Chairperson
P.O. Box 337
Auberry, CA 93602

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Kipp:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

Please address any correspondence or questions on this project to me at the contact information provided below:

Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

S B Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Cold Springs Rancheria of
Mono Indians
Jared Aldern
P.O. Box 209
Tollhouse, CA 93667

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Mr. Aldern:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

S B Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Cold Springs Rancheria of
Mono Indians
Carol Bill, Chairperson
P.O. Box 209
Tollhouse, CA, 93667

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Bill:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

ODELL *Planning & Research, Inc.*

Environmental Planning • School Facility Planning • Demographics

November 21, 2022

Dumna Wo-Wah Tribal
Government
Robert Ledger, Chairperson
2191 West Pico Ave.
Fresno, CA 93705

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Ledger:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SB Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

North Fork Rancheria of
Mono Indians
Elaine Fink, Chairperson
P.O. Box 929
North Fork, CA 93643

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Fink:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Kings River Choinumni
Farm Tribe
Stan Alec
3515 East Fedora Avenue
Fresno, CA 93726

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Mr. Alec:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

North Valley Yokuts Tribe
Timothy Perez
P.O. Box 717
Linden, CA 95236

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Mr. Perez:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

Please address any correspondence or questions on this project to me at the contact information provided below:

Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SB Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

North Valley Yokuts Tribe
Katharine Perez, Chairperson
P.O. Box 717
Linden, CA 95236

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Perez:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Picayune Rancheria of
Chukchansi Indians
Claudia Gonzales, Chairwoman
P.O. Box 2226
Oakhurst, CA 93644

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairwoman Gonzales:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

S B Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Picayune Rancheria of
Chukchansi Indians
Heather Airey, Tribal Historic
Preservation Officer
P.O. Box 2226
Oakhurst, CA 93644

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Ms. Airey:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Santa Rosa Rancheria Tachi
Yokut Tribe
Leo Sisco, Chairperson
P.O. Box 8
Lemoore, CA 93245

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Sisco:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SB Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Table Mountain Rancheria
Brenda Lavell, Chairperson
P.O. Box 410
Friant, CA 93626

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Lavell:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

S B Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Table Mountain Rancheria
Bob Pennell, Cultural Resources Director
P.O. Box 410
Friant, CA 93626

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Mr. Pennell:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Traditional Choinumni Tribe
David Alvarez, Chairperson
2415 E. Houston Avenue
Fresno, CA 93720

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Alvarez:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

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Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SB Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Tule River Indian Tribe
Joey Garfield, Tribal Archaeologist
P. O. Box 589
Porterville, CA 93258

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Mr. Garfield:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

Please address any correspondence or questions on this project to me at the contact information provided below:

Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

S B Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

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

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Peyron:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

Please address any correspondence or questions on this project to me at the contact information provided below:

> Scott Odell, Principal Planner
> Odell Planning & Research, Inc.
> 49346 Road 426, Suite 2
> Oakhurst, CA 93644
> Telephone: (559) 472-7167
> Email: scott@odellplanning.com

Sincerely,

S B Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Tule River Indian Tribe
Kerri Vera
Environmental Department
P. O. Box 589
Porterville, CA 93258

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Ms. Vera:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

Please address any correspondence or questions on this project to me at the contact information provided below:

> Scott Odell, Principal Planner
> Odell Planning & Research, Inc.
> 49346 Road 426, Suite 2
> Oakhurst, CA 93644
> Telephone: (559) 472-7167
> Email: scott@odellplanning.com

Sincerely,

SB Odell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

November 21, 2022

Wuksache Indian Tribe/Eshom
Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA 93906

Subject: AB 52 Notification Pursuant to California Public Resources Code Section 21080.3.1(d) for Clovis Unified School District New District Facilities Project

Dear Chairperson Woodrow:

On behalf of the Clovis Unified School District, please find enclosed information on the New District Facilities Project being proposed by the District. In accordance with California Public Resources Code Section 21080.3.1(d), this letter constitutes the tribe's formal notification under AB 52 for this project. The tribe has 30 days from receipt of this notification to request consultation. (Note: Please disregard the comment deadline indicated in the enclosed Request for Preliminary Comment as the tribe has 30 days to respond to this notification).

Please address any correspondence or questions on this project to me at the contact information provided below:

Scott Odell, Principal Planner
Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644
Telephone: (559) 472-7167
Email: scott@odellplanning.com

Sincerely,

SBOdell

Scott B. Odell, AICP
Principal Planner/President

Enclosure

Scott Odell

From: Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>
Sent: Wednesday, December 14, 2022 4:01 PM
To: Scott Odell
Cc: Shana Powers; Nichole Escalon
Subject: AB 52 Notification of New Clovis Unified School District New District Facilities Project (Intersection of Herndon Ave & Fowler Ave in Clovis, CA)

Dear Scott,

Thank you for contacting the Santa Rosa Rancheria Tachi-Yokut Tribe regarding: AB 52 Notification of New Clovis Unified School District New District Facilities Project (Intersection of Herndon Ave & Fowler Ave in Clovis, CA). Due to the location of this project the Tribe will be deferring to the tribes more local to the project area.

If you have any questions, comments, and concerns please contact myself or the Santa Rosa Rancheria Cultural Department. Thank you.

Sincerely,

Samantha McCarty
Santa Rosa Rancheria Tachi-Yokut Tribe
Cultural Specialist II
SMcCarty@tachi-yokut-nsn.gov
Office: (559) 924-1278 x 4091
Cell: (559) 633-6640

***PLEASE KEEP ALL CULTURAL STAFF IN EMAILS UNLESS STATED OTHERWISE**

Initial Study Appendix D

Clovis Unified School District

New District Facilities Project

Energy Impact Assessment

ENERGY IMPACT ASSESSMENT

FOR THE PROPOSED

CLOVIS UNIFIED SCHOOL DISTRICT FACILITIES PROJECT

CLOVIS, CA

APRIL 2023

PREPARED FOR:

ODELL PLANNING & RESEARCH, INC.
49346 ROAD 426, SUITE 2
OAKHURST, CA 93644

PREPARED BY:

75 S HIGUERA STREET, SUITE 105
SAN LUIS OBISPO, CA 93401

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

LIST OF COMMON TERMS & ACRONYMS

AFV	Alternative Fuel Vehicles
CalEEMod	California Emissions Estimator Model
CARB	California Air Resource Board
CEQA	California Environmental Quality ACt
CHP	Combined Heat and Power
DSG	Department of General Services
EMFAC	Emissions Factor
EO	Executive Order
EPA	Environmental Protection Agency
GHG	Greenhouse Gas
kBTU	Kilo British Thermal Units
kW	Kilowatt
kWh	Kilowatt Hour
LEED	Leadership in Energy and Environmental Design
MW	Megawatt
PG&E	Pacific Gas and Electric
PV	Photovoltaic
SCAQMD	South Coast Air Quality Management District
SJVAPCD	San Joaquin Valley Air Pollution Control District
USDOT	U.S. Department of Transportation
VMT	Vehicle Mile Travelled

INTRODUCTION

This report provides an analysis of potential energy impacts associated with the proposed Clovis Unified School District Facilities Project (project). This report also provides a summary of existing conditions in the project area and the applicable regulatory framework pertaining to energy.

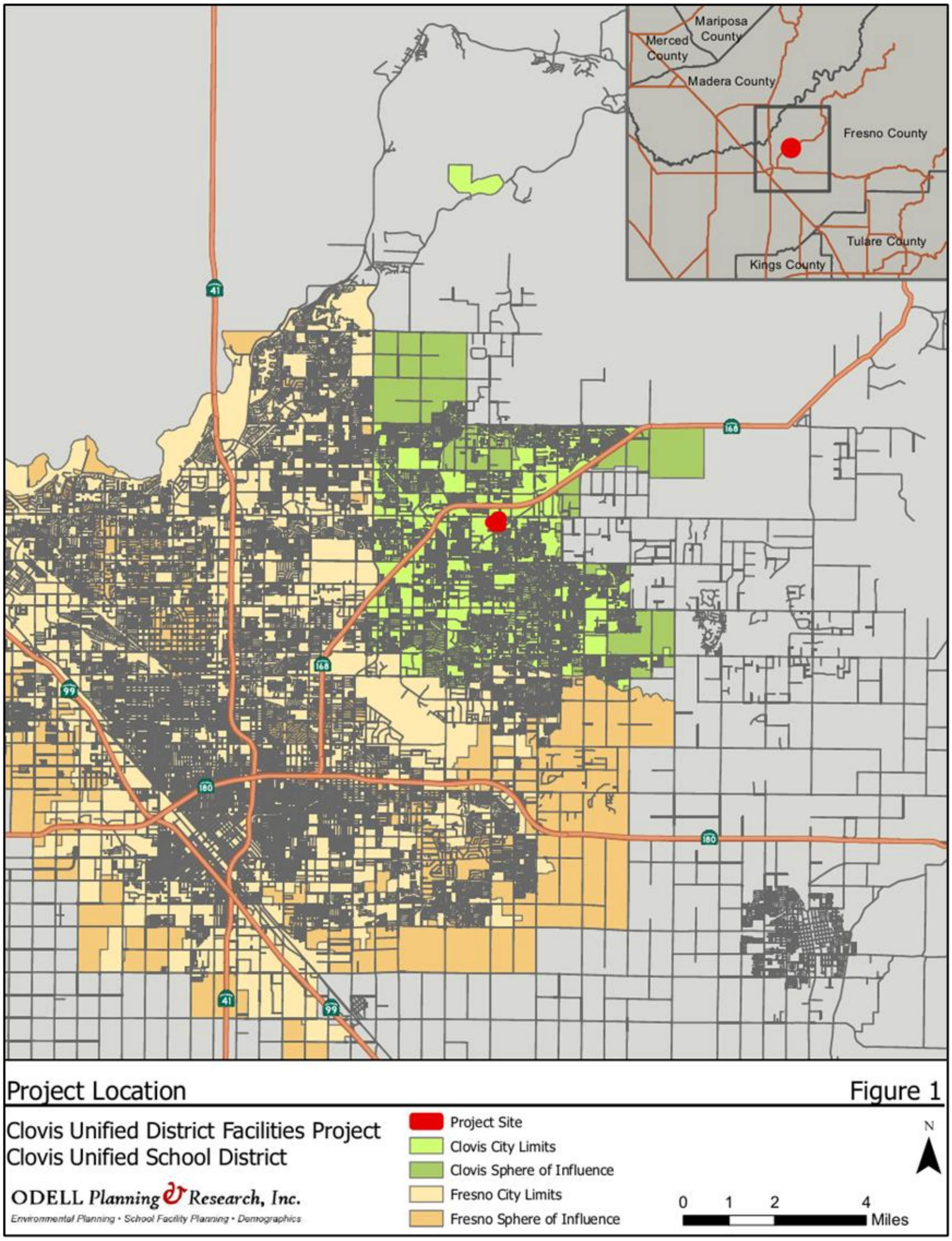
PROPOSED PROJECT SUMMARY

The project site is located on 16.61 acres southeast of the intersection of North Fowler and East Herndon Avenues in the City of Clovis (City), Fresno County (County), California (APN: 491-050-74ST, 550-020-45T, and 550-020-47T). The District proposes to construct and operate a Special Education Administration building (24,167 square feet) and an Online School building (27,399 square feet) on the site and construct associated site improvements under Phase 1 of the project. A future phase would consist of the construction and operation of District administrative offices in several buildings totaling approximately 90,000 square feet. The new Special Education Administration facility will include a reception/lobby area; offices for administration, operations and school services; meeting, conference and break rooms; and will house the Clovis Infant Toddler Intervention (CITI) Kids program. The new Online School facility will include a reception/lobby area, administrative offices, flex rooms, teacher offices, STEM (Science, Technology, Engineering, and Math) lab, computer lab, nurse station and conference room. A map identifying the project location is presented in Figure 1.

ENERGY FUNDAMENTALS

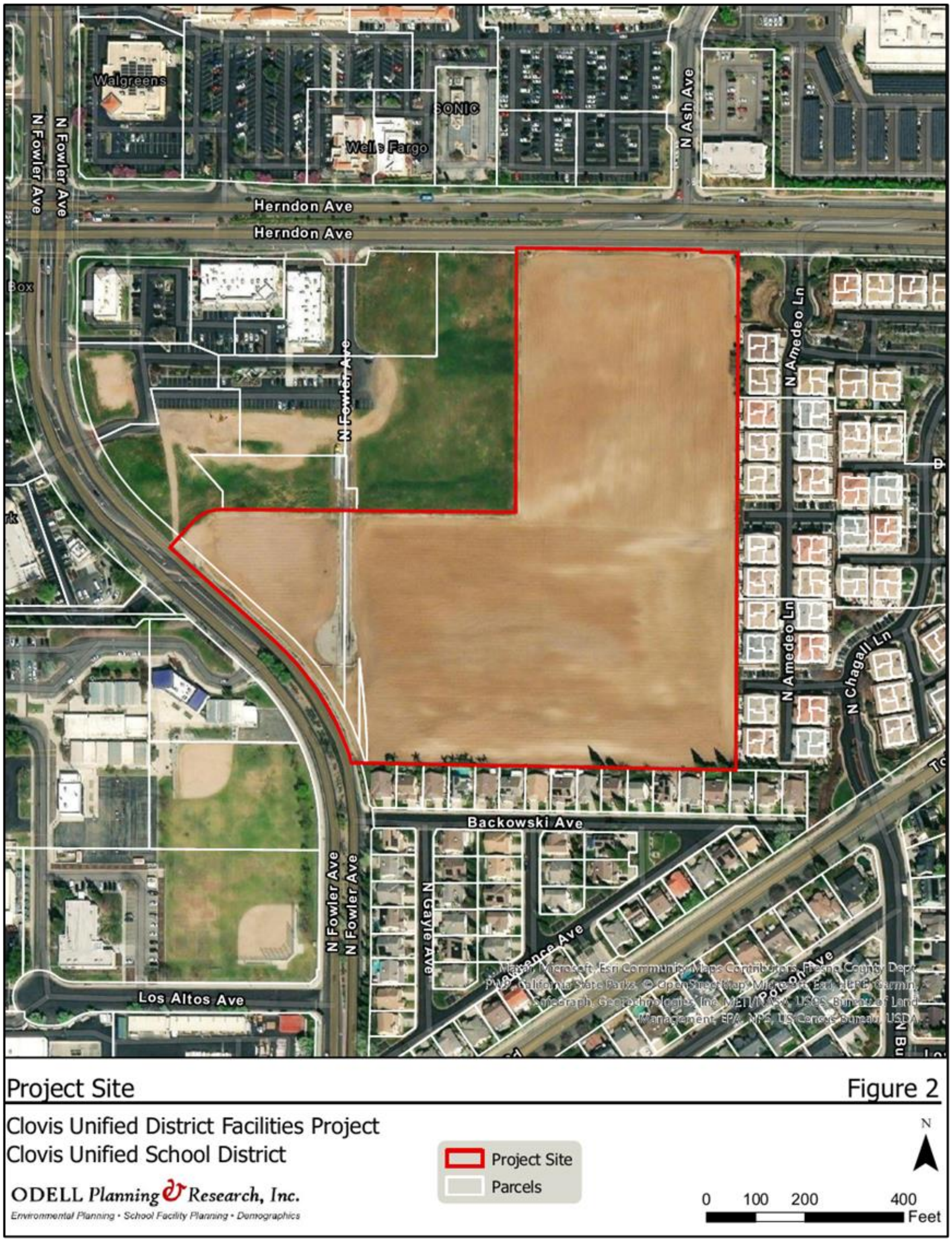
Energy use is typically associated with transportation, construction, and the operation of land uses. Transportation energy use is generally categorized by direct and indirect energy. Direct energy relates to energy consumption by vehicle propulsion. Indirect energy relates to the long-term indirect energy consumption of equipment, such as maintenance activities. Energy is also consumed by construction and routine operation and maintenance of land use. Construction energy relates to a direct one-time energy expenditure primarily associated with the consumption of fuel use to operate construction equipment. Energy-related to land use is normally associated with direct energy consumption for heating, ventilation, and air conditioning of buildings.

Figure 1. Project Location



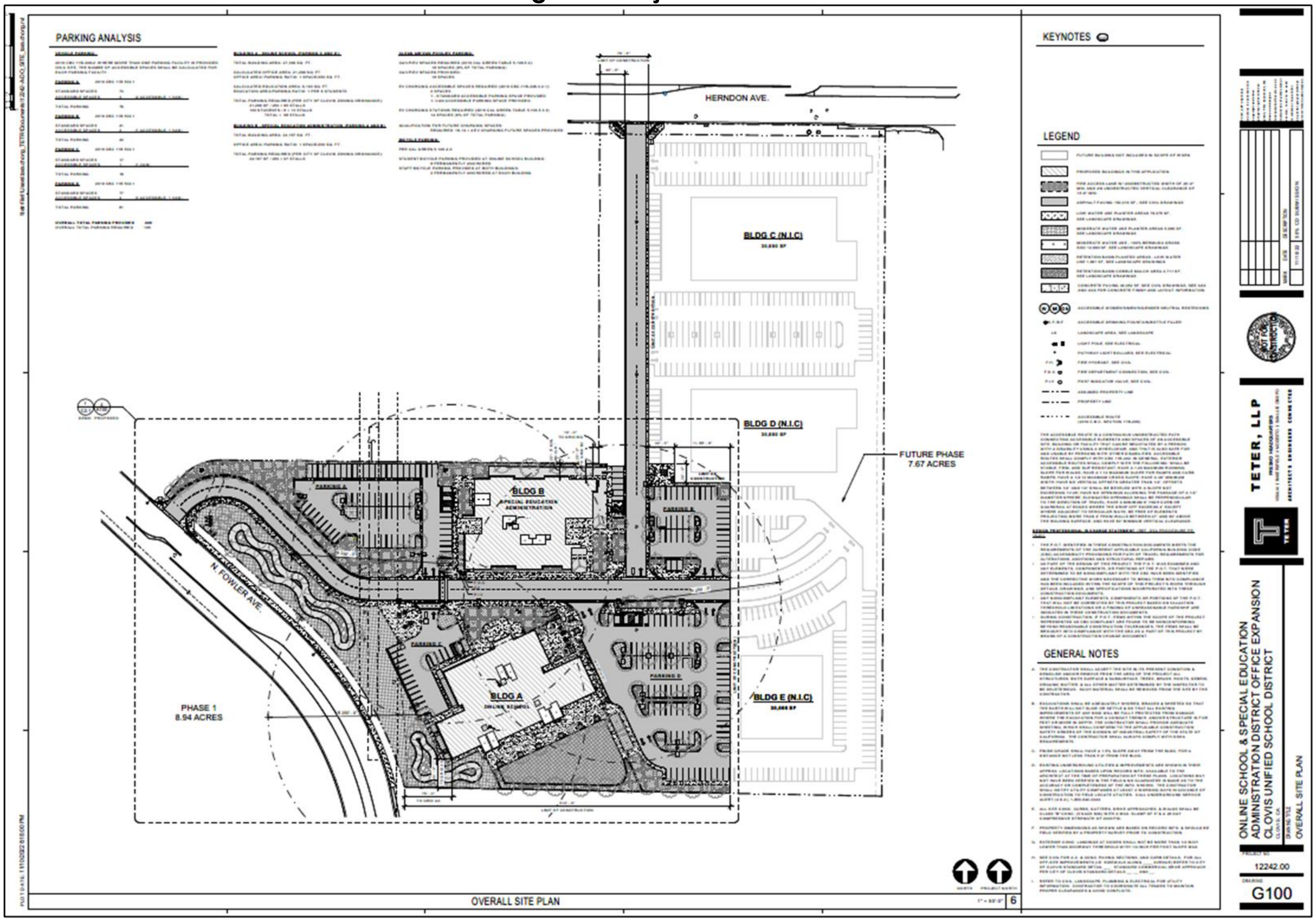
Source: OPR 2023

Figure 2. Project Site



Source: OPR 2023

Figure 3. Project Site Plan



Source: OPR 2021

EXISTING SETTING

PHYSICAL SETTING

The project is located in the City of Clovis. The City is served primarily by Pacific Gas & Electric (PG&E). The climate in the project area is semi-arid, with an annual normal precipitation of approximately 11 inches. Temperatures in the project area range from an average minimum of approximately 38 degrees Fahrenheit (°F), in January, to an average maximum of 98°F, in July (WRCC 2018).

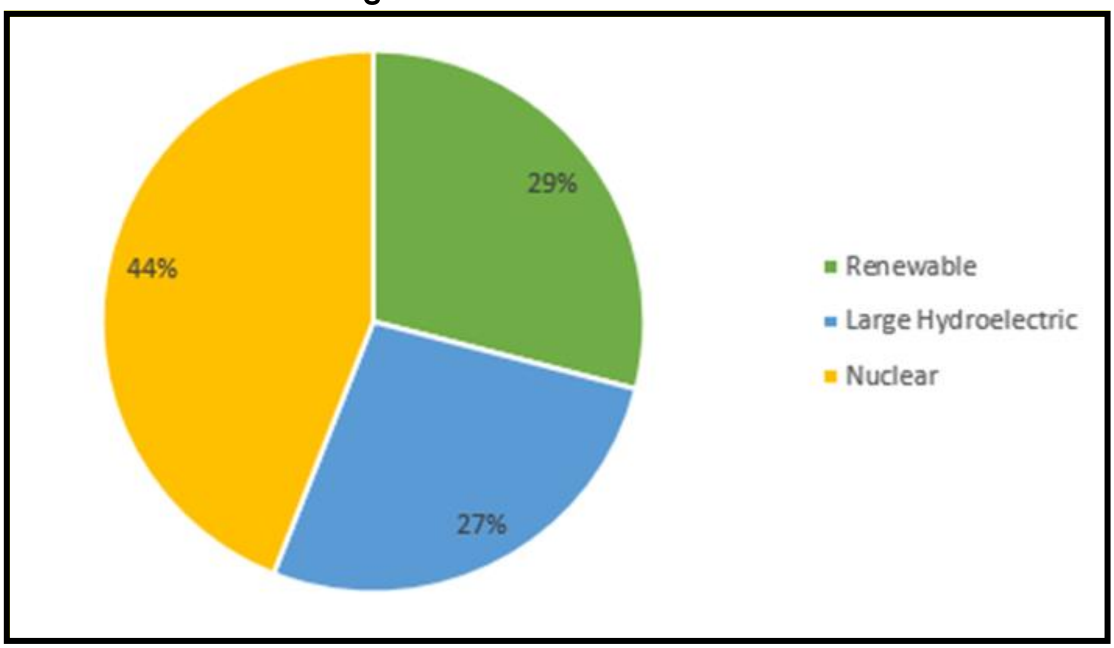
ENERGY RESOURCES

Energy sources for the City of Clovis are served primarily by Pacific Gas & Electric (PG&E). Energy resources consist largely of natural gas, nuclear, fossil fuels, hydropower, solar, and wind. The primary use of energy is for electricity to operate buildings. Energy use is discussed in greater detail, as follows:

ELECTRICITY

Electric services in the City are provided from regulated electric utility, Pacific Gas and Electric Company (PG&E). The breakdown of PG&E's power mix is shown in Figure 4. As shown, 100 percent of PG&E's 2019 total electric power mix came from greenhouse gas (GHG)-free sources that include nuclear, large hydro and renewable energy sources (PG&E 2020).

Figure 4. PG&E 2019 Power Mix



Source: PG&E 2020

NATURAL GAS

PG&E's natural gas system encompasses approximately 70,000 square miles in Northern and Central California. Approximately 90 percent of the natural gas supply for PG&E is from out-of-state imports. In 2017, natural gas throughput provided by PG&E totaled 800,923 million cubic feet (MMcf). Natural gas throughput has decreased over by past few years. In comparison to year 2015 throughput, natural gas throughput has decreased by 103,599 MMcf, an approximate 11.5 percent reduction (PG&E 2019).

REGULATORY FRAMEWORK

FEDERAL

REGULATIONS FOR GREENHOUSE GAS EMISSIONS FROM PASSENGER CARS AND TRUCKS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS

In October 2012, the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHSTA), on behalf of the Department of Transportation, issued final rules to further reduce GHG emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond. NHTSA's CAFE standards have been enacted under the Energy Policy and Conservation Act since 1978. This national program requires automobile manufacturers to build a single light-duty national fleet that meets all requirements under both federal programs and the standards of California and other states. This program would increase fuel economy to the equivalent of 54.5 miles per gallon (mpg) limiting vehicle emissions to 163 grams of carbon dioxide (CO2) per mile for the fleet of cars and light-duty trucks by the model year 2025.

In January 2017, EPA Administrator Gina McCarthy signed a Final Determination to maintain the current GHG emissions standards for the model year 2022-2025 vehicles. However, on March 15, 2017, EPA Administrator Scott Pruitt and Department of Transportation Secretary Elaine Chao announced that EPA intends to reconsider the Final Determination. On April 2, 2018, EPA Administrator Scott Pruitt officially withdrew the January 2017 Final Determination, citing information that suggests that these current standards may be too stringent due to changes in key assumptions since the January 2017 Determination. According to the EPA, these key assumptions include gasoline prices and overly optimistic consumer acceptance of advanced technology vehicles. The April 2nd notice is not EPA's final agency action. The EPA intends to initiate rulemaking to adopt new standards. Until that rulemaking has been completed, the current standards remain in effect. (EPA 2017, EPA 2018).

ENERGY POLICY AND CONSERVATION ACT

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon (mpg). Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The CAFE program, administered by EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

ENERGY POLICY ACT OF 1992

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

State

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

Assembly Bill 32: Climate Change Scoping Plan and Update

In October 2008, ARB published its Climate Change Proposed Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reach the 2050 goals (ARB 2014). The most recent update released by ARB is the 2017 Climate Change Scoping Plan, which was released in November 2017. The measures identified in the 2017 Climate Change Scoping Plan have the co-benefit of increasing energy efficiency and reducing California's dependency on fossil fuels.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels (SAF) Plan in partnership with ARB and in consultation with other state, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing significant degradation of public health and environmental quality.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resource Board (ARB) prepared and adopted a joint agency report in 2003, Reducing California's Petroleum Dependence. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita vehicle miles traveled (VMT) (ARB 2003). Further, in response to the CEC's 2003 and 2005 Integrated Energy Policy Reports, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use. A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2020.

Senate Bill 350: Clean Energy and Pollution Prevention Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires a doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land use allocation in that MPOs regional transportation plan (RTP). ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld.

Senate Bill 1078: California Renewables Portfolio Standard Program

Senate Bill (SB) 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum of 20 percent of their supply from renewable sources by 2017. This SB will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order (EO) S-14-08, which set the Renewables Portfolio Standard (RPS) target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. EO S-14-08 was later superseded by EO S-21-09 on September 15, 2009. EO S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State to come from renewable energy by 2020. Statute SB X1-2 superseded this EO in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

Senate Bill 32 and Assembly Bill 197 of 2016

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target. Achievement of these goals will have the co-benefit of increasing energy efficiency and reducing California's dependency on fossil fuels.

Executive Order S-06-06

EO S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The EO also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- increase environmentally- and economically-sustainable energy production from organic waste;

- encourage the development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications;
- create jobs and stimulate economic development, especially in rural regions of the state; and
- reduce fire danger, improve air and water quality, and reduce waste.

In 2019, 2.87 percent of the total electrical system power in California was derived from biomass (CEC 2020).

EXECUTIVE ORDER B-48-18: ZERO EMISSION VEHICLES

In January 2018, Governor Brown signed EO B-48-18 which required all State entities to work with the private sector to put at least 5-million zero-emission vehicles on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 zero-emissions chargers by 2025. In addition, State entities are also required to continue to partner with local and regional governments to streamline the installation of zero-emission vehicle infrastructure. Additionally, all State entities are to support and recommend policies and actions to expand infrastructure in homes, through the Low-Carbon Fuel Standard.

ENERGY ACTION PLAN

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.

In the October 2005 EAP II, CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change.

CALIFORNIA BUILDING CODE

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The CBC is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

GREEN BUILDING STANDARDS

In essence, green buildings standards are indistinguishable from any other building standards. Both standards are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction of GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions. In recommending a green building strategy as one element of the scoping plan, ARB estimated that green building standards would reduce GHG emissions by approximately 26 MMT of CO_2e by 2020.

The 2019 Building Energy Efficiency Standards focused on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. Under the newly adopted standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades. The recently updated 2019 Building Energy Efficiency Standards also require new homes built after January 1, 2020 to be equipped with solar photovoltaic (PV) systems. The solar PV systems are to be sized based on the buildings annual electricity demand, the building square footage, and the climate zone within which the home is located. However, under the 2019 Building Energy Efficiency Standards, homes may still rely on other energy sources, such as natural gas. Compliance with the 2019 Building Energy Efficiency Standards, including the solar PV system mandate, residential dwellings will use approximately 50 to 53 percent less energy than those under the 2019 standards. Actual reduction will vary depending on various factors (e.g., building orientation, sun exposure). Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2019).

The recently updated 2022 Building Energy Efficiency Standards (2022 Standards), which were approved in December 2021, encourages efficient electric heat pumps, establishes electric-ready requirements when natural gas is installed and to support the future installation of battery storage, and further expands solar photovoltaic and battery storage standards. The 2022 Standards extend solar PV system requirements, as well as battery storage capabilities for select land uses, including high-rise multi-family and non-residential land uses, such as office buildings, schools, restaurants, warehouses, theaters, grocery stores, and more. Depending on the land use and other factors, solar systems should be sized to meet targets of up to 60 percent of the structure's loads. These new solar requirements will become effective January 1, 2023 and contribute to California's goal of reaching net-zero carbon footprint by 2045 (CEC 2022).

ADVANCED CLEAN CARS PROGRAM

In January 2012, ARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires a battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016 (ARB 2016).

In 2022, the next level of regulations was adopted, Advanced Clean Cars II, for model years 2026-2035. By 2035 all new passenger cars, trucks, and SUVs sold in California will be zero emissions. (CARB 2022)

IMPACT ANALYSIS

THRESHOLDS OF SIGNIFICANCE

Based on Appendix F and G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact on energy use if it would:

1. Result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or

2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The CEQA Guidelines, Appendix F, requires environmental analyses to include a discussion of potential energy impacts associated with a proposed project. Where necessary, CEQA requires that mitigation measures be incorporated to reduce the inefficient, wasteful or unnecessary consumption of energy. The State CEQA Guidelines, however, do not establish criteria that define inefficient, wasteful or unnecessary consumption. Compliance with the State's building standards for energy efficiency would result in decreased energy consumption for proposed buildings. However, compliance with building codes may not adequately address all potential energy impacts associated with project construction and operation. As a result, this analysis includes an evaluation of electricity and natural gas usage requirements associated with future development, as well as, energy requirements associated with the use of on-road and off-road vehicles. The degree to which the proposed project would comply with existing energy standards, as well as, applicable regulatory requirements and policies related to energy conservation was also taken into consideration for the evaluation of project-related energy impacts.

METHODOLOGY

CONSTRUCTION

Regarding energy use (e.g., fuel use) during construction, it is assumed that only diesel fuel would be used in construction equipment. On-road vehicles for hauling materials and worker commute trips assumed a mix of diesel and gasoline fuel use. Construction schedules, equipment numbers, horsepower ratings, and load factors were used to calculate construction-related fuel use, based on default assumptions contained in the California Emissions Estimator Model (CalEEMod). Diesel fuel use was estimated based on a factor of 0.05 gallons of diesel fuel per horsepower-hour derived from the South Coast Air Quality Management District's (SCAQMD) *CEQA Air Quality Handbook* (SCAQMD 1993).

OPERATIONS

The long-term operation of proposed the land uses would require electricity usage for lighting, space and water heating, appliances, water conveyance, and landscaping maintenance equipment. Indirect energy use would include wastewater treatment and solid waste removal. Project operation would not increase the consumption of diesel or gasoline fuel from existing conditions and so those emissions have not been included.

Energy use was estimated using CalEEMod, version 2022.1.1.2. Energy use included electricity and including electricity associated with the use, conveyance, and treatment of water. To be conservative, estimated energy use was based on year 2028 operational conditions. With continued improvements in energy efficiencies, energy use in future years would be less.

PROJECT IMPACTS AND MITIGATION MEASURES

Impact E-1:	***Would the project result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?***

Implementation of the proposed project would increase electricity, diesel, gasoline, and natural gas consumption associated with construction activities, as well as long-term operational activities. Energy consumption associated with short-term construction and long-term operational activities are discussed in greater detail, as follows:

CONSTRUCTION-RELATED ENERGY CONSUMPTION

Energy consumption would occur during construction of the proposed project, including fuel use associated with the on-site operation of off-road equipment and vehicles traveling to and from the construction site. Table 1 summarizes the levels of energy consumption associated with project construction. As depicted, operation of off-road construction equipment would use an estimated total of 62,350 gallons of diesel fuel. On-road vehicles would use approximately 4,236 gallons of gasoline and 1,203 gallons of diesel fuel. In total, fuel use would equate to approximately 9,241 million British thermal units

(MMBTU) over the life of the construction project. Construction equipment use and associated energy consumption would be typical of that commonly associated with the construction of new land uses. As a result, project construction would not be anticipated to require the use of construction equipment that would be less energy efficient than those commonly used for the construction of similar facilities. Idling of on-site equipment during construction would be limited to no more than five minutes in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) requirements. Furthermore, on-site construction equipment may include alternatively-fueled vehicles (e.g., natural gas) where feasible. Energy use associated with construction of the proposed facilities would be temporary and would not be anticipated to result in the need for additional capacity, nor would construction be anticipated to result in increased peak-period demands for electricity. As a result, the construction of proposed facilities and improvements would not result in an inefficient, wasteful, or unnecessary consumption of energy. As a result, impacts are considered ***less-than-significant***.

Table 1. Construction Energy Consumption

Source	Total Fuel Use (gallons)	Total MMBTU
Off-Road Equipment Use (Diesel)	62,350	8,566
On-Road Vehicles (Gasoline)	4,236	510
On-Road Vehicles (Diesel)	1,203	165
	Total:	9,241
Fuel use was calculated based, in part, on default construction schedules, equipment use, and vehicle trips identified for the construction of similar land uses contained in the CalEEMod output files prepared for the air quality analysis conducted for this project. Refer to Appendix A for modeling assumptions and results.		

OPERATIONAL MOBILE-SOURCE ENERGY CONSUMPTION

Operational mobile-source energy consumption would be primarily associated with trips to and from the project. Fuel use for opening year conditions are summarized in Table 2. The vehicle trips associated with the proposed land uses would consume an annual estimated 45,699 gallons of diesel and 91,830 gallons of gasoline. Estimated total fuel usage would equate to the consumption of an estimated 17,328 MMBTU. the proposed project would not result in increased fuel usage that would be considered unnecessary, inefficient, or wasteful. This impact would be considered ***less than significant.***

Table 2. Operational Fuel Use

Source	Annual Fuel Use (gallons)	Annual MMBTU
Mobile Fuel (Diesel)	45,699	6,278
Mobile Fuel (Gasoline)	91,830	11,050
	Total:	17,328
Fuel use was calculated based, in part, on default construction schedules, equipment use, and vehicle trips identified for the construction of similar land uses contained in the CalEEMod output files prepared for the air quality analysis conducted for this project. Refer to Appendix A for modeling assumptions and results.		

OPERATIONAL BUILDING-USE ENERGY CONSUMPTION

The proposed project would result in increased electricity and natural gas associated with the long-term operation of the proposed facilities. It is important to note that the proposed buildings would be required to comply with Title 24 standards for energy-efficiency, which would include increased building insulation and energy-efficiency requirements, including the use of energy-efficient lighting, energy-efficient appliances, and use of low-flow water fixtures.

Estimated electricity consumption associated with proposed facilities to be constructed as part of the proposed project are summarized in Table 3. As depicted, new facilities at build-out would result in the consumption of approximately 2,776,874 kilowatt hours per year (kWh/Yr) of electricity and 5,808,168 kilo British thermal units per year (kBTU/Yr) of natural gas. In total, the proposed facilities would use consume a total of approximately 15,516 MMBTU/year. The proposed project would comply with the most current building energy-efficient standards (i.e., Title 24). For this reason, implementation of the proposed project would not be anticipated to result in wasteful, inefficient, and unnecessary consumption of energy. As a result, this impact would be considered **less than significant**.

Table 3. Operational Electricity & Natural Gas Consumption

Source	Energy Use	MMBTU/Year
Electricity Consumption	2,776,874 kWh/year	9,475
Water Use, Treatment & Conveyance	68,387 kWh/Year	233
Natural Gas Use	5,808,168 kBTU/Year	5,808
	Total:	15,516

Fuel use was calculated based, in part, on default construction schedules, equipment use, and vehicle trips identified for the construction of similar land uses contained in the CalEEMod output files prepared for the air quality analysis conducted for this project. Refer to Appendix A for modeling assumptions and results.

Impact 2: ***Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?***

As discussed earlier in this report, the proposed land uses would not be anticipated to result in wasteful or unnecessary vehicle trips. As a result, the proposed project would not result in increased fuel usage that would be anticipated to conflict with applicable plans, policies, or regulations adopted for the purpose of reducing future fuel consumption rates.

The State of California's Energy Efficiency Strategic Plan establishes a goal for the development of building with net zero energy consumption. This plan includes goals pertaining to the construction of new residential, commercial, and governmental buildings. Adherence to current and future Title 24 energy requirements would require the installation of PV systems and an energy storage system to help to reduce the project's building-use energy consumption. Additionally, Mitigation Measure GHG-1 would prohibit the installation of natural-gas fueled appliances and building mechanical equipment and ensure the insulation of EV-capable parking spaces. The project's design and implementation of Mitigation Measures ensure operational energy consumption would be substantially reduced, beyond those required by Title 24 building energy-efficiency requirements. With mitigation, this impact would be considered **less-than-significant**

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APPENDIX A

Energy Modeling

Energy Use Summary Operational Year 2028

Construction Energy Use

	Gallons	Annual MMBTU
Off-Road Equipment Fuel (Diesel)	62,350	8,566
On-Road Vehicle Fuel (Gasoline)	4,236	510
On-Road Vehicle Fuel (Diesel)	1,203	165
	Total:	9,241

Operational Fuel Use

	Gallons	Annual MMBTU
Mobile Fuel (Diesel)	45,699	6,278
Mobile Fuel (Gasoline)	91,830	11,050
	Total:	17,328

Operational Electricity & Natural Gas Use

	Annual Energy	Annual MMBTU
Electricity (kWh/yr, MMBTU)	2,776,874	9,475
Water Use, Treatment & Conveyance (kWh/Yr, MMBTU)	68,387	233
Natural Gas (kBTU/yr, MMBTU)	5,808,168	5,808
	Total:	15,516

Construction Equipment Fuel Use

OFF-ROAD EQUIPMENT FUEL USE

Primary Construction Activity	Activity Duration (Days)	Equipment Type	Size (hp)	Number of Pieces	Hours of Daily Use/Piece of Equipment	Total Days of Use	Load Factor	Fuel Usage Rate (g/bhph)	Total Fuel Diesel (Gallons)
Phase 1									
Demolition	20	Concrete Saw	33	1	8	20	0.73	0.05	193
		Excavators	36	3	8	20	0.38	0.05	328
		Rubber Tired Dozers	367	2	8	20	0.4	0.05	2349
Site Prep	2	Rubber Tired Dozers	367	3	8	2	0.4	0.05	352
		Tractors/Loaders/Backhoes	84	4	8	2	0.37	0.05	99
Grading	4	Graders	148	1	8	4	0.41	0.05	97
		Rubber Tired Dozers	367	1	8	4	0.4	0.05	235
		Excavators	36	2	8	4	0.38	0.05	44
		Scraper	423	2	8	4	0.48	0.05	650
		Tractors/Loaders/Backhoes	84	2	8	4	0.37	0.05	99
Construction	250	Cranes	367	1	7	250	0.29	0.05	9313
		Forklifts	82	3	8	250	0.2	0.05	4920
		Generator Sets	14	1	8	250	0.74	0.05	1036
		Tractors/Loaders/Backhoes	84	3	7	250	0.37	0.05	8159
		Welders	46	1	8	250	0.45	0.05	2070
Paving	10	Pavers	81	2	8	10	0.42	0.05	272
		Paving Equipment	89	2	8	10	0.36	0.05	256
		Rollers	36	2	8	10	0.38	0.05	109
Arch Coating	10	Air Compressor	37	1	6	10	0.48	0.05	53
Phase 2									
Construction	300	Cranes	367	1	7	300	0.29	0.05	11175
		Forklifts	82	3	8	300	0.2	0.05	5904
		Generator Sets	14	1	8	300	0.74	0.05	1243
		Tractors/Loaders/Backhoes	84	3	7	300	0.37	0.05	9790
		Welders	46	1	8	300	0.45	0.05	2484
Paving	18	Cement Mortar Mixer	10	2	6	18	0.56	0.05	60
		Pavers	81	1	8	18	0.42	0.05	245
		Paving Equipment	89	2	6	18	0.36	0.05	346
		Rollers	36	2	6	18	0.38	0.05	148
		Tractors/Loader/Backhoes	84	1	8	18	0.37	0.05	224
Arch Coating	18	Air Compressor	37	1	6	18	0.48	0.05	96

Equipment usage assumptions based on default assumptions contained in CalEEMod.

Total Diesel Fuel Use (Gallons):	62350
Number of Construction Years:	3.21
Average Diesel Fuel Use/Year:	19424
BTU/Gallon:	137381
BTU:	8565746427
MMBTU:	8566

Construction Fuel Use - On-Road Vehicles

Activity	Demolition	Site Prep	Grading	Construction	Paving	Arch Coating	Phase 2 Construction	Phase 2 Paving	Phase 2 Arch Coating	Total	LDA	LDT1	LDT2	MDV
Days	20	2	4	250	10	10	300	18	18					
Worker Trips	15	17.5	20	21.7	15	4.33	28.8	20	5.76					
Miles/Trip	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7					
Total VMT	2310	269.5	616	41772.5	1155	333.41	66528	2772	798.336	116554.746	38851.58	38851.58	38851.58	0
Vendor Trips	0	0	0	8.45	0	0	14.8	0	0					
Miles/Trip	4	4	4	4	4	4	4	4	4					
Total VMT	0	0	0	8450	0	0	17760	0	0	26210	0	0	0	26210
Haul Trips	0	34.5	0	0	0	0	0	0	0					
Miles/Trip	20	20	20	20	20	20	20	20	20					
Total VMT	0	1380	0	0	0	0	0	0	0	1380	0	0	0	0

	Annual VMT	Gallons/Mile*	Gallons	BTU/gallon**		BTU				MMBTU
HDT	1380	0.18609383	257	137381		35280743				35.28
LDA	38852	0.03141995	1221	120333		146892259				146.89
LDT1	38852	0.03642770	1415	120333		170304157				170.30
LDT2	38852	0.04118580	1600	120333		192548886				192.55
MDV	26210	0.03609284	946	137381		129961507				129.96

**Gallons per mile based on year 2024 conditions for Fresno County. Derived from Emfac2017 (v1.0.2) Emissions Inventory.*

***Energy coefficient derived from US EIA.*

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

EMFAC2017 Fuel Rate Calculation	Fuel Consumption (1000 Gallons/Day)*		VMT (Miles/Day)**			
	Diesel	Gasoline	Diesel	Gasoline		TOTAL
LDA	1.56732996	173.7986273	77744.39644	5531474.113		
LDT1	0.014388292	21.12623283	353.7104788	579949.616		
LDT2	0.470804534	93.398813	17222.23218	2267742.808		
MDV	1.574519892	83.6468936	43624.16292	1679831.445		
HDT***	3.461395295	0.046230813	18600.26949	181.9970735		
Total	7.088437973	372.0167975	157544.7715	10059179.98		10216724.75
Percent of Total			1.54%	98.46%		
LDA-Miles/Gallon	49.60308194	31.82691486				
LDA-Gallons/Mile	0.020160038	0.031419948				
LDT1-Miles/Gallon	24.58321503	27.45163422				
LDT1-Gallons/Mile	0.040678162	0.036427704				
LDT2-Miles/Gallon	36.58042977	24.28021016				
LDT2-Gallons/Mile	0.027337022	0.041185805				
MDV-Miles/Gallon	27.70632694	20.08241278				
MDV-Gallons/Mile	0.036092839	0.049794814				
HDT-Miles/Gallon	5.373633435	0.00025402				
HDT-Gallons/Mile	0.186093825	3936.704985				

**Fuel consumptions derived from EMFAC2017 (v1.0.2) for year 2024 conditIons.*

***VMT derived from EMFAC2017 (v1.0.2) for year 2024 conditons.*

****HDT diesel engine T7 CAIRP construction, T7 single construction, T7 tractor construction. HDT gasoline engine T7IS.*

Fuel consumption and VMT based on the Fresno County.

Operational Fuel Use - Proposed Project Year 2028 Mitigated

LAND USE	Total Annual VMT
FCC Sorftball Field	3,276,557

No additional VMT expected under project

	VMT	Gallons/Mile*	Gallons	BTU/gallon**	BTU	MMBTU
Diesel	438412	0.10423740	45699	137381	6278165993	6278.17
Gasoline	2838145	0.03235561	91830	120333	11050169218	11050.17

Gallons per mile based on year 2028 conditions for Fresno County. Derived from Emfac2017 (v1.0.2) Emissions Inventory.

**Energy coefficient derived from US EIA.

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

EMFAC2017 Fuel Rate Calculation	Fuel Consumption (1000 Gallons/Day)*		VMT (Miles/Day)**		
	Diesel	Gasoline	Diesel	Gasoline	
All Other Buses	1.18818884		12512.48729		
LDA	2.87806963	419.1769263	171804.5683	15470922.14	
LDT1	0.00671071	48.41377522	206.1921502	1508160.63	
LDT2	0.92943362	164.9020916	41137.28881	4932849.031	
LHD1	16.2912162	33.88245691	316594.5802	306713.1721	
LHD2	6.76225874	6.235226126	117250.2207	48697.53392	
MDV	3.30378882	148.0122755	106717.9329	3516818.414	
MH	0.58236629	2.50687649	6111.256069	13275.76701	
Motor Coach	1.22565228		8706.371662		
PTO	3.00464981		16704.47446		
SBUS	3.92346561	0.578266947	32721.20894	5825.230127	
T6 Ag	0.04695793		413.0254788		
T6 CAIRP heavy	2.47520425		32943.11999		
T6 CAIRP small	0.38209868		4595.941275		
T6 instate construction heavy	4.61250614		41193.78251		
T6 instate construction small	14.3282964		133067.7406		
T6 instate heavy	21.357591		238870.8706		
T6 instate small	22.6168399		247929.5211		
T6 OOS heavy	1.41652118		18855.73431		
T6 OOS small	0.22446862		2698.694366		
T6 Public	0.8315377		6414.165523		
T6 utility	0.18888771		1963.251332		
T7 Ag	0.13200594		749.0095513		
T7 CAIRP	65.8233559		527851.1073		
T7 CAIRP construction	4.36542098		29589.85182		
T7 NNOOS	76.6849198		643442.7483		
T7 NOOS	26.5826403		207402.8387		
T7 other port	1.5543183		10492.40107		
T7 Public	3.33833832		20999.42037		
T7 Single	11.8233757		84127.07235		
T7 single construction	12.0287616		73406.97989		
T7 SWCV	5.68964087		15394.48314		
T7 tractor	91.8033612		781809.755		
T7 tractor construction	10.0049088		60554.2956		
T7 utility	0.11908829		765.0542267		
UBUS	0.42488013	1.486021516	3209.790254	7411.128871	
MCY		3.697978204		139836.4649	
OBUS		2.605547662		13503.55513	
T6TS		10.25625163		54581.38783	
T7IS		0.110517893		514.941279	
Total	418.9517262	841.864212	4019207.236	26019109.39	30038316.63
Percent of Total			13.38%	86.62%	
Miles/Gallon	9.593485322	30.90653935			
Gallons/Mile	0.104237403	0.032355612			

*Fuel consumptions derived from EMFAC2017 (v1.0.2) for year 2028 conditons.

**VMT derived from EMFAC2017 (v1.0.2) for year 2022 conditons.

Fuel consumption and VMT based on the Fresno County.

Operational Electricity & Natural Gas Use Year 2028

	kWh/yr	MWh/Yr	BTU/kWh*	BTU	MMBTU
Electricity	2776874	2777	3412	9474694088	9475

*Energy coefficient derived from US EIA.
https://www.eia.gov/energyexplained/index.php?page=about_energy_units

	kBTU/yr			BTU	MMBTU
Natural Gas	5808168			5808168000	5808

*Energy coefficient derived from US EIA.
https://www.eia.gov/energyexplained/index.php?page=about_energy_units

Water Energy Use Year 2028

	WATER USE*	ELECTRIC INTENSITY FACTORS		ANNUAL ELECTRIC USE (kWh/Yr)		
	MGAL/YR	INDOOR	OUTDOOR	INDOOR	OUTDOOR	TOTAL
ANNUAL INDOOR WATER USE	19.54	3500		68387		68,387
ANNUAL OUTDOOR WATER USE	1.33		0		0	

*Based on estimated water use derived from CalEEMod.	**BTU/kWh****	3412
**Energy coefficient derived from US EIA.	**BTU:**	233336099
https://www.eia.gov/energyexplained/index.php?page=about_energy_units	**MMBTU:**	233.34

Initial Study Appendix E

Clovis Unified School District

New District Facilities Project

Noise & Groundborne Vibration Impact Analysis

NOISE & GROUNDBORNE VIBRATION IMPACT ANALYSIS

FOR

CLOVIS UNIFIED SCHOOL DISTRICT FACILITIES PROJECT

CLOVIS, CA

APRIL 2023

PREPARED FOR:

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

LIST OF COMMON TERMS AND ACRONYMS

ANSI	Acoustical National Standards Institute, Inc.
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CITI	Clovis Infant Toddler Intervention
City	City of Clovis
CNEL	Community Noise Equivalent Level
dB	Decibels
dBA	A-Weighted Decibels
District	Clovis Unified School District
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	Heating Ventilation & Air Conditioning
Hz	Hertz
in/sec	Inches Per Second
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
L_{max}	Maximum Sound Level
ppv	Peak Particle Velocity
project	Clovis Unified District Facilities Project
SEL	Sound Exposure Level
ST	Short-Term
STEM	Science, Technology, Engineering, And Math
U.S. EPA	United States Environmental Protection Agency

INTRODUCTION

This report discusses the existing setting, identifies potential noise impacts associated with implementation of the proposed Clovis Unified School District Facilities Project (project). Noise mitigation measures are recommended where the predicted noise levels would exceed applicable noise standards.

PROPOSED PROJECT SUMMARY

The project site is located on 16.61 acres southeast of the intersection of North Fowler and East Herndon Avenues in the City of Clovis (City), Fresno County, California (APN: 491-050-74ST, 550-020-45T, and 550-020-47T). The Clovis Unified District (District) proposes to construct and operate a Special Education Administration building (24,167 square feet) and an Online School building (27,399 square feet) on the site and construct associated site improvements under Phase 1 of the project. A future phase would consist of the construction and operation of District administrative offices in several buildings totaling approximately 90,000 square feet. The new Special Education Administration facility will include a reception/lobby area; offices for administration, operations and school services; meeting, conference and break rooms; and will house the Clovis Infant Toddler Intervention (CITI) Kids program. The new Online School facility will include a reception/lobby area, administrative offices, flex rooms, teacher offices, STEM (Science, Technology, Engineering, and Math) lab, computer lab, nurse station and conference room. The proposed project's location is presented in Figure 1, the project site is depicted in Figure 2, and the site plan is presented in Figure 3.

EXISTING SETTING

CONCEPTS AND TERMINOLOGY

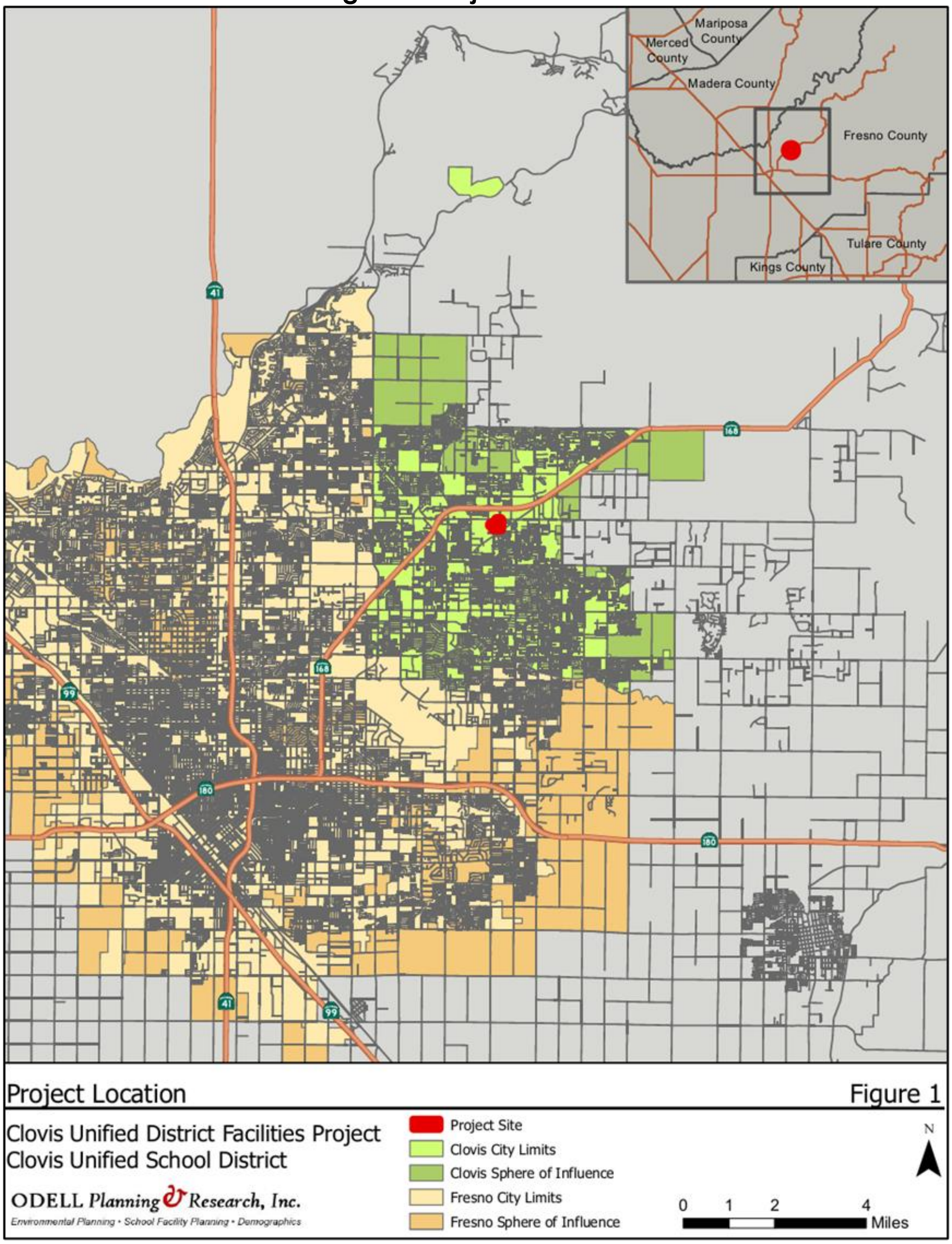
ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency.

Amplitude

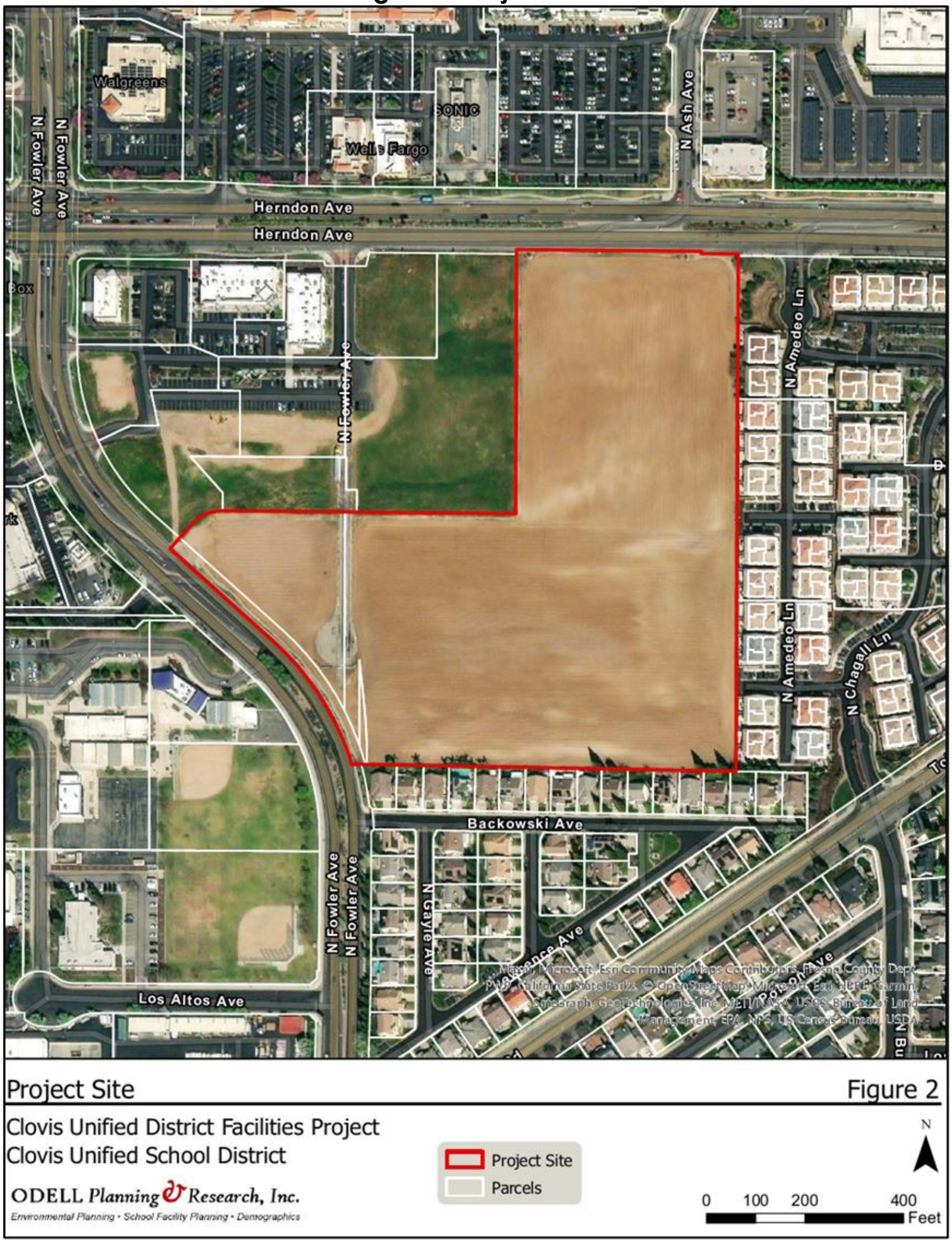
Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3-dB change in amplitude as the minimum audible difference perceptible to the average person.

Figure 1. Project Location



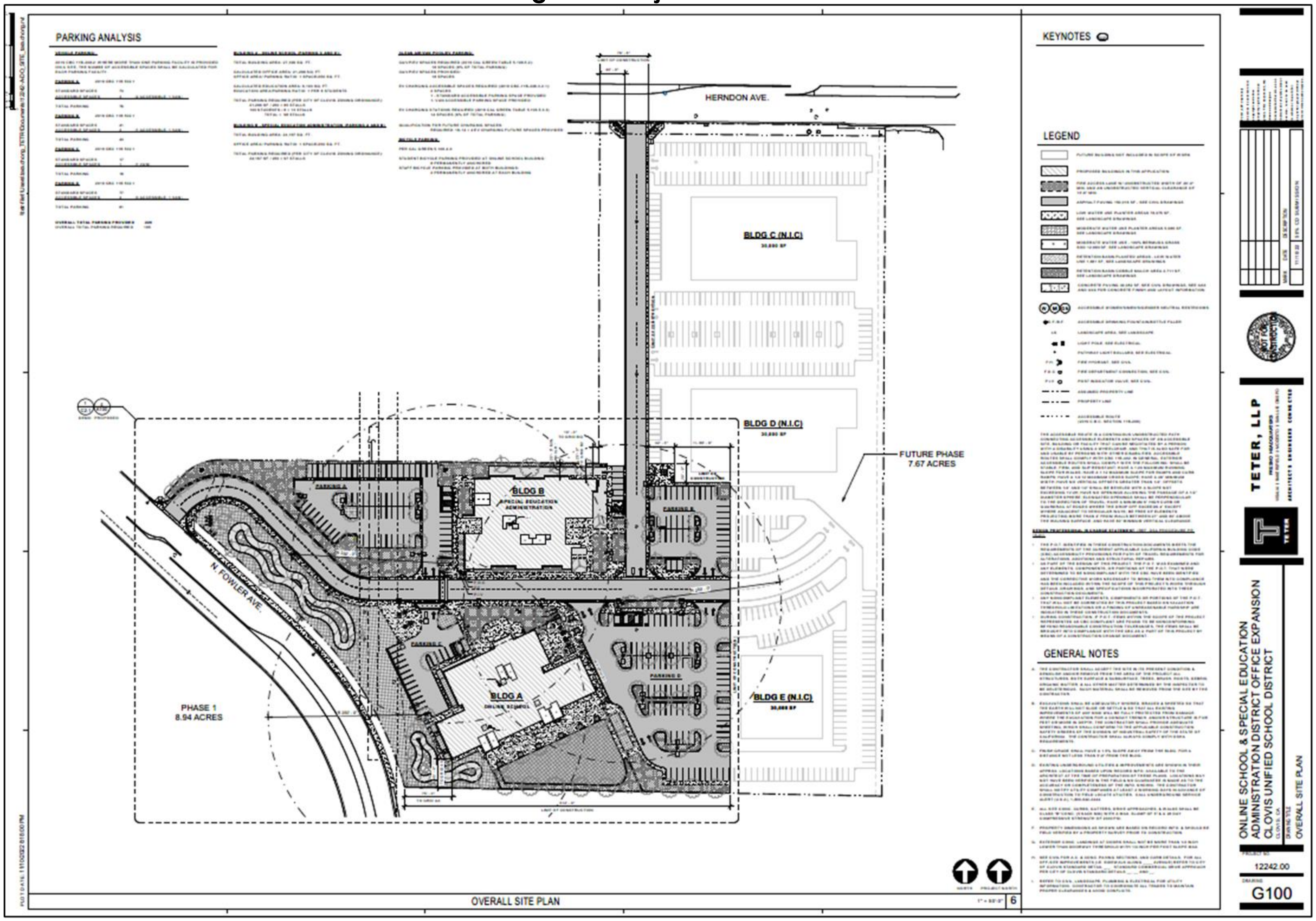
Source: OPR 2023

Figure 2. Project Site



Source: OPR 2023

Figure 3. Project Site Plan



Source: OPR 2023

Frequency

The frequency of a sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (U.S. EPA 1971). Common community noise sources and associated noise levels, in dBA, are depicted in Figure 4.

Addition of Decibels

Because decibels are logarithmic units, sound levels cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces a sound level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation & Attenuation

<u>*Geometric Spreading*</u>

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level decreases (attenuates) at a rate of approximately 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 decibels for each doubling of distance from a line source, depending on ground surface characteristics. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation for soft surfaces results in an overall attenuation rate of 4.5 decibels per doubling of distance from the source.

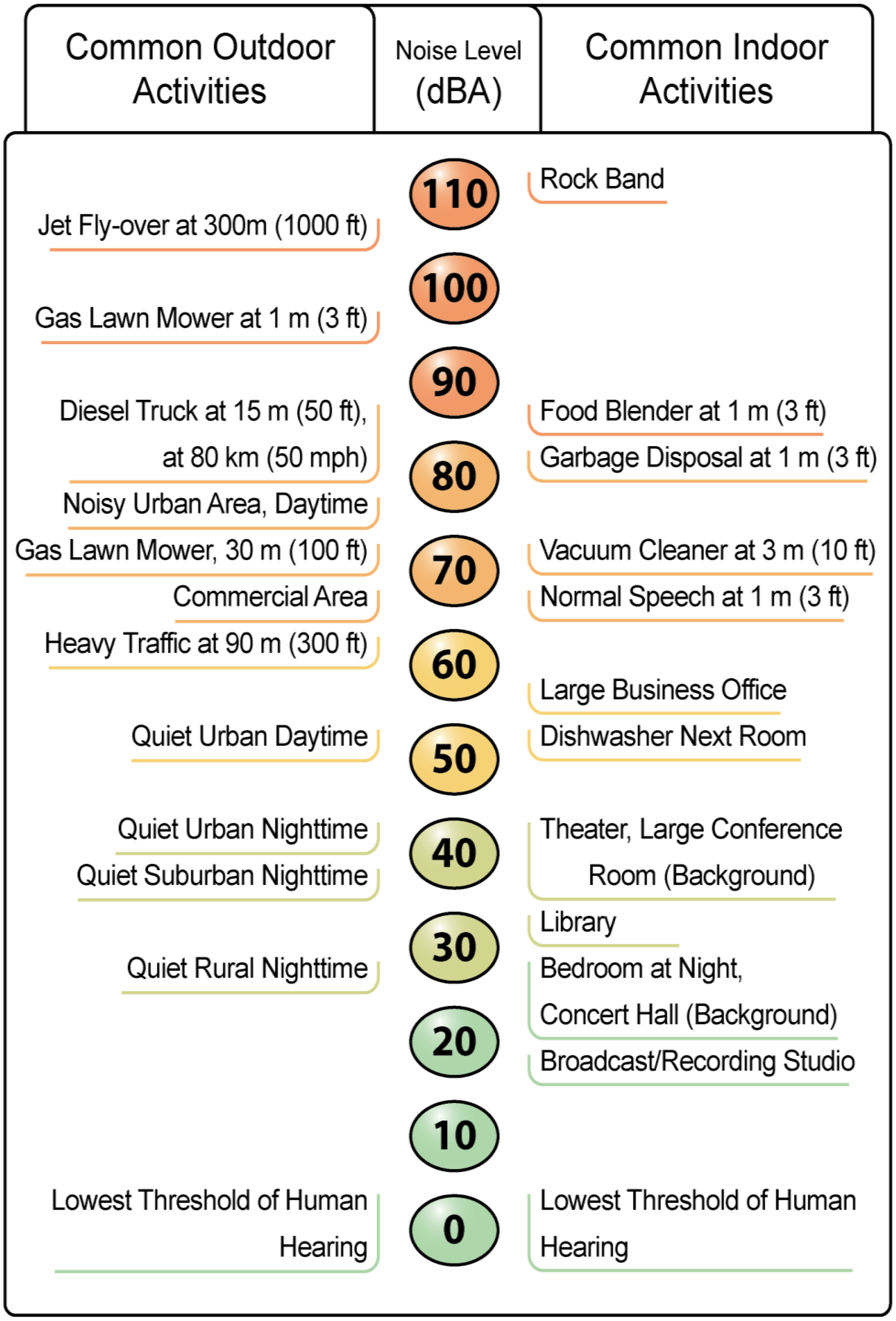
<u>*Atmospheric Effects*</u>

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

<u>*Shielding by Natural or Human-Made Features*</u>

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often

Figure 4. Common Community Noise Sources & Noise Levels



Source: Caltrans 2018

constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in a minimum of 5 dB of noise reduction. Taller barriers provide increased noise reduction.

Noise reductions afforded by building construction can vary depending on construction materials and techniques. Standard construction practices typically provide approximately 15 dBA exterior-to-interior noise reductions for building facades, with windows open, and approximately 20-30 dBA, with windows closed. With compliance with current Title 24 energy efficiency standards, which require increased building insulation and inclusion of an interior air ventilation system to allow windows on noise-impacted façades to remain closed, exterior-to-interior noise reductions typically average approximately 25 dBA. The absorptive characteristics of interior rooms, such as carpeted floors, draperies, and furniture, can result in further reductions in interior noise.

NOISE DESCRIPTORS

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound-pressure level in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies, which is referred to as the "A-weighted" sound level (expressed in units of dBA). The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with environmental noise.

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are typically used. For the evaluation of environmental noise, the most commonly used descriptors are equivalent sound level (L_{eq}), day-night level (L_{dn}), community noise equivalent level (CNEL) and sound exposure level (SEL). The L_{eq} is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise. The L_{dn}, is the 24-hour average of the noise intensity, with a 10-dBA "penalty" added for nighttime noise (10 p.m. to 7 a.m.) to account for the greater sensitivity to noise during this period. CNEL is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7 p.m. to 10 p.m.) Another descriptor that is commonly discussed is the single-event noise exposure level, also referred to as the SEL. The SEL describes a receiver's cumulative noise exposure from a single noise event, which is defined as an acoustical event of short duration (0.5 second), such as a backup beeper, the sound of an airplane traveling overhead, or a train whistle. Common noise level descriptors are summarized in Table 1.

HUMAN RESPONSE TO NOISE

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Table 1. Common Acoustical Descriptors

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or L_{dn})	The DNL was first recommended by the U.S. EPA in 1974 as a "simple, uniform and appropriate way" of measuring long term environmental noise. DNL takes into account both the frequency of occurrence and duration of all noise events during a 24-hour period with a 10 dBA "penalty" for noise events that occur between the more noise-sensitive hours of 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Level (CNEL)	The CNEL is similar to the L_{dn} described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7:00 p.m. to 10:00 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated L_{dn}.
Sound Exposure Level (SEL)	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans;
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial;
- A 10-dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

EFFECTS OF NOISE ON HUMAN ACTIVITIES

The extent to which environmental noise is deemed to result in increased levels of annoyance, activity interference, and sleep disruption varies greatly from individual to individual depending on various factors, including the loudness or suddenness of the noise, the information value of the noise (e.g., aircraft overflights, child crying, fire alarm), and an individual's sleep state and sleep habits. Over time, adaptation to noise events and increased levels of noise may also occur. In terms of land use compatibility, environmental noise is often evaluated in terms of the potential for noise events to result in increased levels of annoyance, sleep disruption, or interference with speech communication, activities, and learning. Noise-related effects on human activities are discussed in more detail, as follows:

Speech Communication

For most noise-sensitive land uses, an interior noise level of 45 dB L_{eq} is typically identified for the protection of speech communication in order to provide for 100-percent intelligibility of speech sounds. Assuming a minimum 20-dB reduction in sound level between outdoors and indoors, with windows closed, this interior noise level of 45 dB L_{eq} would equate to an exterior noise level of 65 dBA L_{eq}. For outdoor voice communication, an exterior noise level of 60 dBA L_{eq} allows normal conversation at distances up to 2 meters with 95 percent sentence intelligibility (U.S. EPA 1974.) Based on this information, speech interference begins to become a problem when steady noise levels reach approximately 60 to 65 dBA. Within interior noise environments, an average-hourly background noise level of 45 dBA L_{eq} is typically recommended for noise-sensitive land uses, such as educational facilities (Caltrans 2002).

Learning

Closely related to speech interference are the effects of noise on learning and, more broadly, on cognitive tasks. Recent studies have shown a strong relationship between noise and children's reading ability. Children's attention spans also appear to be adversely affected by noise. Adults are affected as well. Some studies indicate that, in a noisy environment, adults have increased difficulty accomplishing complex tasks. One of the issues associated with assessment of these effects is which noise metric correlates most closely with the impacts. For example, the average-daily noise level (i.e., CNEL/L_{dn}), which incorporates a nighttime weighting, may not be the best measure of noise impacts on schools given that operational activities are often limited to the daytime hours (Caltrans 2002).

Various standards and recommended criteria have been developed to specifically address classroom noise. For instance, with regard to transportation sources, the California Department of Transportation has adopted abatement criteria that limit the maximum interior average-hourly noise level within classrooms and other noise-sensitive interior uses, to 52 dBA L_{eq}. In June 2002, the American National Standards Institute, Inc. (ANSI) released a new classroom acoustics standard entitled Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools" (ANSI S12.60-2002). For schools exposed to intermittent background noise sources, such as airport and other transportation noise, the ANSI standards recommend that interior noise levels not exceed 40 dBA L_{eq} during the noisiest hour of the day. At present complying with the ANSI-recommended standard is voluntary in most locations.

Annoyance & Sleep Disruption

With regard to potential increases in annoyance, activity interference, and sleep disruption, land use compatibility determinations are typically based on the use of the cumulative noise exposure metrics (i.e., CNEL or L_{dn}). Perhaps the most comprehensive and widely accepted evaluation of the relationship between noise exposure and the extent of annoyance was one originally developed by Theodore J. Schultz in 1978. In 1978 the research findings of Theodore J. Schultz provided support for L_{dn} as the descriptor for environmental noise. Research conducted by Schultz identified a correlation between the cumulative noise exposure metric and individuals who were highly annoyed by transportation noise. The Schultz curve, expressing this correlation, became a basis for noise standards. When expressed graphically, this relationship is typically referred to as the Schultz curve. The Schultz curve indicates that approximately 13 percent of the population is highly annoyed at a noise level of 65 dBA L_{dn}. It also indicates that the percent of people describing themselves as being highly annoyed accelerates smoothly between 55 and 70 dBA L_{dn}. A noise level of 65 dBA L_{dn} is a commonly referenced dividing point between lower and higher rates of people describing themselves as being highly annoyed (Caltrans 2002).

The Schultz curve and associated research became the basis for many of the noise criteria subsequently established for federal, state, and local entities. Most federal and state of California regulations and policies related to transportation noise sources establish a noise level of 65 dBA CNEL/L_{dn} as the basic limit of acceptable noise exposure for residential and other noise-sensitive land uses. For instance, with respect to aircraft noise, both the Federal Aviation Administration (FAA) and the State of California have identified a noise level of 65 dBA L_{dn} as the dividing point between normally compatible and normally incompatible residential land use generally applied for determination of land use compatibility. For noise-sensitive land uses exposed to aircraft noise, noise levels in excess of 65 dBA CNEL/L_{dn} are typically considered to result in a potentially significant increase in levels of annoyance (Caltrans 2002).

Allowing for an average exterior-to-interior noise reduction of 20 dB, an exterior noise level of 65 dBA CNEL/L_{dn} would equate to an interior noise level of 45 dBA CNEL/L_{dn}. An interior noise level of 45 dB CNEL/L_{dn} is generally considered sufficient to protect against activity interference at most noise-sensitive land uses, including residential dwellings, and would also be sufficient to protect against sleep interference (U.S. EPA 1974.) Within California, the California Building Code establishes a noise level of 45 dBA CNEL as the maximum acceptable interior noise level for residential uses (other than detached single-family dwellings). Use of the 45 dBA CNEL threshold is further supported by recommendations provided in the State of California Office of Planning and Research's *General Plan Guidelines*, which recommend an interior noise level of 45 dB CNEL/L_{dn} as the maximum allowable interior noise level sufficient to permit "normal residential activity."

The cumulative noise exposure metric is currently the only noise metric for which there is a substantial body of research data and regulatory guidance defining the relationship between noise exposure, people's reactions, and land use compatibility. However, when evaluating environmental noise impacts involving intermittent noise events, such as aircraft overflights and train passbys, the use of cumulative noise metrics may not provide a thorough understanding of the resultant impact. The general public often finds it difficult to understand the relationship between intermittent noise events and cumulative noise exposure metrics. In such instances, supplemental use of other noise metrics, such as the L_{eq} or L_{max} descriptor, may be helpful as a means of increasing public understanding regarding the relationship between these metrics and the extent of the resultant noise impact (Caltrans 2002).

AFFECTED ENVIRONMENT

NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

Sensitive land uses located in the vicinity of the proposed project site consist predominantly of residential land uses. The nearest residential land uses are generally located adjacent to the project's eastern and southern property lines.

AMBIENT NOISE ENVIRONMENT

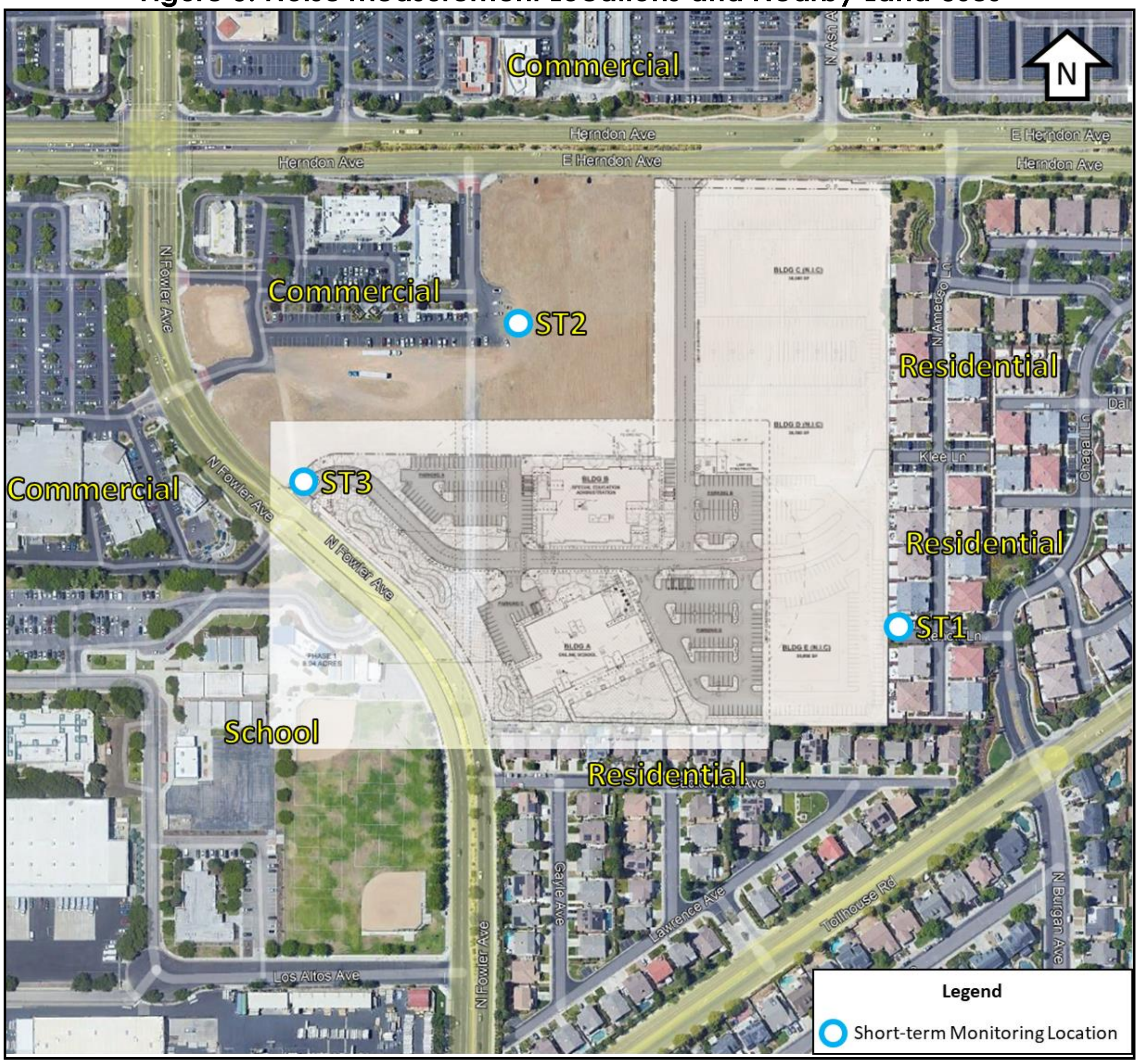
To document existing ambient noise levels in the project area, short-term (ST) ambient noise measurements were conducted on March 30, 2023 using a Larson Davis Laboratories, Type I, Model LxT integrating sound-level meter. The meter was calibrated before use and is certified to be in compliance with ANSI specifications. Measured ambient noise levels are summarized in Table 2 and measurement location are shown in Figure 5.

As indicated in Table 2, measured ambient noise levels in the project area ranged from approximately 44 to 71 dBA L_{eq}. Ambient noise levels within the project area are predominantly influenced by vehicle traffic on area roadways. Ambient noise levels during the evening and nighttime hours are generally 5 to 10 dB lower than daytime noise levels.

Table 2. Summary of Measured Ambient Noise Levels

Location	Measurement Period	Noise Levels (dBA)	
		L_{eq}	L_{max}
ST1: Approximately 90 feet east of the Renoir Lane and Amedeo Lane intersection	11:05 – 11:15	43.8	53.8
ST2: Approximately 760 feet southeast of Herndon Ave and Fowler Ave intersection	11:25 – 11:35	55.8	66.0
ST3: Adjacent to east side of Fowler Ave, across from Dutch Bros Coffee	11:45 – 11:55	71.2	89.5
Ambient noise measurements were conducted on March 30, 2023 using a Larson Davis Laboratories, Type I, Model LxT integrating sound-level meter.			

Figure 5. Noise Measurement Locations and Nearby Land Uses



Locations are approximate. Not to scale

REGULATORY FRAMEWORK

NOISE

State of California

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria.

California General Plan Guidelines

The *State of California General Plan Guidelines*, published by the Governor's Office of Planning and Research (OPR 2003), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. For school land uses, the *State of California General Plan Guidelines* identify a "normally acceptable" exterior noise level of up to 70 dBA CNEL/L_{dn}. Schools are considered "conditionally acceptable" within noise environments of 60 to 70 dBA CNEL/L_{dn} and "normally unacceptable" within exterior noise environments of 70 to 80 CNEL/L_{dn} and "clearly unacceptable" within exterior noise environments in excess of 80 dBA CNEL/L_{dn}. Assuming a minimum exterior-to-interior noise reduction of 20 dB, an exterior noise environment of 65 dBA CNEL/L_{dn} would allow for a normally acceptable interior noise level of 45 dBA CNEL/L_{dn}.

City of Clovis

The *Clovis General Plan Environmental Safety Element* includes noise standards for determination of land use compatibility. In accordance with General Plan policies, new noise-sensitive land uses impacted by existing or projected future transportation or stationary noise sources shall include mitigation measures so that resulting noise levels do not exceed these standards (City of Clovis 2014). The land use compatibility noise standards are summarized in Table 3.

The City has also adopted a noise ordinance (Section 9.22.080 Noise) that contains additional limitations intended to prevent noise which may create dangerous, injurious, noxious, or otherwise objectionable conditions. As opposed to the City's General Plan noise standards, the City's noise ordinance is primarily used for the regulation of existing uses and activities, including construction activities, and is not typically used as a basis for land use planning. Construction activities are subject to the permitted hours between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. Saturday and Sunday as presented in Section 5.27.604. Additionally, from June 1st through September 15th permitted construction hours begin at 6:00 a.m. Monday through Friday (City of Clovis 2022). The City's exterior and interior ordinance standards are presented in Table 4 and Table 5, respectively.

Table 3. Interior and Exterior Noise Standards Energy Average (CENL)

Primary Land Use	Additional Uses Allowed	Energy Average (CNEL)	
		Interior[1]	Exterior[2]
Residential	Single Family, multifamily	45[3]/55[4]	65
	Mobile home	--	65
Commercial /Industrial	Hotel, motel, transient lodging	45	65
	Commercial, retail, bank, restaurant	55	--
	Office building, professional office, research & development	50	--
	Gymnasium (multipurpose)	50	--
	Health clubs	55	--
	Manufacturing, warehousing, wholesale, utilities	65	--
Institutional	Hospital, school classroom	45	65
	Church, library	45	--
Open Space	Parks	--	65

Notes:
1. Interior environment excludes bathrooms, toilets, closets, and corridors.
2. Outdoor environment limited to private yard of single family or multifamily residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.
4. Noise level requirement with open windows, if they are used to meet natural ventilation requirement.
5. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.
6. Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.
7. Except those areas affected by aircraft noise.
Source: City of Clovis 2014

Table 4. City of Clovis Noise Ordinance - Exterior Standards

Noise Zone	Land Use Type	Noise Level Standards (dBA) (15-Minute L_{eq})	
		Daytime (7 am - 10 pm)	Nighttime (10 pm – 7 am)
I	Single-, two- or multiple-family residential	55	50
II	Commercial	65	60
III	Residential portions of mixed-use properties	60	50
IV	Industrial or manufacturing	70	70

Notes:
1. If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.
2. It is unlawful for any person to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any property measured at the property line, to exceed either of the following within the incorporated area of the City:
a. The noise standard for the applicable zone for any fifteen (15) minute period;
b. A maximum impulsive noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response). Impulsive noise which repeats four (4) or more times in any hour between 10:00 p.m. and 7:00 a.m. shall be measured as continuous sound and meet the noise standard for the applicable zone.
3. When properties of two (2) different noise zones abut one another, the maximum exterior noise level shall be the lower of the two (2) noise zones where one zone is residential, and in other contexts shall be the average of the two (2) zones.
4. Commercial, industrial, and recreational uses which create impulsive noise as part of their regular processes, such as through the use of pile drivers, forge hammers, punch presses, and gunshots, shall not be located in any zone district adjacent to a residential zone district unless a noise study is completed demonstrating the impulsive noise does not exceed the standards at the property line for the residential zone district. Impulse noise from these uses shall be measured as continuous sound. The noise study shall be subject to review and approval by the Director or his or her designee, and shall be completed as part of any discretionary permit process for the use or prior to obtaining a building permit. This provision shall not apply to uses existing on the effective date of the ordinance codified in this title.
5. Emergency electrical generators in residential zone districts shall comply with the California Building Code and California Residential Code, as amended, for the installation and operation of the emergency generator. Test cycle operation shall be limited to the hours between 10:00 a.m. and 4:00 p.m. Emergency electrical generators are intended to provide emergency power to run air conditioning, medical equipment and other household appliances in the event of a rolling blackout or other power grid failure.
Source: City of Clovis 2022

Table 5. City of Clovis Noise Ordinance - Interior Standards

Noise Zone	Land Use Type	Noise Level Standards (dBA) (15-Minute L_{eq})	
		Daytime (7 am - 10 pm)	Nighttime (10 pm – 7 am)
I	Residential	45	40
II	Administrative/professional office	50	--
III	Residential portions of mixed-use properties	45	40

Notes:
1. If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.
2. It is unlawful for any person to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any property measured at the property line, to exceed either of the following within the incorporated area of the City:
a. The noise standard for the applicable zone for any fifteen (15) minute period;
b. A maximum impulsive noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response). Impulsive noise which repeats four (4) or more times in any hour between 10:00 p.m. and 7:00 a.m. shall be measured as continuous sound and meet the noise standard for the applicable zone.
3. When properties of two (2) different noise zones abut one another, the maximum exterior noise level shall be the lower of the two (2) noise zones where one zone is residential, and in other contexts shall be the average of the two (2) zones.
4. Commercial, industrial, and recreational uses which create impulsive noise as part of their regular processes, such as through the use of pile drivers, forge hammers, punch presses, and gunshots, shall not be located in any zone district adjacent to a residential zone district unless a noise study is completed demonstrating the impulsive noise does not exceed the standards at the property line for the residential zone district. Impulse noise from these uses shall be measured as continuous sound. The noise study shall be subject to review and approval by the Director or his or her designee, and shall be completed as part of any discretionary permit process for the use or prior to obtaining a building permit. This provision shall not apply to uses existing on the effective date of the ordinance codified in this title.
5. Emergency electrical generators in residential zone districts shall comply with the California Building Code and California Residential Code, as amended, for the installation and operation of the emergency generator. Test cycle operation shall be limited to the hours between 10:00 a.m. and 4:00 p.m. Emergency electrical generators are intended to provide emergency power to run air conditioning, medical equipment and other household appliances in the event of a rolling blackout or other power grid failure.
Source: City of Clovis 2022

GROUNDBORNE VIBRATION

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of amplitude and frequency. A person's perception of the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement.

The effects of groundborne vibration levels, with regard to human annoyance and structural damage, is influenced by various factors, including ground type, distance between source and receptor, and duration. Overall effects are also influenced by the type of vibration event, defined as either continuous or transient. Continuous vibration events would include most construction equipment, including pile drivers, and compactors, whereas, transient sources of vibration create single isolated vibration events, such as demolition ball drops and blasting. Threshold criteria for continuous and transient events are summarized in Tables 5.

Table 6. Summary of Groundborne Vibration Levels and Potential Effects

Vibration Level (in/sec ppv)	Human Reaction	Effect on Buildings
0.006-0.019	Threshold of perception; possibility of intrusion.	Vibrations unlikely to cause damage of any type.
0.08	Vibrations readily perceptible.	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected.
0.10	Level at which continuous vibrations begin to annoy people.	Virtually no risk of "architectural" damage to normal buildings.
0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations).	Threshold at which there is a risk of "architectural" damage to fragile buildings.
0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Potential risk of "architectural" damage may occur at levels above 0.3 in/sec ppv for older residential structures and above 0.5 in/sec ppv for newer structures.
The vibration levels are based on peak particle velocity in the vertical direction for continuous vibration sources, which includes most construction activities. *Source: Caltrans 2020*		

As shown in Table 6, the threshold for architectural damage commonly applied to construction activities is a peak particle velocity (ppv) of 0.20 inches per second (in/sec) for fragile structures and 0.50 in/sec ppv for newer structures. Levels above 0.20 in/sec ppv may result in increased levels of annoyance for people in buildings (Caltrans 2020).

IMPACT ANALYSIS

THRESHOLD OF SIGNIFICANCE

Criteria for determining the significance of air quality impacts were developed based on information contained in the California Environmental Quality Act (CEQA) Guidelines (Appendix G). According to those guidelines, a project may have a significant effect on the environment if it would result in the following conditions:

a. Generation of 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, or applicable standards of other agencies; or

b. Generation of excessive groundborne vibration or groundborne noise levels; or

c. Located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or private-use airport, that exposes people residing or working in the project area to excessive noise levels.

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously in this section, a noise level increase of 3 dBA is barely perceptible to most people, an increase of 5 dBA is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. For purposes of this analysis, a substantial increase in ambient noise levels would be defined as an increase of 5 dBA, or greater, and considered a significant increase if it would exceed the City's normally acceptable noise standards for land use compatibility or noise control ordinance.

The CEQA Guidelines also do not define the levels at which groundborne vibration levels would be considered excessive. For this reason, Caltrans recommended groundborne vibration thresholds were used for the evaluation of impacts based on increased potential for structural damage and human annoyance, as identified in Table 6. For purposes of this analysis, risks of architectural damage (i.e., minor cracking of plaster walls and ceilings) would be considered potentially significant if construction-generated ground vibration levels at nearby structures would exceed 0.5 in/sec ppv. Ground vibration in excess of 0.2 in/sec ppv would be expected to result in a potential for significant short-term increases in levels of annoyance for occupants of nearby buildings.

METHODOLOGY

Short-Term Construction Noise

Short-term noise impacts associated with construction activities were analyzed based on typical construction equipment noise levels and distances to the nearest noise-sensitive land use. Noise levels were predicted based on representative off-road equipment noise levels derived from the Federal Highway Administration's (FHWA) Roadway Construction Noise Model based on average equipment usage rates and assuming a noise-attenuation rate of 6 dB per doubling of distance from the source.

Transportation Noise

Traffic noise levels were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on data obtained from the traffic analysis prepared for this project (JLB Traffic Engineering 2022).

Non-Transportation Noise

New non-transportation noise sources associated with operation of the proposed facilities includes parking spaces and heating, ventilation, and air conditioning (HVAC) systems. Non-transportation noise impacts were evaluated based on representative noise levels obtained from similar sources/activities and assuming an average noise-attenuation rate of 6 dB per doubling of distance from the sources. Noise levels associated with vehicle parking areas were calculated in accordance with the Federal Highway Administration's (FHWA's) *Transit Noise and Vibration Impact Assessment Guidelines* (2006) assuming that all parking spaces would be accessed over a one-hour period.

PROJECT IMPACTS

Impact Noise-A:	***Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Noise generated by the proposed project would occur during short-term construction and long-term operation. Noise-related impacts associated with short-term construction and long-term operations of the proposed project are discussed separately, as follows:

Short-term Construction Noise Levels

Construction noise typically occurs intermittently and varies depending upon the nature or phase (e.g., demolition/land clearing, grading and excavation, erection) of construction. Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Although noise ranges were found to be similar for all construction phases, the initial site preparation phases, including demolition and grading/excavation activities, tend to involve the most equipment and result in the highest average-hourly noise levels.

Noise levels commonly associated with construction equipment are summarized in Table 6. As noted in Table 6, instantaneous noise levels (in dBA L_{max}) generated by individual pieces of construction equipment typically range from the mid-70's to the low 90's dBA L_{max} at 50 feet (FTA 2006). Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Average-hourly noise levels for individual equipment generally range from approximately 73 to 82 dBA L_{eq}. Based on typical off-road equipment usage rates and assuming multiple pieces of equipment operating simultaneously within a localized area, such as soil excavation activities, average-hourly noise levels could reach levels of approximately 80 dBA L_{eq} at roughly 100 feet.

Table 6. Typical Construction Equipment Noise Levels

Equipment	Noise Level (dBA at 50 feet)	
	L_{max}	L_{eq}
Backhoes	78	74
Bulldozers	82	78
Compressors	78	74
Concrete Pump Truck	81	74
Dump Trucks	77	73
Front End Loaders	79	75
Pneumatic Tools	85	82
Rollers	80	73

Based on measured instantaneous noise levels (L_{max}), average equipment usage rates, and calculated average-hourly (L_{eq}) noise levels derived from the FHWA Road Construction Noise Model (FHWA 2008)

The City has not adopted noise standards that apply to short-term construction activities. However, based on screening noise criteria commonly recommended by federal agencies, construction activities would generally be considered to have a potentially significant impact if average-hourly daytime noise levels would exceed 80 dBA L_{eq} at noise-sensitive land uses, such as residential land uses (FTA 2006). Depending on the location and types of activities conducted (e.g., demolition, site prep, grading, construction, and architectural coating), predicted noise levels at the nearest residences, which are located adjacent to the eastern and southern property lines, could potentially exceed 80 dBA L_{eq}. Furthermore, with regard to residential land uses, activities occurring during the more noise-sensitive evening and nighttime hours could result in increased levels of annoyance and potential sleep disruption. For these reasons, noise-generating construction activities would be considered to have a ***potentially significant*** short-term noise impact.

Mitigation Measure Noise-1: The following measures shall be implemented to reduce construction-generated noise levels:

a. Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. Saturday and Sunday. Additionally, from June 1st through September 15th permitted construction hours shall be limited to between the hours of 6:00 a.m. and 7:00 p.m. Monday through Friday.

b. Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours and truck haul routes shall be selected to minimize impacts to nearby residential dwellings.

c. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

d. Stationary construction equipment (e.g., portable power generators) should be located at the furthest distance possible from nearby residences. If deemed necessary, portable noise barriers shall be erected sufficient to shield nearby residences from direct line-of-sight of stationary construction equipment.

e. When not in use, all equipment shall be turned off and shall not be allowed to idle. Provide clear signage that posts this requirement for workers at the entrances to the site.

Significance After Mitigation: Use of mufflers would reduce individual equipment noise levels by approximately 10 dBA. Implementation of the above mitigation measures would limit construction activities to the less noise-sensitive periods of the day. With implementation of the above mitigation measures, this impact would be considered ***less than significant***.

Long-term Operational Noise Levels

Roadway Traffic

Implementation of the proposed project would result in increased traffic volumes on some area roadways. The increase in traffic volume resulting from implementation of the proposed project would, therefore, contribute to predicted increases in traffic noise levels. Predicted changes in traffic noise levels in comparison to existing without project and existing with project conditions are discussed, as follows:

Predicted existing traffic noise levels and increases associated with implementation of the proposed project are summarized in Table 7. As depicted, implementation of the proposed project would result in predicted increases in traffic noise levels of approximately 0.4 dBA, or less, along primarily affected area roadway segments. Predicted cumulative traffic noise levels and increases associated with implementation of the proposed project are summarized in Table 8. As depicted, implementation of the proposed project would result in predicted increases in traffic noise levels of approximately 0.4 dBA, or less, along primarily affected area roadway segments. As noted earlier in this report, perceptible changes in ambient noise levels do not typically occur at levels below 3 dBA. Based on the modeling conducted, implementation of the proposed project would not result in a significant increase in traffic noise levels at nearby noise-sensitive land uses. As a result, predicted increases in traffic noise levels associated with implementation of the proposed project would be considered **less than significant**.

Table 7. Predicted Increases in Traffic Noise Levels - Existing Conditions

Roadway	ADT		Predicted CNEL, 50 Feet from Near-Travel Lane Centerline		Predicted Change	Significant Increase?
	Without Project	With Project	Without Project	With Project		
North/South Roadways						
Fowler Avenue (North of Herndon Avenue)	17,840	18,875	66.4	66.6	0.2	No
Fowler Avenue (Herdon Avenue to Project Driveway B)	20,020	21,600	66.8	67.2	0.4	No
Fowler Avenue (Project Driveway B to Tollhouse Road)	20,660	21,515	67	67.2	0.2	No
Fowler Avenue (South of Tollhouse Road)	19,380	19,420	67.9	67.9	0	No
Armstrong Avenue (North of Herndon Avenue)	5,570	5,655	64.2	64.3	0.1	No
Armstrong Avenue (South of Herndon Avenue)	6,715	6,905	62.4	62.5	0.1	No
East/West Roadways						
Herndon Avenue (West of Fowler Avenue)	24,865	25,680	68.5	68.7	0.2	No
Herndon Avenue (Fowler Avenue to Ash Avenue)	21,665	22,235	67.9	68	0.1	No
Herndon Avenue (Ash Avenue to Armstrong Avenue)	19,550	20,155	67.5	67.6	0.1	No
Herndon Avenue (East of Armstrong Avenue)	17,065	17,395	67.2	67.3	0.1	No
Tollhouse Road (West of Fowler Avenue)	6,495	6,630	64.4	64.5	0.1	No
Tollhouse Road (East of Fowler Avenue)	3,740	3,895	61.3	61.5	0.2	No

ADT = Average Daily Traffic
Traffic noise levels were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on data obtained from the traffic analysis prepared for this project.
ADT Source: JLB Traffic Engineering 2022

Table 8. Predicted Increases in Traffic Noise Levels - Cumulative Conditions

Roadway	ADT		Predicted CNEL, 50 Feet from Near-Travel Lane Centerline		Predicted Change	Significant Increase?
	Without Project	With Project	Without Project	With Project		
North/South Roadways						
Fowler Avenue (North of Herndon Avenue)	20,210	21,245	66.9	67.1	0.2	No
Fowler Avenue (Herdon Avenue to Project Driveway B)	23,230	24,700	67.5	67.8	0.3	No
Fowler Avenue (Project Driveway B to Tollhouse Road)	23,530	24,385	67.5	67.7	0.2	No
Fowler Avenue (South of Tollhouse Road)	21,705	22,345	68.4	68.5	0.1	No
Armstrong Avenue (North of Herndon Avenue)	7,655	7,740	65.6	65.7	0.1	No
Armstrong Avenue (South of Herndon Avenue)	9,280	10,000	63.8	64.1	0.3	No
East/West Roadways						
Herndon Avenue (West of Fowler Avenue)	26,420	28,820	68.8	69.2	0.4	No
Herndon Avenue (Fowler Avenue to Ash Avenue)	23,770	25,070	68.3	68.6	0.3	No
Herndon Avenue (Ash Avenue to Armstrong Avenue)	23,340	23,945	68.2	68.4	0.2	No
Herndon Avenue (East of Armstrong Avenue)	20,695	21,125	68	68.1	0.1	No
Tollhouse Road (West of Fowler Avenue)	7,250	7,430	64.9	65	0.1	No
Tollhouse Road (East of Fowler Avenue)	4,375	4,410	62	62	0	No

ADT = Average Daily Traffic
Traffic noise levels were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on data obtained from the traffic analysis prepared for this project.
ADT Source: JLB Traffic Engineering 2022

Vehicle Parking Areas

The proposed project includes the construction of new parking areas. Based on a conservative assumption that all parking spaces within these parking areas would be accessed over a one-hour period, predicted daytime noise levels at the property line of the nearest residential dwellings would range from approximately 30 dBA L_{eq} to 43 dBA L_{eq}. Predicted noise levels would not exceed the City's daytime noise standard of 50 dBA L_{eq}. As a result, this impact is considered ***less than significant***.

Building Mechanical Equipment

The proposed project would result in increased stationary source noise levels, primarily associated with building mechanical equipment (e.g., heating ventilation and air handling/cooling systems). Each air handling/cooling system would have one condenser and two fans. Based on noise measurement data for similar commercial-use air handling and cooling systems (Lennox Elite Series EL120XCSS) (Lennox 2022), representative operational noise levels would be approximately 79 dBA at 3 feet. Building equipment such as HVAC systems and boilers, would be located on the rooftop or within the interior of the structure and shielded from direct public exposure.

The nearest noise-sensitive land use is a residential dwelling located approximately 55 feet south of the proposed Online School building. Based on this distance and the operational noise levels noted above, predicted operational noise levels at this nearest residence would be approximately 54 dBA L_{eq}, or less. Predicted operational noise levels would not exceed the City's daytime noise standard. However, predicted operational noise levels would exceed the City's nighttime standard. As a result, this impact would be considered **potentially significant.**

Mitigation Measure Noise-2: The following measures shall be implemented to reduce long-term operational noise impacts:

- Building mechanical equipment (e.g., HVAC units) associated with the proposed buildings shall be shielded from direct line-of-sight of nearby residential land uses. It is recommended that air conditioning units be located on roof-top areas and shielded from line of sight of nearby residential land uses by incorporation of shielding or building parapets along the perimeter of the roof.

- Mechanical equipment placed on roof-top areas shall include a 5-foot set back, at minimum.

Significance After Mitigation

Implementation of Mitigation Measure Noise-2 would require building mechanical equipment (e.g., exhaust fans, air conditioning units) to be shielded from direct line of sight of nearby residential land uses, which would reduce predicted operational noise levels. With mitigation, operation of onsite building mechanical equipment would be reduced by approximately 5 dB. Based on this distance, the operational noise levels noted above, and a 5 dB line of sight reduction, predicted operational noise levels at this nearest residence would be approximately 49 dBA L_{eq}, or less. For this reason and with mitigation, this impact would be considered **less than significant**.

Impact Noise-B. ***Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?***

Long-term operational activities associated with the proposed project would not involve the use of any equipment or processes that would result in potentially significant levels of ground vibration. Increases in groundborne vibration levels attributable to the proposed project would be primarily associated with short-term construction-related activities. Construction activities associated with the proposed improvements would likely require the use of various off-road equipment, such as tractors, concrete mixers, and haul trucks. The use of major groundborne vibration-generating construction equipment, such as pile drivers, would not be required for this project.

Groundborne vibration levels associated with representative construction equipment are summarized in Table 9. As depicted, ground vibration generated by construction equipment would be approximately 0.089 in/sec ppv, or less, at 25 feet. Predicted vibration levels at the nearest existing structures would be approximately 0.114 in/sec ppv and is not anticipated to exceed commonly applied criteria for structural damage or human annoyance (i.e., 0.5 and 0.2 in/sec ppv, respectively). In addition, no fragile structures have been identified in the project area. As a result, this impact would be considered ***less than significant.***

Table 9. Representative Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 25 Feet (In/Sec)
Large Bulldozer	0.089
Loaded Truck	0.076
Jackhammer	0.035
Small Bulldozer	0.003
Source: FTA 2006, Caltrans 2020	

Impact Noise-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 two 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?***

The nearest airport in the project vicinity is the Fresno Yosemite International Airport, which is located approximately 4.5 miles to the southwest. The proposed project is not located within the projected 60 dBA CNEL/L_{dn} noise contours of these airports (City of Clovis 2014). No private airstrips were identified within two miles of the project site. Implementation of the proposed project would not result in the exposure of sensitive receptors to aircraft noise levels, nor would the proposed project affect airport operations. This impact is considered ***less than significant.***

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United States Department of Transportation, Federal Transit Administration (FTA). April 2006. *Transit Noise and Vibration Impact Assessment.*

U.S. Environmental Protection Agency (U.S. EPA). December 31, 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

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APPENDIX A

Noise Prediction Modeling & Supportive Documentation

Predicted On-Site Noise levels

Source	Reference Noise Level	Reference Distance (feet)	Distance to Receiver (feet)	Predicted Noise Level (dBA)
Lennox Elite Series EL120XCSS HVAC Unit	79 dBA L_{eq}	3	55	54 dBA L_{eq}

Predicted Noise Level from Parking Spaces Parking D

Number of Parking Spaces: 81

Number of Vehicles/Hour: 81

Distance from Source to Receiver (ft): 180 from Parking D approximate center

Number of Intervening Rows of Buildings: 0

Noise Barrier? No

Predicted Noise Level: 29.6 dBA

Predicted Noise Level from Parking Spaces Parking D (Future Phase)

Number of Parking Spaces: 71

Number of Vehicles/Hour: 71

Distance from Source to Receiver (ft): 50

Number of Intervening Rows of Buildings: 0

Noise Barrier? No

Predicted Noise Level: 42.9 dBA

Predicted Noise Level from Parking Spaces (Future Phase Lot Between Building C and Building D)

Number of Parking Spaces: 140

Number of Vehicles/Hour: 140

Distance from Source to Receiver (ft): 215

Number of Intervening Rows of Buildings: 0

Noise Barrier? No

Predicted Noise Level: 30.0 dBA

Source: FTA 2018. FTA Noise Impact Assessment Worksheet.

Predicted Vibration Levels from Construction

Vibration Levels

Source	**PPV IN/SEC AT 25 FT**	**VdB AT 25 FT**
VIBRATORY ROLLER	0.21	94
HOE RAM	0.089	87
LARGE BULLDOZER	0.089	87
CAISSON DRILLING	0.089	87
LOADED TRUCKS	0.076	86
JACKHAMMER	0.035	79
SMALL BULLDOZER	0.003	58

SOURCE:	Large Bulldozer	
REFERENCE LEVEL:	0.089	87
ATTENUATION RATE*:	1.1	1.1
DISTANCE	20	20
PREDICTED GROUND-BORNE VIBRATION LEVEL:	0.114	111

REFERENCE NOISE LEVELS (FTA 2006)

Noise Monitoring

NOISE MEASUREMENT SURVEY FORM

AMBIENT AIR QUALITY & NOISE CONSULTING

SHEET	1	OF	3

DATE:	3/30/2023
PROJECT:	Clovis Unified District Facilities
LOCATION:	Clovis, CA
MONITORING STAFF:	Jon Pambakian

LOCATION MAP: *(Include a map of noise measurement locations AND photographs for measurement locations on attached worksheet. Include additional sheets as necessary. Where possible include GPS coordinates.)*

NOISE MEASUREMENT CONDITIONS & EQUIPMENT

MET CONDITIONS & MONITORING EQUIPMENT:	TEMP: 54 - 57 F. | HUMIDITY: 79 - 85% | WIND SPEED: 2 MPH | WIND DIR: NNE - WSW | GROUND: Dry			
	OUD COVER BY CLASS (OC=OVERCAST):	2	(1. HEAVY OC, 2. LIGHT OC, 3. SUNNY, 4. CLEAR NIGHT, 5. OC NIGHT)	
	MET. METER:	Kestrel 5500		
NOISE MONITORING EQUIPMENT:	LARSON DAVIS SLM MODEL:	LxT	S/N:	5560
	MICROPHONE:		S/N:	
	CALIBRATOR:	CAL200	S/N:	2744
NOISE MONITORING SETUP:	WITHIN 10 FT OF REFLECTIVE SURFACE?:	NO	MICROPHONE HEIGHT AGL (FT):	5
	CALIBRATED PRIOR TO AND UPON COMPLETION OF MEASUREMENTS:	yes	METER SETTINGS:	A-WHT / SLOW

NOISE & TRAFFIC MEASUREMENTS

MEASUREMENT		DURATION			MEASURED NOISE LEVELS	
LOCATION	**DATE/TIME**	**(Minutes)**	**MEASUREMENT LOCATION**	**PRIMARY NOISE SOURCES NOTED**	**LEQ**	**Lmax**
ST1	3/30/2023 11:05	10	90 feet east of Renoir Ln and Amedeo Ln intersection	Birds	43.8	53.8
ST2	3/30/2023 11:25	10	760 feet southeast of Herndon Ave and Fowler Ave intersection	Traffic	55.8	66.0
ST3	3/30/2023 11:45	10	adjacent to east side of Fowler Ave, across from Dutch Bros Cofee	Traffic	71.2	89.5

NOISE MEASUREMENT SURVEY FORM

DATE:	3/30/2023
PROJECT:	Clovis Unified District Facilities
LOCATION:	Clovis, CA
MONITORING STAFF:	Jon Pambakian

SITE PHOTO(S): (Refer to data sheets for noise measurement locations)

MEASUREMENT LOCATION 1

MEASUREMENT LOCATION 2

MEASUREMENT LOCATION 3

NOISE MEASUREMENT SURVEY FORM

	SHEET	3	OF	3

DATE:	3/30/2023
PROJECT:	Clovis Unified District Facilities
LOCATION:	Clovis, CA
MONITORING STAFF:	Jon Pambakian

SITE PHOTO(S): (Refer to data sheets for noise measurement locations)

Met Data	Met Data
	

Initial Study Appendix F

Clovis Unified School District

New District Facilities Project

Traffic Impact Analysis Report

Traffic Impact Analysis Report

Clovis Unified School District
Fowler-Herndon Campus

Located on the Southeast Quadrant of Fowler Avenue at Herndon Avenue

In the City of Clovis, California

Prepared for:

Odell Planning & Research, Inc.
49346 Road 426, Suite 2
Oakhurst, CA 93644

June 26, 2023

Project No. 006-045

JLB TRAFFIC ENGINEERING, INC.

Traffic Engineering, Transportation Planning, & Parking Solutions

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Fresno, CA 93704
Phone: (559) 570-8991
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Traffic Engineering, Transportation Planning, & Parking Solutions

Traffic Impact Analysis Report

For the Clovis Unified School District Fowler-Herndon Campus located on the Southeast Quadrant of Fowler Avenue at Herndon Avenue

In the City of Clovis, CA

June 26, 2023

This Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

Jose Luis Benavides, PE, TE

President

REGISTERED PROFESSIONAL ENGINEER
JOSE LUIS BENAVIDES
No.T 2328
Exp:06/30/23
TRAFFIC
STATE OF CALIFORNIA

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Table of Contents

List of Figures

List of Tables

List of Appendices

Introduction and Summary

Introduction

This Report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the Clovis Unified School District (CUSD) Fowler-Herndon Campus (Project) located on the southeast quadrant of Fowler Avenue at Herndon Avenue in the City of Clovis. The Project proposes to develop the site with a Special Education Building, an Online School Building and three future Administration Office Buildings. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term and long-term roadway needs, determine potential roadway improvement measures and identify any critical traffic issues that should be addressed in the ongoing planning process. The TIA primarily focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. The Scope of Work was prepared via consultation with City of Clovis, City of Fresno, County of Fresno and Caltrans staff.

Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policies of the City of Clovis, County of Fresno and Caltrans.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the Project access points indicates that they are located at points that minimize traffic operational impacts to the existing roadway network.
- At buildout, the proposed Project is estimated to generate a maximum of 1,983 daily trips, 395 AM peak hour trips and 277 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 71,880 weekday daily trips, 5,260 weekday AM peak hour trips and 7,385 weekday PM peak hour trips.
- Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. Additional details are presented later in this Report.

Cumulative Year 2046 No Project Traffic Conditions

- Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. Additional details are presented later in this Report.

Cumulative Year 2046 plus Project Traffic Conditions

- Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. Additional details are presented later in this Report.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Scope of Work

The TIA focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On October 5, 2022, a Draft Scope of Work for the preparation of a Traffic Impact Analysis for this Project was provided to the City of Clovis, City of Fresno, County of Fresno and Caltrans for their review and comment.

On October 7, 2022, the County of Fresno replied that they had no comments to the proposed scope. On October 18, 2022, Caltrans replied that they had no comments to the proposed scope. On October 25, 2022, the City of Fresno replied that they had no comments to the scope and would not need to review the final TIA as the Project is far outside the City of Fresno Sphere of Influence. On November 2, 2022, the City of Clovis requested that a Cumulative Year 2046 No Project be analyzed, the Home Place be added to the near term projects and that the intersections Fowler Avenue at Herndon Avenue, Ash Avenue at Herndon Avenue and Armstrong Avenue at Herndon Avenue be added to the Analysis.

Based on the comments received, this TIA analyzes a Cumulative Year 2046 No Project scenario, the Home Place as a near term project and will include the intersections of Fowler Avenue at Herndon Avenue, Ash Avenue at Herndon Avenue and Armstrong Avenue at Herndon Avenue. The Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

Study Facilities

The existing intersection peak hour turning movement counts were conducted at the study intersections in November and December 2022 while schools the vicinity of the Project site were in session. The intersection turning movement counts included pedestrian and bicycle volumes. The traffic counts for the existing study intersections are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Study Intersections

1. Fowler Avenue / Herndon Avenue
2. Project Driveway A / Herndon Avenue
3. Ash Avenue / Herndon Avenue
4. Armstrong Avenue / Herndon Avenue
5. Fowler Avenue / Project Driveway B
6. Fowler Avenue / Tollhouse Road

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in November and December 2022.

Existing plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the Project Only Trips to the Existing Traffic Conditions scenario. The Project Only Trips to the study facilities were developed based on existing travel patterns, the Fresno COG ABM Project Select Zone, the surrounding roadway network, engineering judgment, data provided by the Clovis Unified School District, knowledge of the study area, existing residential and commercial densities, and the *City of Clovis General Plan* Circulation Element in the vicinity of the Project site. The Fresno COG Project Select Zone was prepared by Kittelson & Associates and plots are contained in Appendix C.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project Traffic Conditions scenario.

Cumulative Year 2046 No Project Traffic Conditions

This scenario evaluates total traffic volumes and roadways conditions based on the Cumulative Year 2046 No Project Traffic Conditions. The Cumulative Year 2046 No Project traffic volumes were obtained by subtracting the Project Only Trips from the Cumulative Year 2046 plus Project Conditions Scenario.

Cumulative Year 2046 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadways conditions based on the Cumulative Year 2046 plus Project Traffic Conditions. The Cumulative Year 2046 plus Project traffic volumes were obtained by using the Fresno COG activity-based model (ABM) (Base Year 2019 and Cumulative Year 2046) and existing traffic counts. Under this scenario, the increment method was utilized to determine the Cumulative Year 2046 plus Project traffic volumes. The Fresno COG ABM results were prepared by Kittelson & Associates and plots are contained in Appendix C.

LOS Methodology

LOS is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 7th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 6 Edition methodologies do not allow the analysis of U-turns. Lane configurations not reflective of existing conditions are a result of software limitations and thus represent a worst-case scenario. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix D.

While LOS is no longer the criteria of significance for traffic impacts in the state of California, the City of Clovis continues to apply congestion-related conditions or requirements for land development projects through planning approval processes outside of CEQA Guidelines in order to continue the implementation of *City of Clovis General Plan* policies.

LOS Thresholds

The *City of Clovis General Plan* has established LOS D as the acceptable level of traffic congestion on most major streets. Therefore, LOS D is used to evaluate the potential significance of LOS impacts to City of Clovis roadway facilities pursuant to the *City of Clovis General Plan*.

The *Fresno County General Plan* has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City (Fresno County 2000). For those areas that fall within the SOI of a City, the LOS threshold of the City is used in this report. In this case, all study facilities fall within the City of Clovis SOI, therefore, the City of Clovis LOS thresholds are utilized.

Caltrans no longer considers delay as a significant impact to the environment, for land use projects and plans. According to the Caltrans document VMT Focused Transportation Impact Study Guidelines dated May 2020, Caltrans review of land use projects and plans is focused on a VMT metric consistent with CEQA. In this TIA, however, all study intersections fall within the City of Clovis SOI. Therefore, the City of Clovis LOS thresholds are utilized.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- Yellow time consistent with the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) based on approach speeds (Caltrans 2020).
- Yellow time of 3.2 seconds for left-turn phases.
- All-red clearance intervals of 1.0 second for all phases.
- Walk intervals of 7.0 seconds.
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added.
- An average of 10 pedestrian calls per hour at signalized intersections.
- At existing intersections, the heavy vehicle factor observed for each intersection or a minimum of 3 percent were utilized under all scenarios.
- The number of observed pedestrians at existing intersections was utilized under all study scenarios.
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project and Near Term plus Project scenarios.
- For both Cumulative Year 2046 scenarios, the following PHF was utilized to reflect traffic operations and an increase in future traffic volumes. As roadways start to reach their saturated flow rates, PHF's tend to increase to 0.90 or higher in urban settings. A PHF of 0.92, or the existing PHF if higher, is utilized for all study intersections.

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

Fowler Avenue is an existing north-south four-lane divided arterial adjacent to the proposed Project site. In this area, Fowler Avenue is a three-lane divided arterial between Shepherd Avenue and Teague Avenue, a two-lane undivided arterial between Teague Avenue and Nees Avenue and a four-lane divided arterial between Nees Avenue and Ashlan Avenue. The *City of Clovis General Plan* Circulation Element designates Fowler Avenue as an arterial through the City of Clovis SOI.

Ash Avenue is an existing north-south two-lane undivided local roadway in the vicinity of the proposed Project site. In this area, Ash Avenue is a two-lane undivided local roadway through the City of Clovis SOI. The *City of Clovis General Plan* Circulation Element designates Ash Avenue as a local roadway through the City of Clovis SOI.

Armstrong Avenue is an existing north-south four-lane undivided collector in the vicinity of the proposed Project site. In this area, Armstrong Avenue is a two-lane undivided collector between Teague Avenue and Herndon Avenue, a four-lane undivided collector between Herndon Avenue and Poison Avenue, a two-lane collector divided by a two-way left-turn lane between Poison Avenue and Gettysburg Avenue and a two- to three-lane undivided collector between Gettysburg Avenue and Ashlan Avenue. The *City of Clovis General Plan* Circulation Element designates Armstrong Avenue as a collector through the City of Clovis SOI.

Herndon Avenue is an existing east-west six-lane divided arterial adjacent to the proposed Project site. In this area, Herndon Avenue is a six-lane divided expressway between Willow Avenue and State Route 168, a six-lane divided arterial between State Route 168 and Armstrong Avenue, a five-lane divided arterial between Armstrong Avenue and Coventry Avenue, a two-lane undivided arterial between Coventry Avenue and Del Rey Avenue and an undivided rural arterial between Del Rey Avenue and Academy Avenue. The *City of Clovis General Plan* Circulation Element designates Herndon Avenue as an expressway between Willow Avenue and State Route 168, an arterial between State Route 168 and Del Rey Avenue and a rural arterial between Del Rey Avenue and Academy Avenue.

Tollhouse Road is an existing southwest-northeast two-lane collector divided by a two-way left-turn lane in the vicinity of the proposed Project site. This roadway will be described as an east-west roadway for the purposes of this TIA. In this area, Tollhouse Road is a two-lane collector divided by a two-way left-turn lane between Sunnyside Avenue and Herndon Avenue and a two-lane undivided local roadway between Herndon Avenue and Magnolia Avenue. The *City of Clovis General Plan* Circulation Element designates Tollhouse Road as a collector between Sunnyside Avenue and Herndon Avenue and a local roadway between Herndon Avenue and Magnolia Avenue.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing Traffic Conditions turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table I presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during both peak periods.

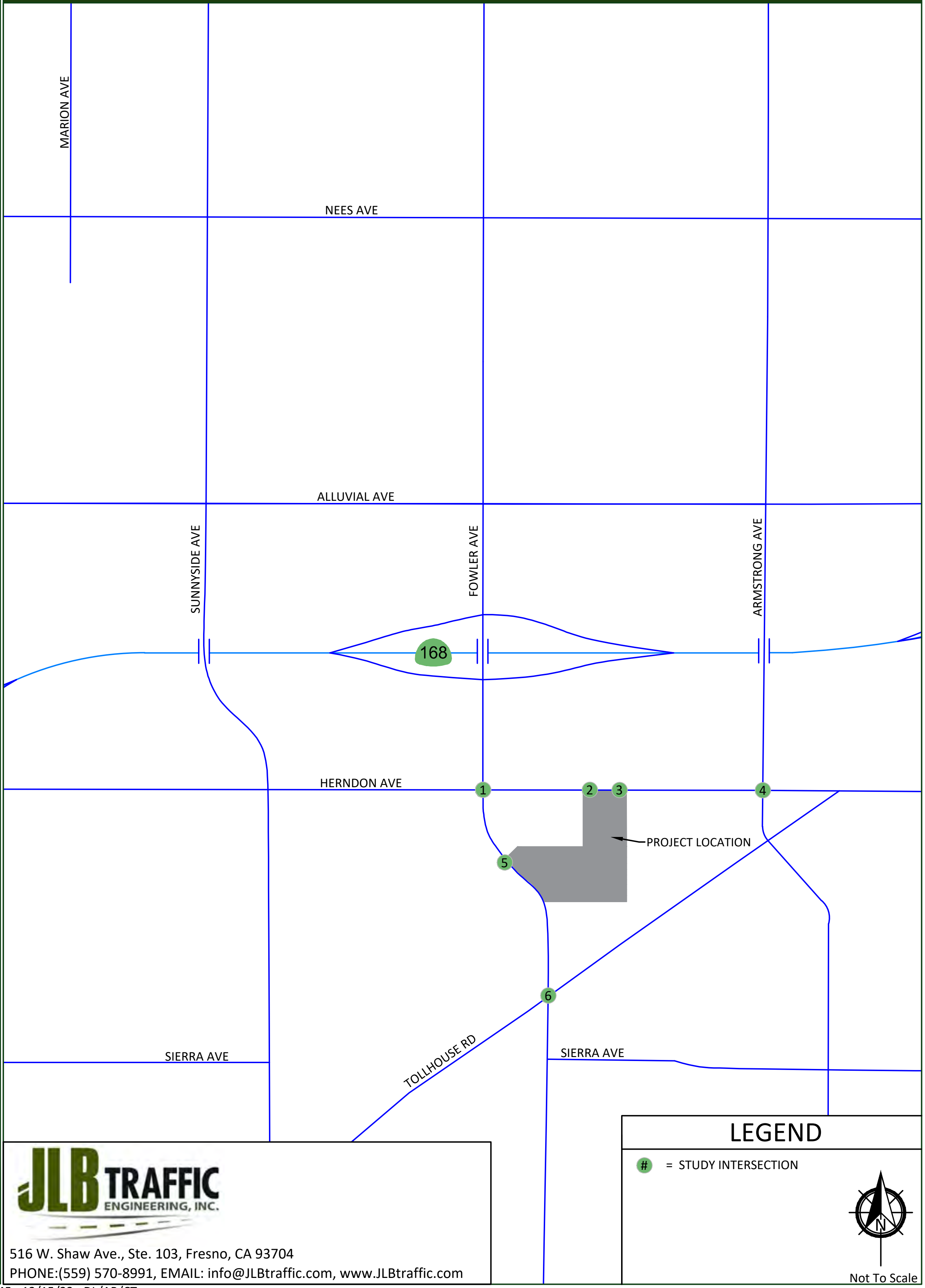
Table I: Existing Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*PM (4 - 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Fowler Avenue / Herndon Avenue	Traffic Signal	30.5	C	34.0	C
2	Project Driveway A / Herndon Avenue	Does Not Exist	-	-	-	-
3	Ash Avenue / Herndon Avenue	One-Way Stop	18.2	C	25.6	D
4	Armstrong Avenue / Herndon Avenue	Traffic Signal	29.0	C	21.9	C
5	Fowler Avenue / Project Driveway B	One-Way Stop	11.6	B	14.4	B
6	Fowler Avenue / Tollhouse Road	Traffic Signal	21.1	C	29.4	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Vicinity Map

Figure 1



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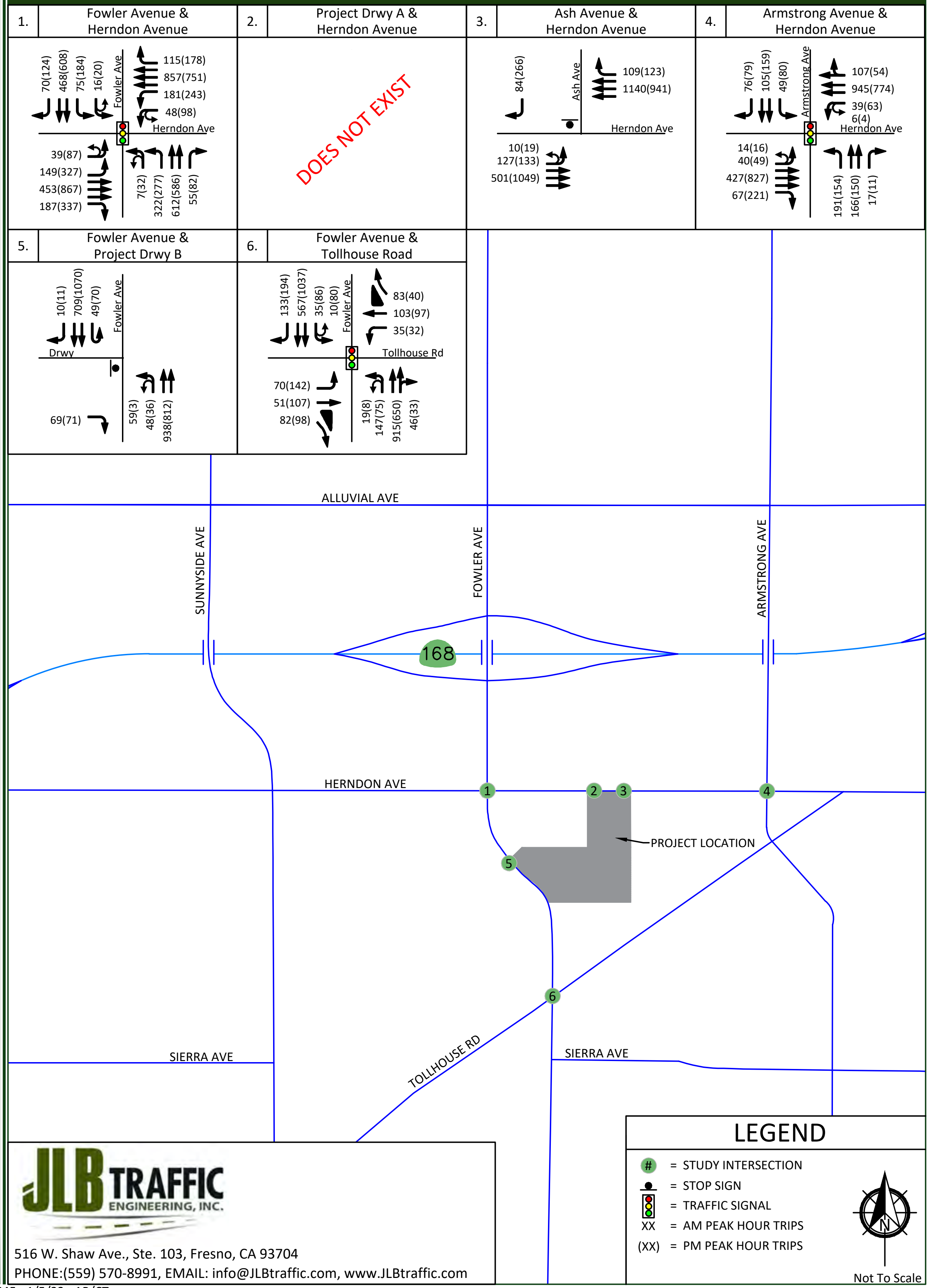
Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Existing - Traffic Volumes, Geometrics and Controls

Figure 2



Existing plus Project Traffic Conditions

Project Description

The Project is proposing to develop part of the southeast quadrant of Fowler Avenue and Herndon Avenue with a 24,167 square foot Special Education Administration Building, a 27,399 square foot Online School Building and three future 30,000 square foot Administration offices for a total of 141,566 square feet of buildings. Figure 3 illustrates the latest Project Site Plan.

Project Access

Based on the latest Project Site Plan, access to and from the Project site will be from two (2) access points. Project Driveway A will be located on the south side of Herndon Avenue approximately 965 feet east of Fowler Avenue and is proposed to have right-in right-out access. Project Driveway B on the east side of Fowler Avenue approximately 675 feet south of Herndon Avenue and proposed to have right-in, right-out and left-in access. This project driveway will be aligned with the driveway on the west side of Fowler Avenue nearest to the Dutch Bros. Coffee.

JLB analyzed the location of the existing and proposed roadways and access points relative to those in the vicinity of the Project site. A review of the existing and proposed roadways and access points indicates that they are located at points that minimize traffic operational impacts to existing and future roadway networks. The latest Project Site Plan can be found in Figure 3.

Project Trip Generation

The trip generation rates for the proposed Project were determined based on operations of the Project and discussions with CUSD. Table II presents the trip generation for a 24,167 square foot Special Education Administration Building and a 27,399 square foot Online School Building. As can be seen, these buildings are estimated to generate approximately 690 daily trips, 183 AM peak hour trips and 93 PM peak hour trips. Table III presents the trip generation for three future 30,000 square foot Administration offices. As can be seen, these future buildings are estimated to generate approximately 1,293 daily trips, 212 AM peak hour trips and 184 PM peak hour trips. Table IV presents the total trip generation for the Project buildout. At buildout, the Project is estimated to generate approximately of 1,983 daily trips, 395 AM peak hour trips and 277 PM peak hour trips.

Table II: Trip Generation – Special Education Administration and Online School Buildings

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Special Education Admin Building																
Employees	62	Employees	3	186	0.71	95	5	42	2	44	1.05	5	95	3	62	65
Students/Parents	30	Students	2	60	0.60	50	50	9	9	18	0.30	0	100	0	9	9
Online Education Building																
Staff	50	Employees	3	150	1.06	95	5	50	3	53	0.30	5	95	1	14	15
Student/Parent Conference	40	Students	2	80	.35	50	50	7	7	14	0.00	0	0	0	0	0
Students	100	Students	2	200	0.50	50	50	25	25	50	0.00	0	0	0	0	0
Miscellaneous																
Visitors	3	Each	2	6	0.66	50	50	1	1	2	0.66	50	50	1	1	2
Trash/Recycling	1	Each	2	2	0.00	0	0	0	0	0	0.00	0	0	0	0	0
Delivery	3	Each	2	6	0.66	50	50	1	1	2	0.66	50	50	1	1	2
Total Driveway Trips				**690**				**135**	**48**	**183**				**6**	**87**	**93**

Table III: Trip Generation – Future Administration Buildings

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
School District Office (528)	90.000	k.s.f.	14.37	1,293	2.36	76	24	161	51	212	2.04	17	83	31	153	184
Total Driveway Trips				**1,293**				**161**	**51**	**212**				**31**	**153**	**184**

Note: k.s.f. = Thousand Square Feet

Table IV: Trip Generation – Project Buildout

Land Use (ITE Code) Size Unit	*Daily*	*AM Peak Hour*			*PM Peak Hour*		
	Total	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Special Education Administration and Online Education Buildings	690	135	48	183	6	87	93
Future Administration Buildings	1,293	161	51	212	31	153	184
Total Driveway Trips	**1,983**	**296**	**99**	**395**	**37**	**240**	**277**

Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, the Fresno COG ABM Project Select Zone, the existing roadway network, engineering judgment, data provided by the CUSD, knowledge of the study area, existing residential and commercial densities and the *Clovis General Plan* Circulation Element in the vicinity of the Project site. The Project's trip generation data was provided to Kittelson & Associates to conduct a Project-specific Traffic Analysis Zone (TAZ) analysis using the Fresno COG ABM (Cumulative Year 2046). The Fresno COG Project Select Zone results are contained in Appendix C. Figure 4 illustrates the Project Only Trips at the study intersections.

Roadway Network

The Existing plus Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with the exception of the Project with its access points. Figure 5 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Existing plus Project Level of Service Analysis

Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix F. Table V presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

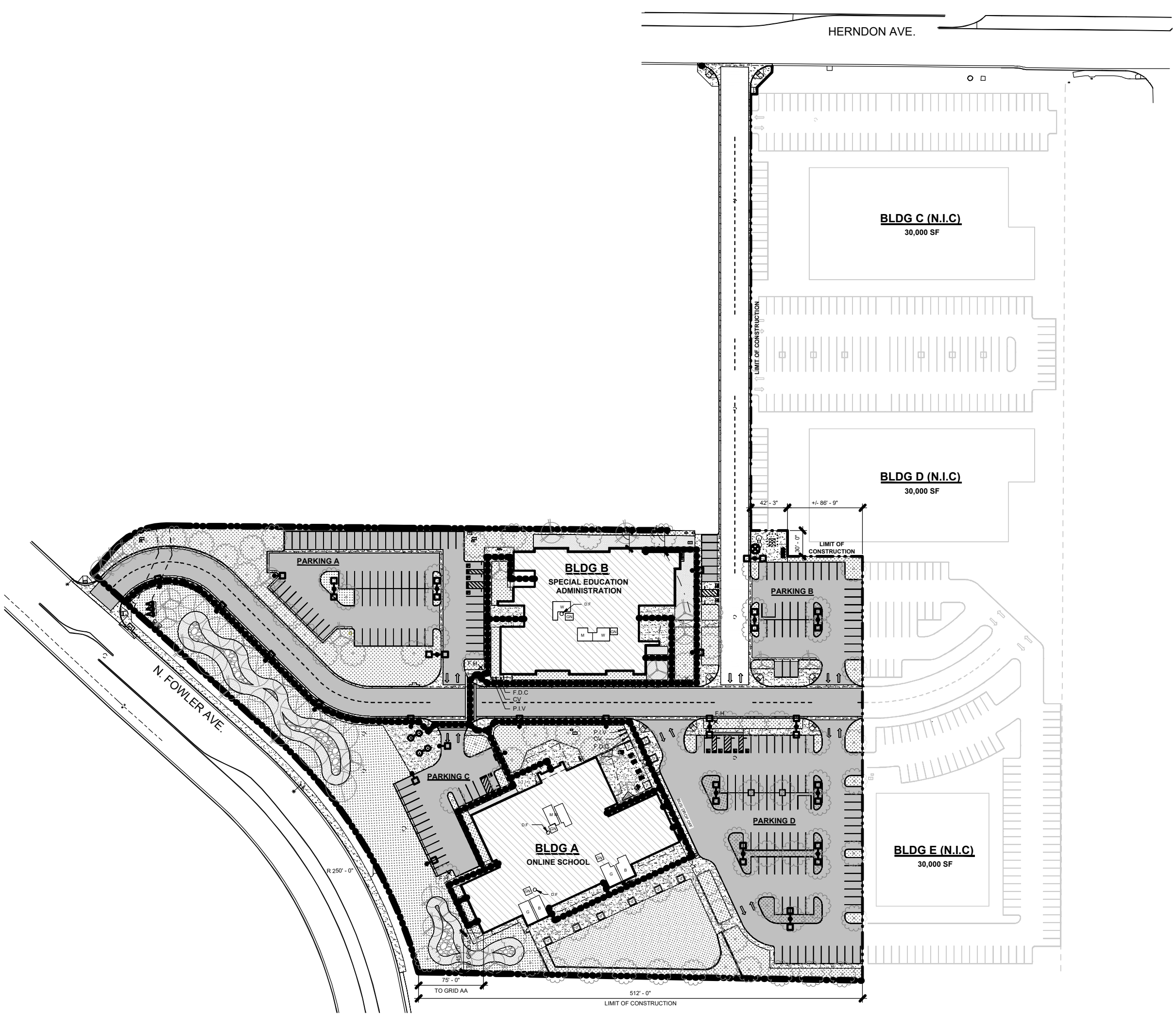
Table V: Existing plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Fowler Avenue / Herndon Avenue	Traffic Signal	32.0	C	36.4	D
2	Project Driveway A / Herndon Avenue	One-Way Stop	12.5	B	17.8	C
3	Ash Avenue / Herndon Avenue	One-Way Stop	18.4	C	25.8	D
4	Armstrong Avenue / Herndon Avenue	Traffic Signal	30.9	C	22.2	C
5	Fowler Avenue / Project Driveway B	Two-Way Stop	14.0	B	14.7	B
6	Fowler Avenue / Tollhouse Road	Traffic Signal	23.6	C	30.4	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Project Site Plan

Figure 3



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Not To Scale

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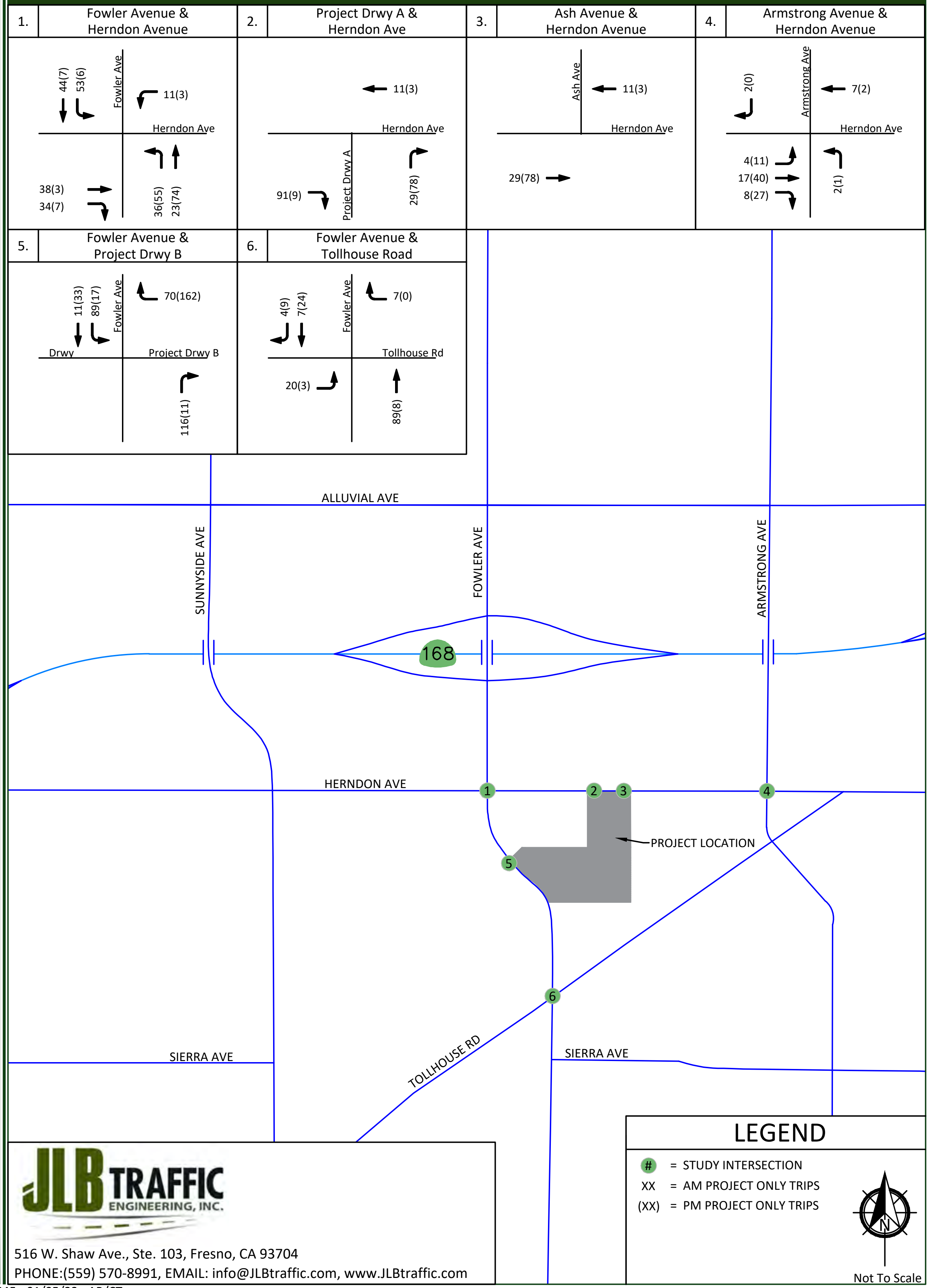
Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Project Only Trips

Figure 4



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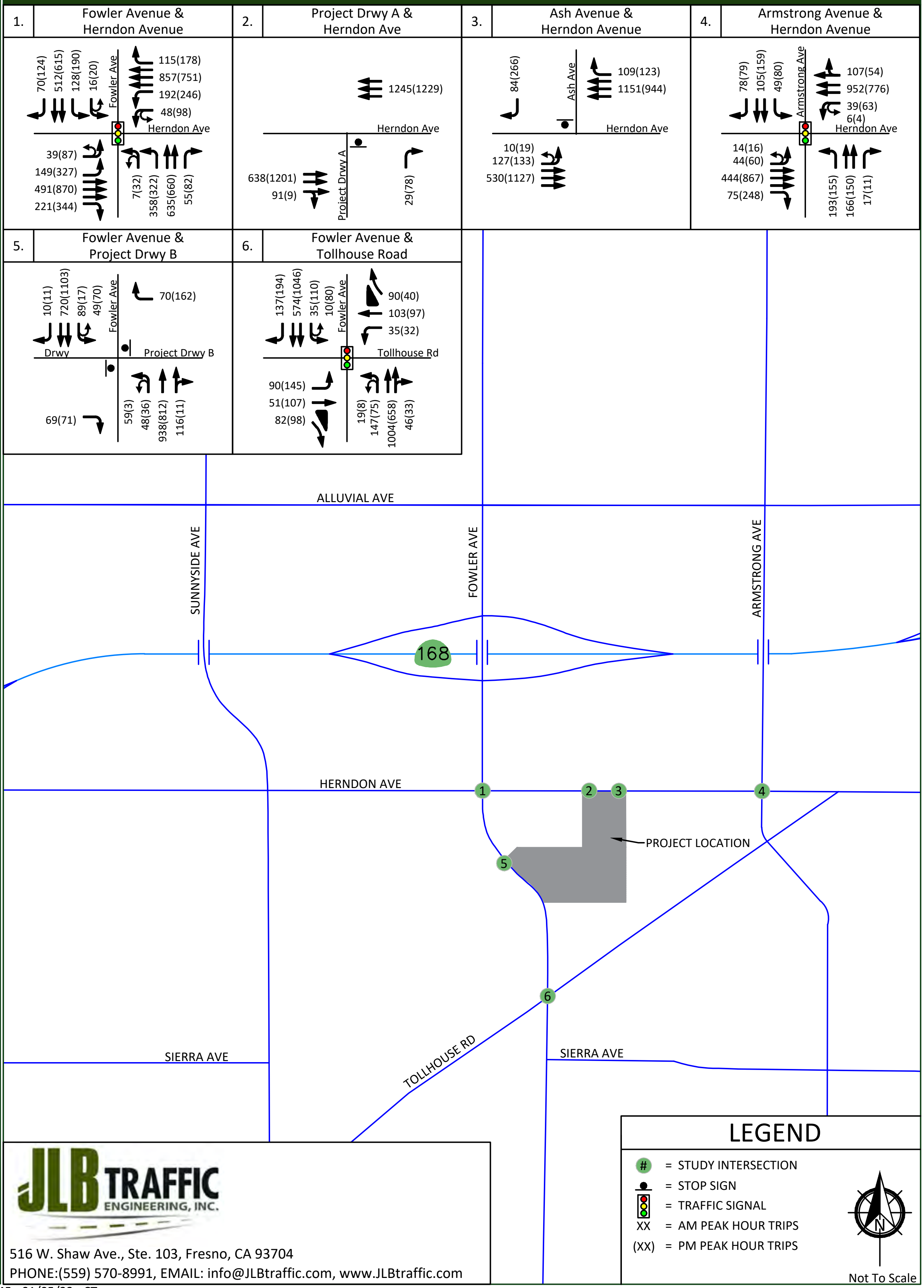
Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Existing plus Project - Traffic Volumes, Geometrics and Controls

Figure 5



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Near Term plus Project Traffic Conditions

Description of Near Term Projects

Near Term Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. The City of Clovis, County of Fresno and Caltrans staff were consulted throughout the preparation of this TIA regarding Near Term Projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Therefore, the Near Term Projects listed in Table VI were within the proximity of the Project site.

Table VI: Near Term Projects' Trip Generation

Near Term Project ID	*Near Term Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	TT 6050[2]	1,567	123	164
B	TT 6109[2]	1,094	81	109
C	TT 6123[1]	1,443	107	144
D	TT 6154[1]	500	37	50
E	TT 6200[2]	3,776	296	396
F	TT 6263[2]	820	61	82
G	TT 6264[2]	349	26	35
H	TT 6284[1]	699	56	73
I	TT 6332[2]	538	40	54
J	TT 6389[2]	434	32	43
K	Clovis Community Medical Center[2]	24,663	1,250	2,217
L	Home Place[2]	18,467	1,167	1,889
M	Harlan Ranch Commercial[1]	4,687	105	407
N	Research and Technology Park[3]	12,843	1,879	1,722
Total Near Term Project Trips		**71,880**	**5,260**	**7,385**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis Report
3 = Trip Generation based on a Traffic Impact Analysis Report by another Traffic Engineering Firm

The trip generation listed in Table VI is that which is anticipated to be added to the streets and highways by Near Term Projects between the time of the preparation of this Report and five (5) years after buildout of the proposed Project. As shown in Table VI, the total trip generation for the Near Term Projects is 71,880 weekday daily trips, 5,260 weekday AM peak hour trips and 7,385 weekday PM peak hour trips. Figure 6 illustrates the location of the Near Term Projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

Roadway Network

The Near Term plus Project Traffic Conditions scenario assumes that the Existing plus Project Traffic Conditions roadway geometrics and traffic controls will remain in place. Figure 7 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Near Term plus Project Level of Service Analysis

Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix G. Table VII presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. It should be noted that this Project does not have a significant impact to this intersection as the delay increases by 0.2 seconds from the Existing Traffic Conditions PM peak to the Existing plus Project Traffic Conditions PM Peak. Furthermore, this intersection exceeds its LOS threshold by just 2.6 seconds for a period less than one hour during the day. A traffic signal would not be recommended to improve a leg of an intersection that can only make right-turn movements. A second right-turn lane would not be recommended as the visibility safety hazards created would outweigh the benefits caused by this improvement. Therefore, it is determined that the delay at this intersection is adverse, but not significant.

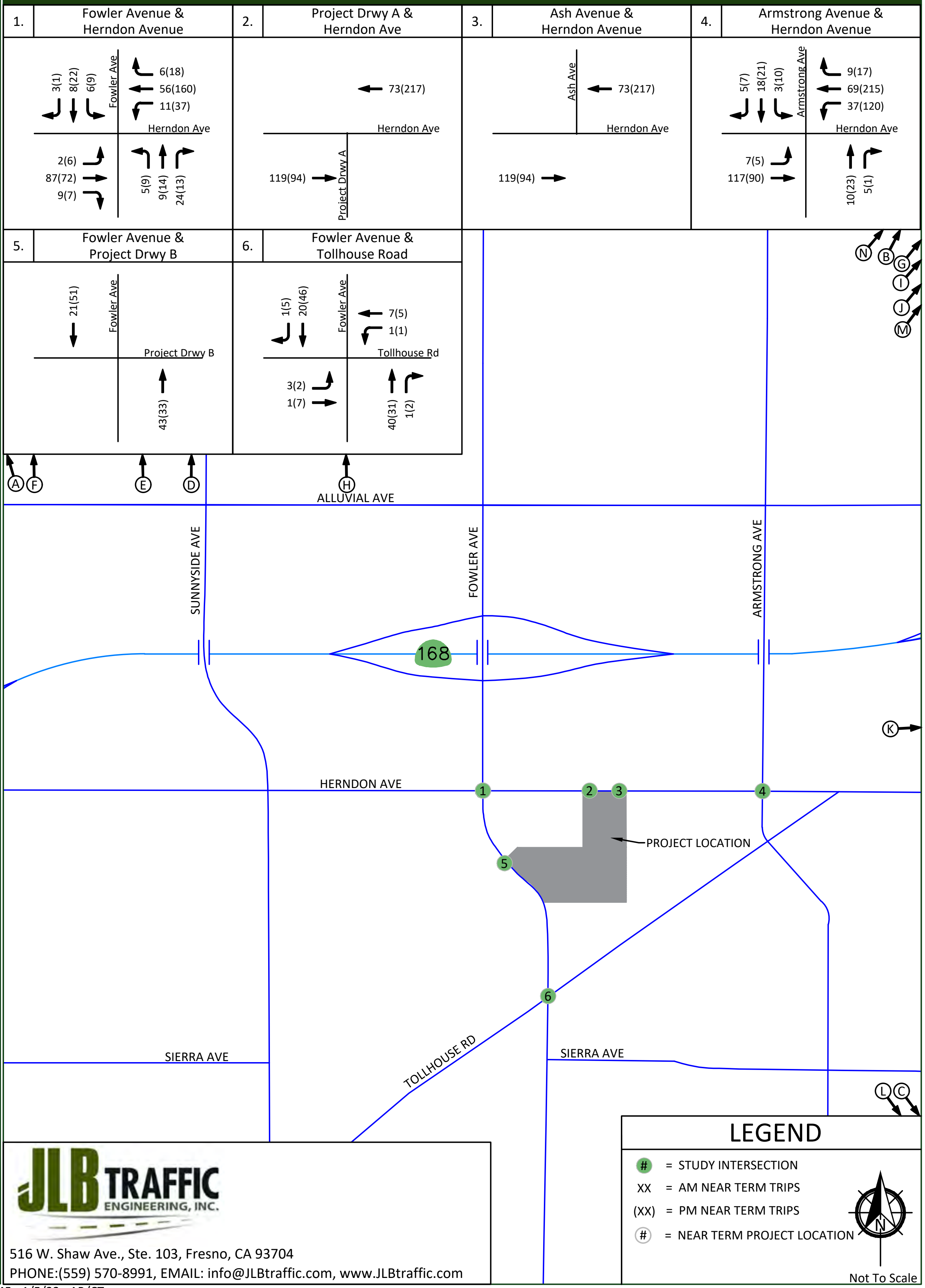
Table VII: Near Term plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Fowler Avenue / Herndon Avenue	Traffic Signal	32.9	C	39.4	D
2	Project Driveway A / Herndon Avenue	One-Way Stop	13.3	B	19.1	C
3	Ash Avenue / Herndon Avenue	One-Way Stop	19.5	C	37.6	E
4	Armstrong Avenue / Herndon Avenue	Traffic Signal	32.0	C	28.0	C
5	Fowler Avenue / Project Driveway B	Two-Way Stop	14.4	B	15.2	C
6	Fowler Avenue / Tollhouse Road	Traffic Signal	26.0	C	30.1	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Near Term Projects' Trip Assignment

Figure 6



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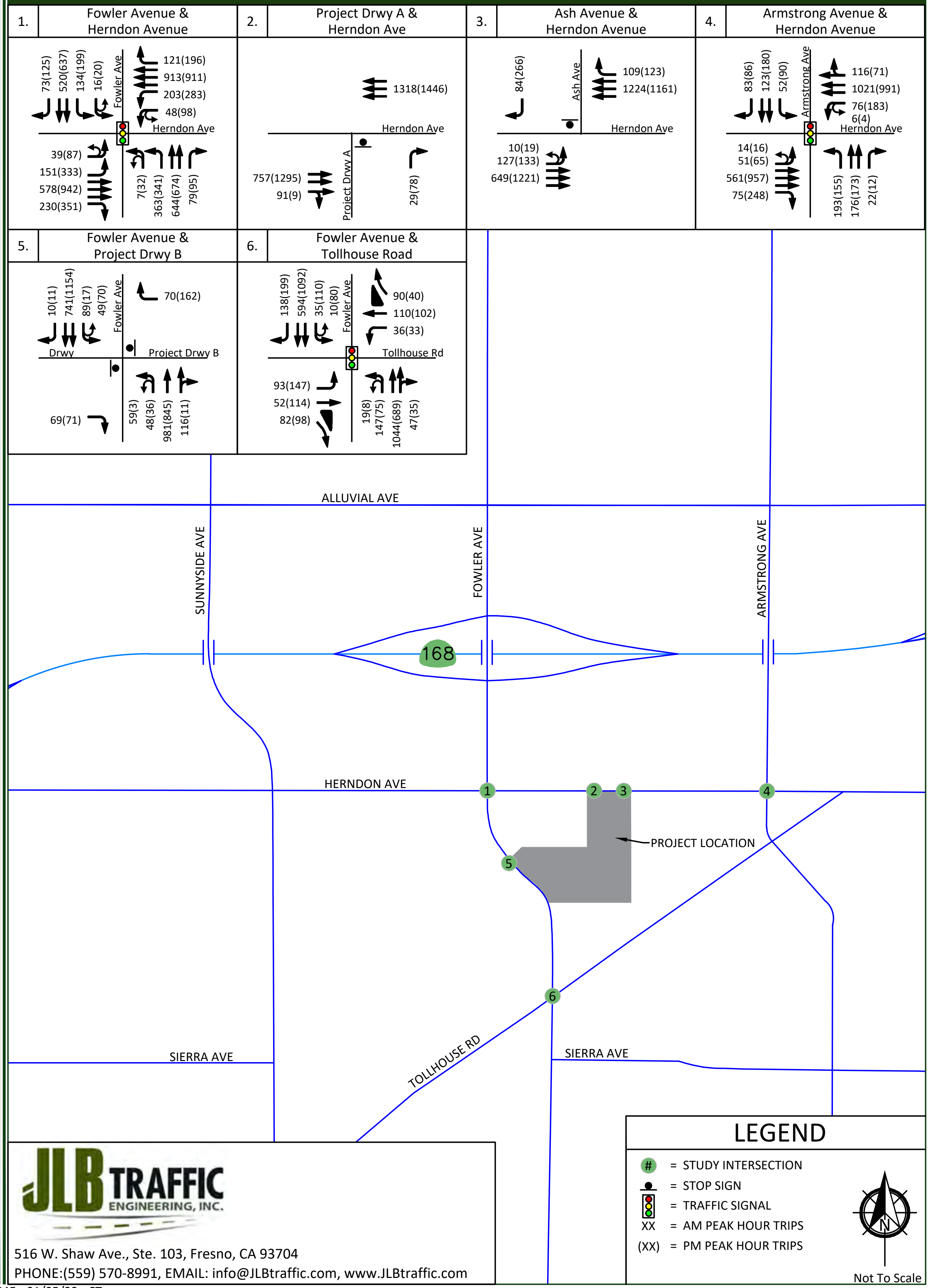
Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Near Term plus Project - Traffic Volumes, Geometrics and Controls

Figure 7



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Cumulative Year No plus Project Traffic Conditions

Roadway Network

The Cumulative Year 2046 No Project Traffic Conditions scenario assumes that the Existing roadway geometrics and traffic controls will remain in place. Figure 8 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Cumulative Year 2046 No Project Level of Service Analysis

The Cumulative Year 2046 No Project Traffic Conditions scenario the existing roadway geometrics and traffic controls will remain in place. Figure 8 illustrates the Cumulative Year 2046 No Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2046 No Project Traffic Conditions scenario are provided in Appendix H. Table VIII presents a summary of the Cumulative Year 2046 No Project peak hour LOS at the study intersections.

Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. This intersection exceeds its LOS threshold by just 2.4 seconds for a period less than one hour during the day. A traffic signal would not be recommended to improve a leg of an intersection that can only make right-turn movements. A second right-turn lane would not be recommended as the visibility safety hazards created would outweigh the benefits caused by this improvement. Therefore, it is determined that the delay at this intersection is adverse, but not significant.

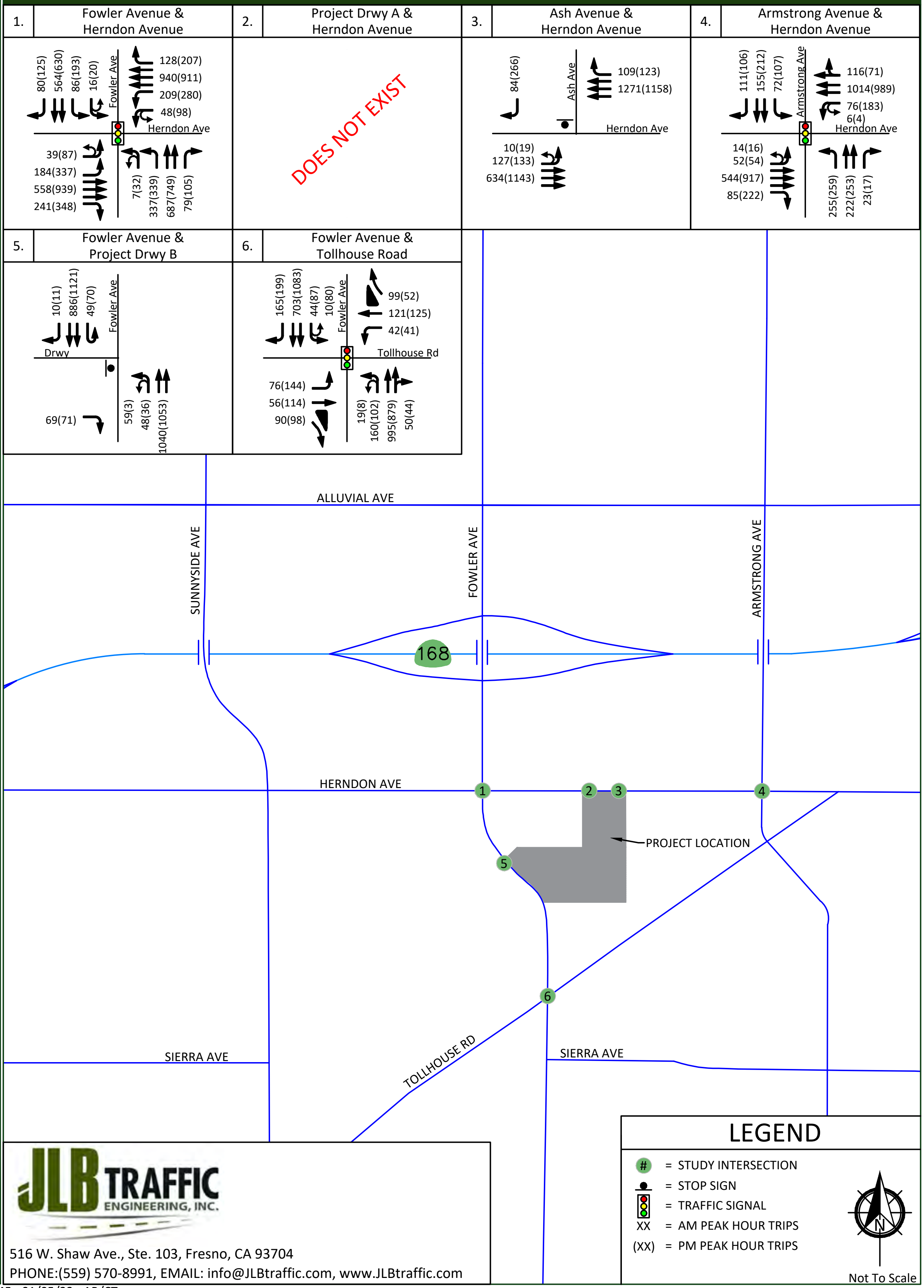
Table VIII: Cumulative Year 2046 No Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*PM (4 - 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Fowler Avenue / Herndon Avenue	Traffic Signal	32.6	C	39.4	D
2	Project Driveway A / Herndon Avenue	Does Not Exist	-	-	-	-
3	Ash Avenue / Herndon Avenue	One-Way Stop	20.0	C	37.4	E
4	Armstrong Avenue / Herndon Avenue	Traffic Signal	33.4	C	30.9	C
5	Fowler Avenue / Project Driveway B	Two-Way Stop	12.8	B	14.9	B
6	Fowler Avenue / Tollhouse Road	Traffic Signal	24.9	C	34.7	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Clovis Unified School District Fowler-Herndon Campus
City of Clovis
Cumulative Year 2042 No Project - Traffic Volumes, Geometrics and Controls

Figure 8



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Cumulative Year 2046 plus Project Traffic Conditions

Roadway Network

The Cumulative Year 2046 plus Project Traffic Conditions scenario assumes that the Near Term plus Project roadway geometrics and traffic controls will remain in place. Figure 9 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Cumulative Year 2046 plus Project Level of Service Analysis

Figure 9 illustrates the Cumulative Year 2046 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2046 plus Project Traffic Conditions scenario are provided in Appendix I. Table IX presents a summary of the Cumulative Year 2046 plus Project peak hour LOS at the study intersections.

Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. It should be noted that this Project does not have a significant impact to this intersection as the delay increases by only 0.2 seconds from the Cumulative Year 2046 No Project Traffic Conditions PM peak to the Cumulative Year 2046 plus Project Traffic Conditions PM Peak. Furthermore, this intersection exceeds its LOS threshold by just 2.6 seconds for a period less than one hour during the day. A traffic signal would not be recommended to improve a leg of an intersection that can only make right-turn movements. A second right-turn lane would not be recommended as the visibility safety hazards created would outweigh the benefits caused by this improvement. Therefore, it is determined that the delay at this intersection is adverse, but not significant.

Table IX: Cumulative Year 2046 plus Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*PM (4 - 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Fowler Avenue / Herndon Avenue	Traffic Signal	34.5	C	42.1	D
2	Project Driveway A / Herndon Avenue	One-Way Stop	13.4	B	19.1	C
3	Ash Avenue / Herndon Avenue	One-Way Stop	20.2	C	37.6	E
e	Armstrong Avenue / Herndon Avenue	Traffic Signal	30.8	C	31.6	C
5	Fowler Avenue / Project Driveway B	Two-Way Stop	14.9	B	17.0	C
6	Fowler Avenue / Tollhouse Road	Traffic Signal	27.3	C	35.3	D

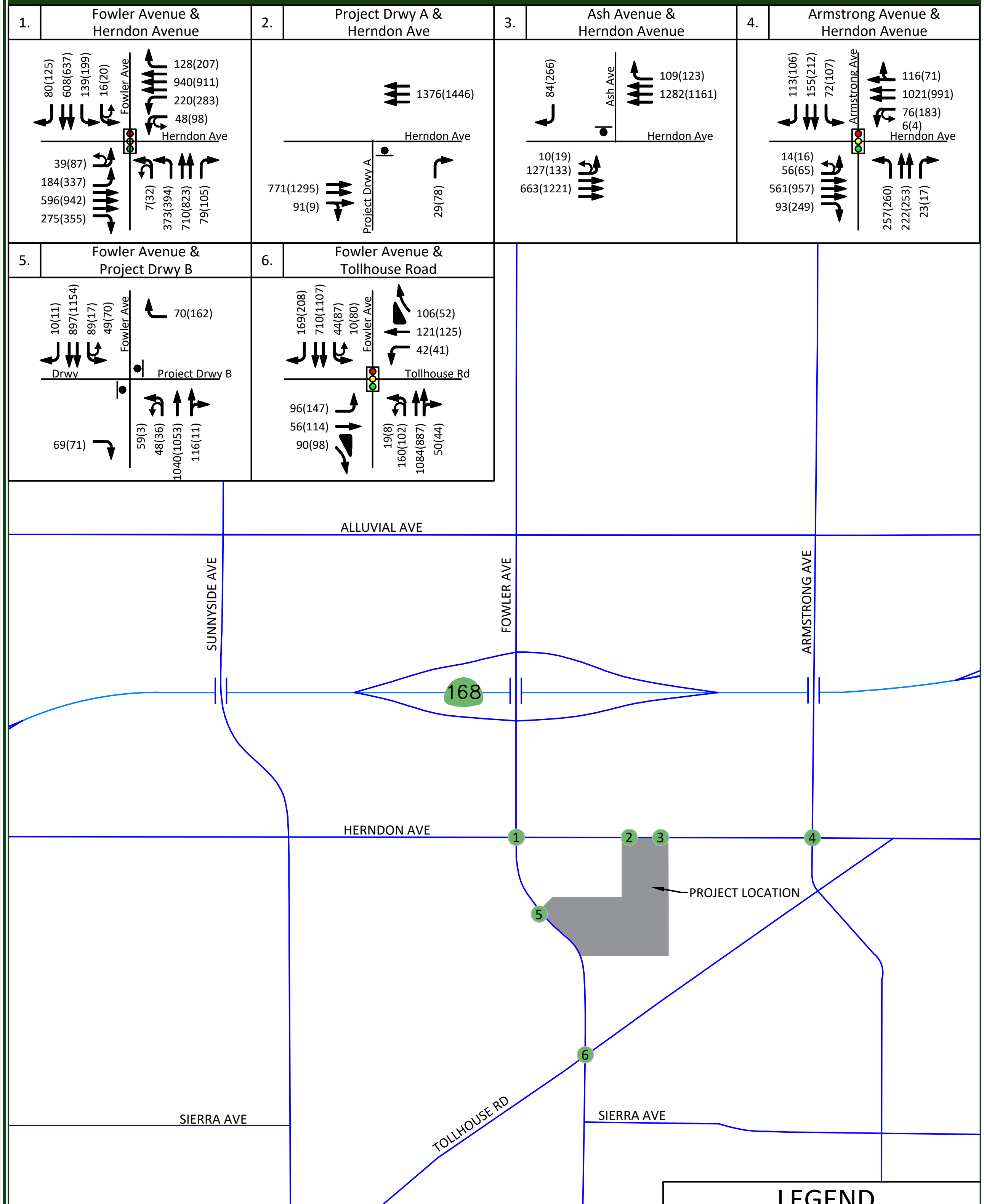
Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Clovis Unified School District Fowler-Herndon Campus

Figure 9

City of Clovis

Cumulative Year 2042 plus Project - Traffic Volumes, Geometrics and Controls



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Queuing Analysis

Table X provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections. Queuing analyses were completed using SimTraffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the *Synchro Studio 11 User Guide*, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes" (Cubic ITS, Inc., 2019). The queues shown in Table X are the 95th percentile queue lengths for the respective lane movements.

The *California Highway Design Manual* (CA HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. According to the CA HDM, tapers for right-turn lanes are "usually unnecessary since main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane" (Caltrans, 2019). Therefore, a bay taper length pursuant to the CA HDM would need to be added, as necessary, to the recommended storage lengths presented in Table X.

The storage capacity for the Cumulative Year 2046 plus Project Traffic Conditions shall be based on the SimTraffic output files and engineering judgment. The values in bold presented in Table X are the projected queue lengths that will likely need to be accommodated by the Cumulative Year 2046 scenarios. At the remaining approaches of the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.

Table X: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 No Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Fowler Avenue / Herndon Avenue	Eastbound Dual Lefts	240	123	367	127	376	131	369	152	328	157	372
		Eastbound Through	>500	165	2007	193	1163	205	2137	199	1906	205	1515
		Eastbound Through	>500	116	1941	160	1082	205	2100	167	1824	184	1403
		Eastbound Through	>500	78	903	134	385	154	1594	123	788	148	590
		Eastbound Right	240	79	177	121	213	133	256	106	203	153	255
		Westbound Dual Lefts	250	192	317	155	324	174	393	289	256	158	376
		Westbound Through	>500	197	364	211	171	200	1006	240	248	239	526
		Westbound Through	>500	229	240	230	197	247	772	242	269	266	359
		Westbound Through	>500	258	259	244	217	272	316	289	299	289	364
		Westbound Right	80	196	190	158	192	177	206	212	209	218	208
		Northbound Dual Lefts	190	190	294	190	331	223	216	189	315	204	332
		Northbound Through	>500	198	282	210	611	285	229	250	617	245	625
		Northbound Through	>500	216	270	238	386	260	260	232	463	254	479
		Northbound Right	140	80	130	81	184	131	147	117	161	134	267
		Southbound Dual Lefts	150	72	128	95	181	116	170	70	141	156	180
		Southbound Through	>500	147	230	213	236	221	276	193	230	299	293
		Southbound Through	>500	184	244	201	249	224	275	231	244	291	303
		Southbound Right	100	86	139	111	164	116	192	152	181	163	232
2	Project Driveway A / Herndon Avenue	Eastbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Eastbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Eastbound Through	>500	0	0	*	*	*	*	0	0	*	*
		Eastbound Through-Right	*	*	*	0	0	16	0	*	*	7	0
		Westbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Westbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Westbound Through	>500	0	0	0	0	0	48	0	0	0	0
		Northbound Right	*	*	*	43	72	50	70	*	*	59	68

Note: * = Does not exist or is not projected to exist

Table X: Queuing Analysis (Continued)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 No Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
3	Ash Avenue / Herndon Avenue	Eastbound Left	120	97	93	123	121	95	126	103	91	100	139
		Eastbound Through	>500	0	0	0	0	0	53	0	0	36	0
		Eastbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Eastbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Westbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Westbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Westbound Through	>500	0	0	0	0	0	0	0	0	0	0
		Westbound Right	80	10	19	22	0	30	18	12	10	18	19
		Southbound Right	>300	52	106	58	152	77	209	66	113	71	162
4	Armstrong Avenue / Herndon Avenue	Eastbound Left	410	71	95	84	122	77	104	87	122	76	120
		Eastbound Through	>500	100	152	108	176	113	209	151	238	155	264
		Eastbound Through	>500	120	183	115	187	130	233	159	268	159	314
		Eastbound Through	>500	115	203	117	198	142	260	160	297	159	352
		Eastbound Right	100	52	146	51	123	44	218	67	200	56	245
		Westbound Left	110	64	76	107	73	106	235	154	229	145	240
		Westbound Through	>500	196	161	201	166	225	369	220	325	229	367
		Westbound Through	>500	185	154	187	151	234	213	216	240	231	236
		Westbound Through-Right	>100	195	163	217	150	207	197	210	237	239	268
		Northbound Left	120	194	180	242	207	245	240	232	237	220	227
		Northbound Through	>500	206	171	536	213	448	388	1223	595	534	1393
		Northbound Through	>500	24	0	317	13	108	151	1194	243	275	1321
		Northbound Right	130	19	7	11	11	7	10	18	15	9	20
		Southbound Left	100	72	125	78	95	68	98	93	123	83	126
		Southbound Through	>500	92	109	83	99	86	107	100	141	95	129
		Southbound Through	>500	66	69	55	85	60	98	65	119	79	103
		Southbound Right	80	67	65	55	63	58	80	87	76	85	84

Note: * = Does not exist or is not projected to exist

Table X: Queuing Analysis (Continued)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 No Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5	Fowler Avenue / Project Driveway B	Eastbound Right	>300	46	42	48	51	68	62	63	45	71	60
		Westbound Right	*	*	*	71	90	60	91	*	*	78	122
		Northbound Left	140	62	41	65	27	68	47	77	42	63	40
		Northbound Through	>500	0	0	21	0	9	0	0	12	0	8
		Northbound Through	>500	0	0	*	*	*	*	0	0	*	*
		Northbound Through-Right	*	*	*	10	0	18	0	*	*	14	0
		Southbound Left	50	48	62	89	45	89	51	52	59	102	69
		Southbound Through	>500	0	0	28	0	33	0	0	0	53	34
		Southbound Through	>500	0	0	0	0	43	0	0	0	0	26
		Southbound Right	100	0	0	0	0	0	0	7	0	0	0
6	Fowler Avenue / Tollhouse Road	Eastbound Left	240	82	274	118	152	122	214	103	232	112	144
		Eastbound Through	>500	82	203	93	98	63	134	65	145	66	117
		Eastbound Right	130	0	0	0	0	0	0	0	0	0	0
		Westbound Left	200	38	56	52	61	41	42	42	35	43	56
		Westbound Through	>500	103	106	87	108	118	84	111	113	146	118
		Westbound Right	>300	0	0	0	0	0	0	0	0	0	0
		Northbound Left	170	212	110	233	84	231	71	188	308	231	154
		Northbound Through	>500	299	184	324	202	291	171	256	517	310	251
		Northbound Through-Right	>500	314	182	321	202	284	176	273	447	316	267
		Southbound Left	260	60	258	44	328	57	282	49	160	67	204
		Southbound Through	>500	129	269	169	357	156	290	227	303	264	305
		Southbound Through	>500	129	259	190	337	163	284	240	309	277	336
		Southbound Right	100	37	93	119	190	19	144	31	228	204	252

Note: * = Does not exist or is not projected to exist

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the Project access points indicates that they are located at points that minimize traffic operational impacts to the existing roadway network.
- At buildout, the proposed Project is estimated to generate a maximum of 1,983 daily trips, 395 AM peak hour trips and 277 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 71,880 weekday daily trips, 5,260 weekday AM peak hour trips and 7,385 weekday PM peak hour trips.
- Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. It should be noted that this Project does not have a significant impact to this intersection as the delay increases by only 0.2 seconds from the Existing Traffic Conditions PM peak to the Existing plus Project Traffic Conditions PM Peak. Furthermore, this intersection exceeds its LOS threshold by just 2.6 seconds for a period less than one hour during the day. A traffic signal would not be recommended to improve a leg of an intersection that can only make right-turn movements. A second right-turn lane would not be recommended as the visibility safety hazards created would outweigh the benefits caused by this improvement. Therefore, it is determined that the delay at this intersection is adverse, but not significant.

Cumulative Year 2046 No Project Traffic Conditions

- Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. This intersection exceeds its LOS threshold by just 2.4 seconds for a period less than one hour during the day. A traffic signal would not be recommended to improve a leg of an intersection that can only make right-turn movements. A second right-turn lane would not be recommended as the visibility safety hazards created would outweigh the benefits caused by this improvement. Therefore, it is determined that the delay at this intersection is adverse, but not significant.

Cumulative Year 2046 plus Project Traffic Conditions

- Under this scenario, the study intersection of Ash Avenue at Herndon Avenue is projected to exceed its LOS threshold during the PM peak period. It should be noted that this Project does not have an impact to this intersection as the delay increases by only 0.2 seconds from the Cumulative Year 2046 No Project Traffic Conditions PM peak to the Cumulative Year 2046 plus Project Traffic Conditions PM Peak. Furthermore, this intersection exceeds its LOS threshold by just 2.6 seconds for a period less than one hour during the day. A traffic signal would not be recommended to improve a leg of an intersection that can only make right-turn movements. A second right-turn lane would not be recommended as the visibility safety hazards created would outweigh the benefits caused by this improvement. Therefore, it is determined that the delay at this intersection is adverse, but not significant.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Matthew Arndt, EIT	Engineer I/II
Christian Sanchez	Engineer I/II
Adrian Benavides	Engineering Aide
Carlos Topete	Engineering Aide

Persons Consulted:

Scott B. Odell	Odell Planning & Research, Inc.
Sean Smith, PE	City of Clovis
Harmanjit Dhaliwal, PE	City of Fresno
Hector Luna	County of Fresno
David Padilla	Caltrans, D6
Christopher Xiong	Caltrans, D6
Mike Aronson, PE	Kittelson & Associates
Anusha Musunuru	Kittelson & Associates

References

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Appendix A: Scope of Work

October 5, 2020

Sean Smith, RCE, QSD
Associate Engineer
City of Clovis
1033 Fifth Street
Clovis, CA 93612

Via E-mail Only: seans@cityofclovis.com

Subject: ***Proposed Scope of Work for the Preparation of a Traffic Impact and Vehicle Miles Traveled Analyses for the Clovis Unified School District Campus at the Southeast Quadrant of Fowler Avenue and Herndon Avenue in the City of Clovis (JLB Project 006-045)***

Dear Mr. Smith,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) and Vehicle Miles Traveled (VMT) Analysis for the Project described below. The Clovis Unified School District (CUSD) Fowler-Herndon Campus (Project) proposes to develop the site with a Special Education Administration Building, an Online School Building, and three future Administration Office Buildings. The online school portion of the Project will observe a testing window every year for a three week period sometime between March and May. Between 400-500 students may come and go throughout the day during this period. However, this testing period is not being analyzed by this TIA and VMT Analysis as this occurrence is anticipated to be extremely sporadic. Based on information provided to JLB, the Project will undergo a General Plan Amendment.

The purpose of this TIA and VMT Analysis is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. To evaluate the on-site and off-site traffic impacts of the proposed Project, JLB proposes the following Draft Scope of Work.

Scope of Work

- JLB will request a Fresno Council of Governments (Fresno COG) traffic forecast model run for the Project (Select Zone Analysis) which will include the Project and the streets to be analyzed. The Fresno COG traffic forecasting model will be used to forecast traffic volumes for the Base Year 2022 and Cumulative Year 2042 scenarios.
- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s). JLB will use HCM 6th or HCM 2000 methodologies (as appropriate) within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.

- JLB will obtain recent or schedule and conduct new traffic counts at the study facilities, as necessary. These counts will include pedestrians and vehicles.
- JLB will evaluate on-site circulation and provide recommendations as necessary to improve circulation to and within the Project site.
- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions including intersection geometrics and traffic controls will be verified.
- JLB will forecast trip distribution based on turn count information, information provided by CUSD, the Fresno COG Select Zone and knowledge of the existing and planned circulation network in the vicinity of the Project.
- If it's determined that the project cannot be screened out of a VMT Analysis, JLB will prepare a qualitative discussion of the Project's Vehicles Miles Travelled (VMT) based on output from the Fresno COG Model.

Study Scenarios:

1. Existing Traffic Conditions with needed improvement (if any);
2. Existing plus Project Traffic Conditions with proposed mitigation measures (if any);
3. Near Term 2027 plus Project Traffic Conditions with proposed mitigation measures (if any); and
4. Cumulative Year 2046 plus Project Traffic Conditions with proposed mitigation measures (if any).

Weekday peak hours to be analyzed (Tuesday through Thursday only):

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

Study Intersections:

1. Fowler Avenue / Main Access
2. Fowler Avenue / Thompson Avenue
3. Herndon Avenue / Right-in, Right-out Access

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left- and right-turn lanes at all study intersections.

Study Segments:

1. None

Project Only Trip Assignment to State Facilities:

1. None

Project Only Trip Generation

Table I presents the trip generation for the Special Education Administration Building and the Online School Building based on information contained within the project operational statement and communication with the project proponent. These buildings are estimated to generate approximately 690 daily trips, 183 AM peak hour trips and 93 PM peak hour trips.

Table I: Project Trip Generation - Special Education Administration and Online School Buildings

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Special Education Admin Building																
Employees	62	Employees	3	186	0.71	95	5	42	2	44	1.05	5	95	3	62	65
Students/Parents	30	Students	2	60	0.60	50	50	9	9	18	0.30	0	100	0	9	9
Online Education Building																
Staff	50	Employees	3	150	1.06	95	5	50	3	53	0.30	5	95	1	14	15
Student/Parent Conference	40	Students	2	80	.35	50	50	7	7	14	0.00	0	0	0	0	0
Students	100	Students	2	200	0.50	50	50	25	25	50	0.00	0	0	0	0	0
Miscellaneous																
Visitors	3	Each	2	6	0.66	50	50	1	1	2	0.66	50	50	1	1	2
Trash/Recycling	1	Each	2	2	0.00	0	0	0	0	0	0.00	0	0	0	0	0
Delivery	3	Each	2	6	0.66	50	50	1	1	2	0.66	50	50	1	1	2
Total Driveway Trips				**690**				**135**	**48**	**183**				**6**	**87**	**93**

Table II presents the trip generation for the future Project buildings pursuant to the 11th Edition of the Trip Generation Manual with trip generation rates for School District Office (Land Use 528). These three future buildings of the Project are estimated to generate approximately 1,293 daily trips, 212 AM peak hour trips, and 184 PM peak hour trips.

Table II: Project Trip Generation - Future Administration Buildings

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
School District Office (528)	90.000	k.s.f.	14.37	1,293	2.36	76	24	161	51	212	2.04	17	83	31	153	184
Total Driveway Trips				**1,293**				**161**	**51**	**212**				**31**	**153**	**184**

Table III presents the trip generation for the total Project including the Special Education Administration Buildings, the Online School Building and the three future Administration Office Buildings. The total Project is estimated to generate approximately 1,983 daily trips, 395 AM peak hour trips, and 277 PM peak hour trips.

Table III: Project Trip Generation - Future Administration Buildings

Description	Daily	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out	Total
Special Education Administration and Online School	690	135	48	183	6	87	93
Future Administration Buildings	1,293	161	51	212	31	153	184
Total Project Trips	**1,983**	**296**	**99**	**395**	**37**	**240**	**277**

Project Access

Access to and from the Project site at buildout will predominantly be from two (2) access points. One access point will be on the south side of Herndon Avenue approximately 965 feet east of Fowler Avenue and is proposed as right-in right-out. The second access point will be on the east side of Fowler Avenue approximately 675 feet south of Herndon Avenue and is proposed as a left-in right-in right-out. Additional Project details can be found on Exhibit B.

Near Term Projects to be Included

JLB is working with City of Clovis Engineering and Planning staff to identify Near Term Projects in the vicinity of the proposed Project. The Near Term Projects would then be included under the Near Term plus Project analysis. At this point, the proposed Near Term Projects to be included in the Near Term plus Project analysis are the following:

Project Name	General Location
1. TT 6050 (portion of)	NWC Clovis Avenue and Shepherd Avenue
2. TT 6109	SEQ Temperance Avenue and Shepherd Avenue
3. TT 6120	NEQ Leonard Avenue and Barstow Avenue
4. TT 6123	NEQ Leonard Avenue and Shaw Avenue
5. TT 6127 (portion of)	NEC Leonard Avenue and Barstow Avenue
6. TT 6154 (portion of)	NWC Fowler Avenue and Teague Avenue
7. TT 6168	NWC Leonard Avenue and Gettysburg Avenue
8. TT 6186	SEC Leonard Avenue and Bullard Avenue
9. TT 6200 (portion of)	NWC Clovis Avenue and Shepherd Avenue
10. TT 6239 (portion of)	NEQ Locan Avenue and Teague Avenue
11. TT 6254	NEQ Leonard Avenue and Barstow Avenue
12. TT 6260	NEC Locan Avenue and Shaw Avenue
13. TT 6263 (portion of)	SEQ Clovis Avenue and Shepherd Avenue
14. TT 6264	NWQ Locan Avenue and Teague Avenue
15. TT 6284	SWQ Fowler Avenue and Teague Avenue
16. TT 6332 (portion of)	NEQ Locan Avenue and Teague Avenue
17. TT 6389 (portion of)	NEQ Locan Avenue and Teague Avenue
18. Clovis Community Medical Center	NE, NW, SE Corners of Herndon Avenue and Temperance Avenue
19. Harlan Ranch Commercial	NEC DeWolf Avenue and Owens Mountain Parkway
20. Research and Technology Park	NE and SE corner of Alluvial Avenue and Temperance Avenue

Other Near Term Projects the City of Clovis, City of Fresno, County of Fresno or Caltrans has knowledge and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the Near Term Project Year 2027. City of Clovis, City of Fresno, County of Fresno and Caltrans as appropriate would provide JLB with project details such as a project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this Project and our experience with similar Traffic Impact Analysis and Vehicle Miles Traveled Analysis Projects. In the absence of comments by October 28 2022, it will be assumed that the above scope of work is acceptable to the agency(ies) that have not submitted any comments to the proposed TIA Scope of Work. If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by e-mail at marndt@JLBtraffic.com.

Sincerely,

Matt Arndt
Engineer I/II

cc: Harmanjit Dhaliwal, City of Fresno
Jill Gormley, City of Fresno
Hector Luna, County of Fresno
David Padilla, Caltrans
Jose Benavides, JLB Traffic Engineering, Inc.

Exhibit A – Project Vicinity

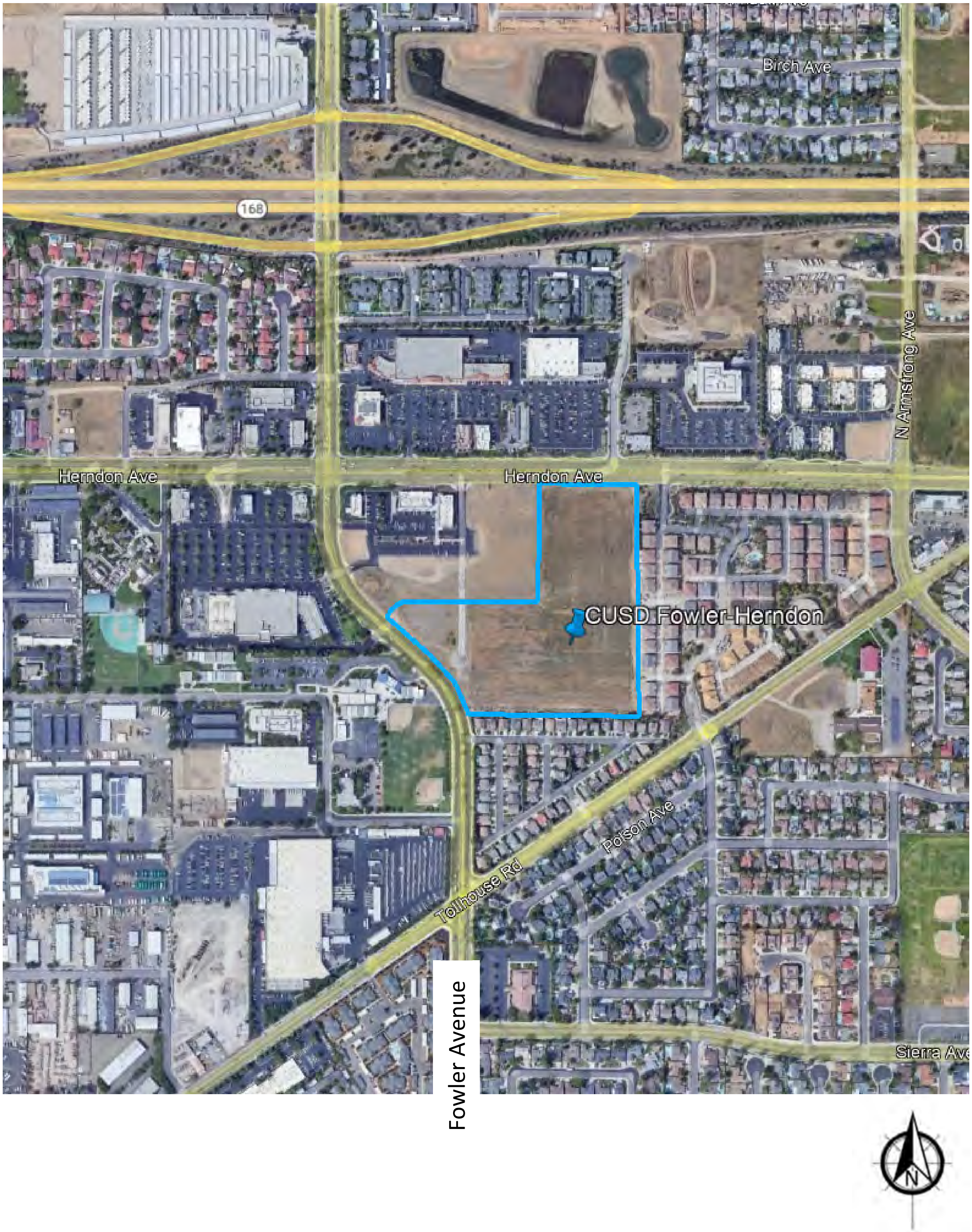
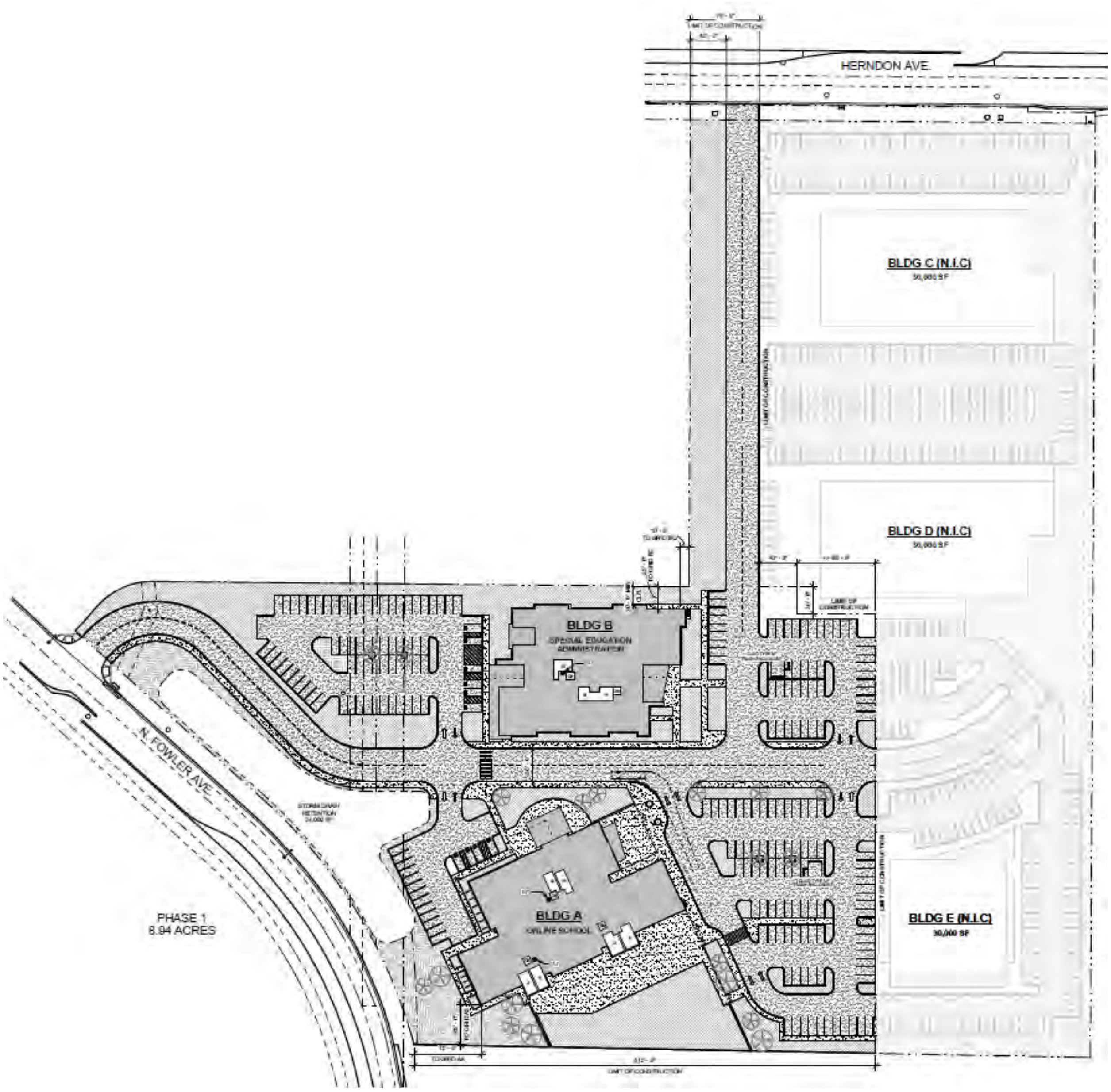


Exhibit B – Project Site Plan



Matt Arndt

From: Luna, Hector <HLuna@fresnocountyca.gov>
Sent: Friday, October 7, 2022 8:41 AM
To: Matt Arndt
Cc: Ramirez, Augustine
Subject: RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Good morning Matt,

The county has no comment, other than one of the “study intersections” lists the intersection at Fowler Avenue and Thompson Avenue in error (parallel to one another), which likely meant Fowler Avenue and Tollhouse Road.

Regards,

Hector E. Luna | **Senior Planner**
Department of Public Works and Planning |
Water and Natural Resources Division |
Transportation
2220 Tulare St. 6th Floor Fresno, CA 93721
Main Office: (559) 600-4292 | Direct: (559) 600-9672
Email: hluna@FresnoCountyCa.gov
Your input matters! Customer Service Survey

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Wednesday, October 5, 2022 5:58 PM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>; Jill Gormley <Jill.Gormley@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: CUSD Fowler-Herndon Campus Draft Scope of Work

CAUTION!!! - EXTERNAL EMAIL - THINK BEFORE YOU CLICK

Hello,

Attached you will find a Draft Scope of Work for the preparation of a Traffic Impact Analysis for the CUSD Fowler-Herndon Campus located on the southeast quadrant of Fowler Avenue and Herndon Avenue in the City of Clovis.

We kindly asked that you take a moment to review and comment on the proposed Scope of Work. We hope that you are able to provide comments by October 28, 2022. In the absence of comments by this date, it may be presumed that the proposed Scope of Work is acceptable to the agency(ies) that have not submitted any comments.

If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matt Arndt

From: Xiong, Christopher@DOT <Christopher.Xiong@dot.ca.gov>
Sent: Tuesday, October 18, 2022 4:26 PM
To: Matt Arndt
Cc: Padilla, Dave@DOT
Subject: RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hi Matthew,

Thanks for the clarification! With this we should be good and have no other comments.

Best regards,

Christopher Xiong
Caltrans District 6
Christopher.Xiong@dot.ca.gov
(559) 908-7064

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Tuesday, October 18, 2022 4:23 PM
To: Xiong, Christopher@DOT <Christopher.Xiong@dot.ca.gov>
Cc: Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
Subject: RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello Christopher,

Thanks for the response. I meant thought I had followed up with all responsible agencies on that correction, but must have missed Caltrans. That intersection is supposed to be Fowler Avenue at Tollhouse Road.

Let me know if you have any questions. Thanks.

Sincerely,

Matthew Arndt

JLB TRAFFIC ENGINEERING

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243

Cell: (559) 360-1886
www.JLBtraffic.com

From: Xiong, Christopher@DOT <Christopher.Xiong@dot.ca.gov>
Sent: Tuesday, October 18, 2022 4:21 PM
To: Matt Arndt <marndt@jlbtraffic.com>
Cc: Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
Subject: RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hi Matthew,

Thank you for following up and providing us the opportunity to review the proposed Scope of Work (SOW) for this project. We have no comments in regard to the proposed SOW.

It was noticed that under the Study Intersections section, Fowler Avenue / Thompson Avenue was listed as part of the scope. We believe this might have been a typo with the intentions of including Fowler Avenue / Herndon Avenue.

Best regards,

Christopher Xiong
Associate Transportation Planner
Caltrans District 6
1352 W. Olive Avenue
Fresno, CA 93778
Christopher.Xiong@dot.ca.gov
(559) 908-7064

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Tuesday, October 18, 2022 9:16 AM
To: Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
Subject: RE: CUSD Fowler-Herndon Campus Draft Scope of Work

EXTERNAL EMAIL. Links/attachments may not be safe.

Hello David,

Just wanted to follow up with this Draft Scope of Work to see if Caltrans has had a chance to review. Thanks, let me know if you have any questions.

Sincerely,

Matthew Arndt

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Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

From: Matt Arndt
Sent: Wednesday, October 5, 2022 5:58 PM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>; Jill Gormley <Jill.Gormley@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello,

Attached you will find a Draft Scope of Work for the preparation of a Traffic Impact Analysis for the CUSD Fowler-Herndon Campus located on the southeast quadrant of Fowler Avenue and Herndon Avenue in the City of Clovis.

We kindly asked that you take a moment to review and comment on the proposed Scope of Work. We hope that you are able to provide comments by October 28, 2022. In the absence of comments by this date, it may be presumed that the proposed Scope of Work is acceptable to the agency(ies) that have not submitted any comments.

If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matthew Arndt

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Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

Matt Arndt

From: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>
Sent: Tuesday, October 25, 2022 10:40 AM
To: Matt Arndt; Sean Smith
Cc: Jill Gormley; Luna, Hector; Padilla, Dave@DOT; Jose Benavides
Subject: RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Good Morning Matt,

The City of Fresno does not have any comments on the proposed SOW. We will also not need to review a TIS for the subject project as it is far outside our sphere.

Thanks,

Harmanjit Dhaliwal, PE
Supervising Professional Engineer
Traffic Operations & Planning Division, Public Works Department
2600 Fresno Street, Room 4064
Fresno, CA 93721-3623
Direct: (559) 621-8694
Main: (559) 621-8800
www.fresno.gov
Building a Better Fresno

ONEFRESNO
Let's Build Together!

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Wednesday, October 05, 2022 5:58 PM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>; Jill Gormley <Jill.Gormley@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: CUSD Fowler-Herndon Campus Draft Scope of Work

External Email: Use caution with links and attachments

Hello,

Attached you will find a Draft Scope of Work for the preparation of a Traffic Impact Analysis for the CUSD Fowler-Herndon Campus located on the southeast quadrant of Fowler Avenue and Herndon Avenue in the City of Clovis.

We kindly asked that you take a moment to review and comment on the proposed Scope of Work. We hope that you are able to provide comments by October 28, 2022. In the absence of comments by this date, it may be presumed that the proposed Scope of Work is acceptable to the agency(ies) that have not submitted any comments.

If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matthew Arndt

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Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

Matt Arndt

From: Sean Smith <SeanS@ci.clovis.ca.us>
Sent: Wednesday, November 2, 2022 5:06 PM
To: Matt Arndt
Cc: Jose Benavides; Mike Harrison; David Merchen; Gene Abella
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work
Attachments: L10052022 Draft Scope of Work (SS).pdf

Matt,
I forgot to include the other minor comments on the scoping, sorry about that. Please see the attachment and the comments to:

1. Add another Scenario of Cumulative No Project as this will require a GPA.
2. Add three (3) more intersections that are nearby and I believe will see an impact.
3. Add one (1) more residential project that provide trips to-from the site – HomePlace.

Please feel free to contact me or other Engineering staff with any questions.

Check https://cityofclovis.com/planning-and-development/engineering/resources-4/ for project status updates and other references.
The front counter is open 8am to 4:30pm; staff is otherwise available by appointment, email or phone.

Sean K. Smith PE QSD | Supervising Civil Engineer
City of Clovis | Engineering Division
Development Review
1033 Fifth Street, Clovis, CA 93612
p. 559.324.2363 | f. 559-324-2843 | m. 559-765-7505
seans@cityofclovis.com

cc: project file

From: Sean Smith
Sent: Wednesday, November 2, 2022 4:23 PM
To: 'Matt Arndt' <marndt@jlbtraffic.com>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; Mike Harrison <mikeh@ci.clovis.ca.us>; David Merchen <davidm@ci.clovis.ca.us>; Gene Abella <genea@ci.clovis.ca.us>
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Matt,
We had some discussions on whether to analyze the online school as retail or by using VMT / employee. In the end, we agree with your assessment to use VMT / employee as the metric for analysis. Thank you for your persistent follow up with me – it's appreciated.

Please feel free to contact me or other Engineering staff with any questions.

Check https://cityofclovis.com/planning-and-development/engineering/resources-4/ for project status updates and other references.
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Development Review
1033 Fifth Street, Clovis, CA 93612
p. 559.324.2363 | f. 559-324-2843 | m. 559-765-7505
seans@cityofclovis.com

cc: project file

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Monday, October 31, 2022 8:58 AM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; Mike Harrison <mikeh@ci.clovis.ca.us>; David Merchen <davidm@ci.clovis.ca.us>; Gene Abella <genea@ci.clovis.ca.us>
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello Sean,

Has the City of Clovis determined if the VMT analysis for the online school buildings can be conducted using a VMT per employee as the criteria?

Thanks,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
https://link.edgepilot.com/s/06ab7570/gh-APtQhjUS7tenrxPJcLA?u=http://www.jlbtraffic.com/

From: Matt Arndt
Sent: Wednesday, October 19, 2022 4:40 PM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; Mike Harrison <mikeh@ci.clovis.ca.us>; David Merchen <davidm@ci.clovis.ca.us>; Gene Abella <genea@ci.clovis.ca.us>
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello,

The other land uses listed in Table 2 that have criteria similar to retail projects (regional parks, hotels, private schools, and medical offices) all sell a service unlike this building. If the City of Clovis will not screen out this Project as a public facility, it is of our opinion that the online school building should be analyzed similar to an office project using VMT per employee.

Retail land uses can be described to contain the following traits: majority of trips are due to consumers and not employees, employment is comprised of low paying jobs with lower commutes, and the projects have a smaller catchment area than other land uses such as offices. The online education building does not have any of these typical retail traits so this is why we believe that the use of the office VMT metric is more suitable. For the special education building you have taken no exception to the use of VMT per employee. The special education building also has a few students coming in on a daily basis, albeit at a much lower daily rate than that which will take place at the Online Education Building, so why would the City want us to use a different metric for these two buildings?

Upon your review of the above information, let us know if the City takes any objection utilizing VMT per Employee as the criteria of significance for the Online School Building.

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

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https://link.edgepilot.com/s/06ab7570/gh-APtQhjUS7tenrxPJcLA?u=http://www.jlbtraffic.com/

From: Sean Smith <SeanS@ci.clovis.ca.us>
Sent: Tuesday, October 18, 2022 9:30 PM
To: Matt Arndt <marndt@jlbtraffic.com>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; Mike Harrison <mikeh@ci.clovis.ca.us>; David Merchen <davidm@ci.clovis.ca.us>; Gene Abella <genea@ci.clovis.ca.us>
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Matt,
The Online School Building does not immediately fall under the definition of public facilities (screenshot below is from the Final TIA Guidelines approved at Council Sept. 17, 2022) and it will take some extensive discussion in your reports to justify this. In fact, there's not an easy category when looking at Land Use Types identified in Table 2 on page 10 of the same Guidelines. There is a mention of private schools evaluated using the net VMT criteria similar to Retail, so my first though is this would be the best fit. I know it's a public school building, but I think this will be the best match. I'll see what others think, including other agencies, and I ask that you do the same with your contacts.

Clovis Transportation Impact Analysis Guidelines Septemb AGENDA IT

Public services (e.g., police, fire stations, public utilities, neighborhood parks[1]) do not generally generate substantial amounts of trips and VMT. Instead, these land uses are often built to support other nearby land uses (e.g., office and residential). Therefore, these land uses can be presumed to have less-than-significant impacts on VMT. However, this presumption would not apply if the project is sited in a location that requires employees or visitors to travel substantial distances and may require a detailed VMT analysis.

Please feel free to contact me or other Engineering staff with any questions.

Check https://link.edgepilot.com/s/b3084cfd/-ETvuwNYx0_1qS8LiFa0MQ?u=https://cityofclovis.com/planning-and-development/engineering/resources-4/ for project status updates and other references.
The front counter is open 8am to 4:30pm; staff is otherwise available by appointment, email or phone.

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1033 Fifth Street, Clovis, CA 93612
p. 559.324.2363 | f. 559-324-2843 | m. 559-765-7505
seans@cityofclovis.com

cc: project file

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Monday, October 17, 2022 10:05 AM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello Sean,

I would just like to follow up on this Draft Scope of Work to give more information on the VMT Analysis. We plan to run the VMT Analysis on just the Administration Buildings on a per employee metric. The Online School Building is determined to be screened out as a public facility that is being built as an infill project. Please let us know if you have any comments to this VMT methodology or on the Scope of Work in general.

Thanks.

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
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Cell: (559) 360-1886
https://link.edgepilot.com/s/89306b69/R9dGCCExN0aiWnq_-YimHg?u=http://www.jlbtraffic.com/

From: Sean Smith <SeanS@ci.clovis.ca.us>
Sent: Friday, October 7, 2022 9:01 AM
To: Matt Arndt <marndt@jlbtraffic.com>
Subject: RE: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Yes, that should be Tollhouse instead of Thompson. I'll try to get all comments, if any, to you later today as well.
-Sean

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, October 7, 2022 8:46 AM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Subject: [External] RE: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello Sean,

I would just like to clarify that intersection two should be listed as Fowler Avenue at Tollhouse Road instead of Thompson Avenue.

Thanks.

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103

Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
https://link.edgepilot.com/s/58dca031/UoA2FAXzTES74l3O9uVi8w?u=http://www.jlbtraffic.com/

From: Matt Arndt
Sent: Wednesday, October 5, 2022 5:58 PM
To: Sean Smith <SeanS@ci.clovis.ca.us>
Cc: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>; Jill Gormley <Jill.Gormley@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: CUSD Fowler-Herndon Campus Draft Scope of Work

Hello,

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We kindly asked that you take a moment to review and comment on the proposed Scope of Work. We hope that you are able to provide comments by October 28, 2022. In the absence of comments by this date, it may be presumed that the proposed Scope of Work is acceptable to the agency(ies) that have not submitted any comments.

If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matthew Arndt

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https://link.edgepilot.com/s/58dca031/UoA2FAXzTES74l3O9uVi8w?u=http://www.jlbtraffic.com/

Links contained in this email have been replaced. If you click on a link in the email above, the link will be analyzed for known threats. If a known threat is found, you will not be able to proceed to the destination. If suspicious content is detected, you will see a warning.

Appendix B: Traffic Counts

Turning Movement Report

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

LOCATION Fowler Ave @ Herndon Ave

LATITUDE 36.8375

COUNTY Fresno

LONGITUDE -119.6841

COLLECTION DATE Thursday, November 17, 2022

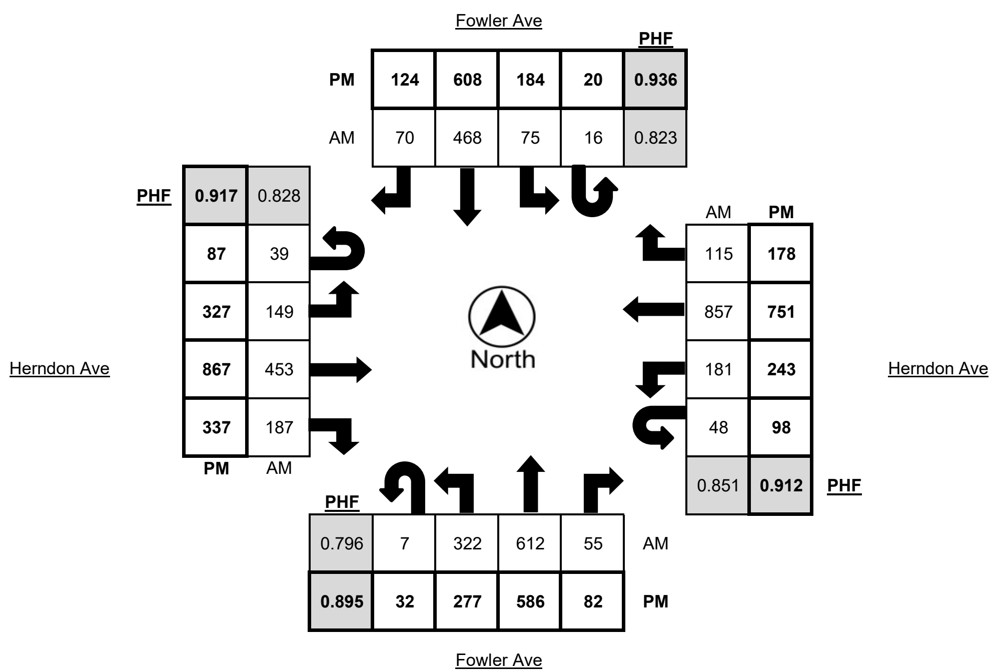
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	2	42	115	14	3	5	13	89	8	4	4	27	68	20	11	10	26	129	22	1
7:15 AM - 7:30 AM	0	52	124	7	2	2	16	92	10	7	6	31	94	30	3	15	57	215	35	2
7:30 AM - 7:45 AM	2	88	211	12	2	2	16	123	15	6	6	30	75	47	2	8	42	229	35	3
7:45 AM - 8:00 AM	1	75	143	13	4	2	31	130	28	2	12	44	140	37	7	14	50	260	29	3
8:00 AM - 8:15 AM	4	80	143	12	2	6	16	118	13	5	7	34	111	35	2	10	45	177	32	6
8:15 AM - 8:30 AM	0	79	115	18	5	6	12	97	14	5	14	41	127	68	6	16	44	191	19	2
8:30 AM - 8:45 AM	2	77	137	23	2	5	14	67	12	1	23	39	130	44	6	9	41	175	38	3
8:45 AM - 9:00 AM	5	30	90	21	2	2	36	96	13	3	19	46	119	48	5	12	54	179	37	3
TOTAL	**16**	**523**	**1078**	**120**	**22**	**30**	**154**	**812**	**113**	**33**	**91**	**292**	**864**	**329**	**42**	**94**	**359**	**1555**	**247**	**23**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	7	67	119	12	2	9	40	148	32	3	16	93	201	89	2	49	50	206	49	3
4:15 PM - 4:30 PM	7	58	127	22	2	4	41	150	29	6	19	100	241	81	3	40	47	203	38	3
4:30 PM - 4:45 PM	8	70	150	17	2	6	59	136	32	4	26	70	205	92	1	19	71	216	42	3
4:45 PM - 5:00 PM	7	75	143	20	2	6	43	160	41	4	19	70	192	93	2	15	56	168	52	4
5:00 PM - 5:15 PM	10	74	166	23	0	4	41	162	22	1	23	87	229	71	0	24	69	164	46	1
5:15 PM - 5:30 PM	9	71	121	20	1	8	48	171	22	1	19	71	212	58	1	25	61	183	37	1
5:30 PM - 5:45 PM	7	53	146	19	0	4	31	158	19	2	20	69	220	62	1	36	43	155	29	0
5:45 PM - 6:00 PM	7	53	116	15	0	10	44	120	31	2	16	48	203	76	1	35	46	145	29	1
TOTAL	**62**	**521**	**1088**	**148**	**9**	**51**	**347**	**1205**	**228**	**23**	**158**	**608**	**1703**	**622**	**11**	**243**	**443**	**1440**	**322**	**16**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	7	322	612	55	13	16	75	468	70	18	39	149	453	187	17	48	181	857	115	14
4:15 PM - 5:15 PM	32	277	586	82	6	20	184	608	124	15	87	327	867	337	6	98	243	751	178	11

	PHF	Trucks
AM	0.905	1.7%
PM	0.985	0.8%



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310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

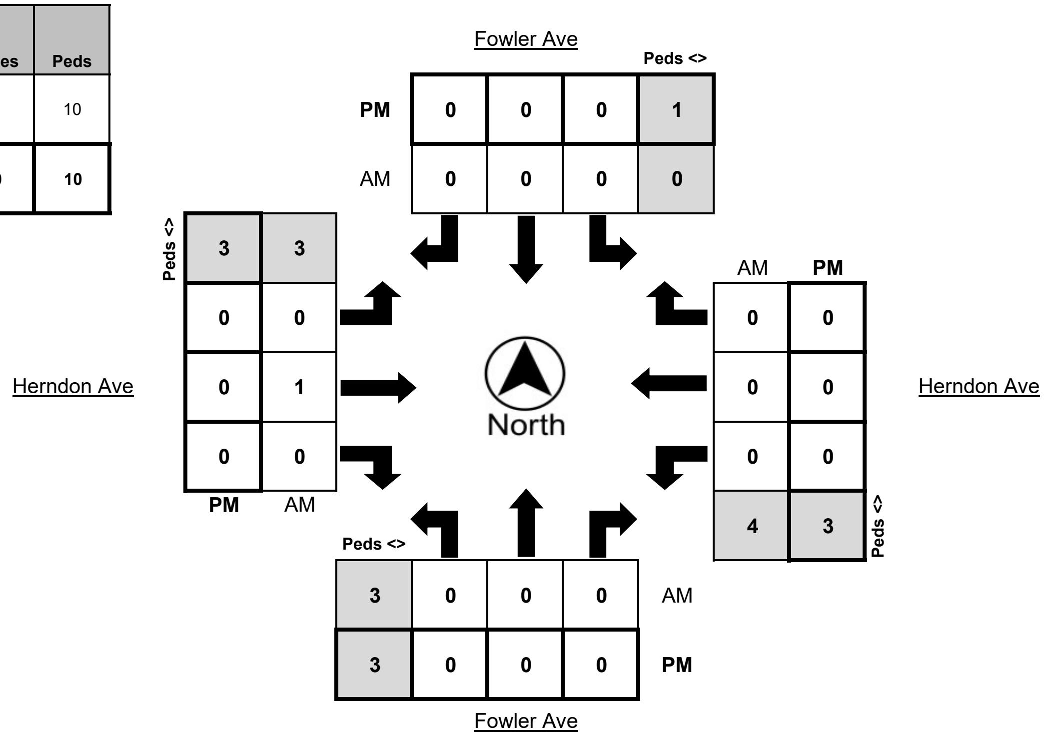
LOCATION Fowler Ave @ Herndon Ave
LATITUDE 36.8375
COUNTY Fresno
LONGITUDE -119.6841
COLLECTION DATE Thursday, November 17, 2022
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	1
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	1
8:30 AM - 8:45 AM	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**8**	**0**	**1**	**0**	**6**	**0**	**0**	**0**	**4**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3
4:15 PM - 4:30 PM	0	0	0	1	0	0	0	2	0	0	0	2	0	0	0	2
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**6**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	3	0	1	0	4	0	0	0	3
4:15 PM - 5:15 PM	0	0	0	1	0	0	0	3	0	0	0	3	0	0	0	3

	Bikes	Peds
AM Peak Total	1	10
PM Peak Total	**0**	**10**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

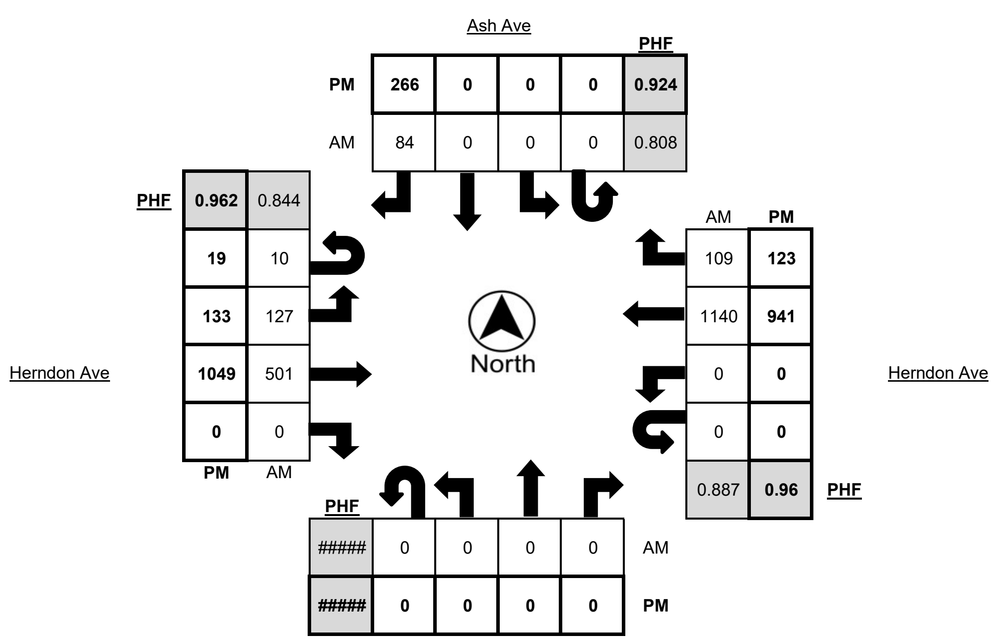
LOCATION	Ash Ave @ Herndon Ave	**LATITUDE**	36.8375
COUNTY	Fresno	**LONGITUDE**	-119.6797
COLLECTION DATE	Thursday, November 17, 2022	**WEATHER**	Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	19	0	3	15	82	0	6	0	0	176	9	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	21	0	1	10	103	0	4	0	0	268	25	2
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	26	1	2	14	104	0	1	0	0	328	15	4
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	17	0	3	31	140	0	6	0	0	332	20	2
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	18	1	2	36	117	0	1	0	0	255	37	4
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	23	0	3	46	140	0	4	0	0	225	37	2
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	28	0	4	56	135	0	2	0	0	222	29	5
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	41	3	4	55	132	0	2	0	0	225	32	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**193**	**5**	**22**	**263**	**953**	**0**	**26**	**0**	**0**	**2031**	**204**	**20**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	61	2	4	34	218	0	3	0	0	277	31	1
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	72	0	6	45	260	0	0	0	0	216	40	3
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	71	1	3	31	278	0	0	0	0	246	29	2
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	61	1	5	25	248	0	3	0	0	233	23	3
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	62	0	5	32	263	0	0	0	0	246	31	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	83	0	4	23	245	0	1	0	0	234	22	1
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	45	0	10	24	283	0	0	0	0	180	23	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	50	0	3	22	248	0	1	0	0	167	23	1
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**505**	**4**	**40**	**236**	**2043**	**0**	**8**	**0**	**0**	**1799**	**222**	**11**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	84	2	10	127	501	0	12	0	0	1140	109	12
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	266	2	19	133	1049	0	3	0	0	941	123	8

	PHF	Trucks
AM	0.907	1.3%
PM	0.962	0.5%



Turning Movement Report

Metro Traffic Data Inc.
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Hanford, CA 93230

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Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

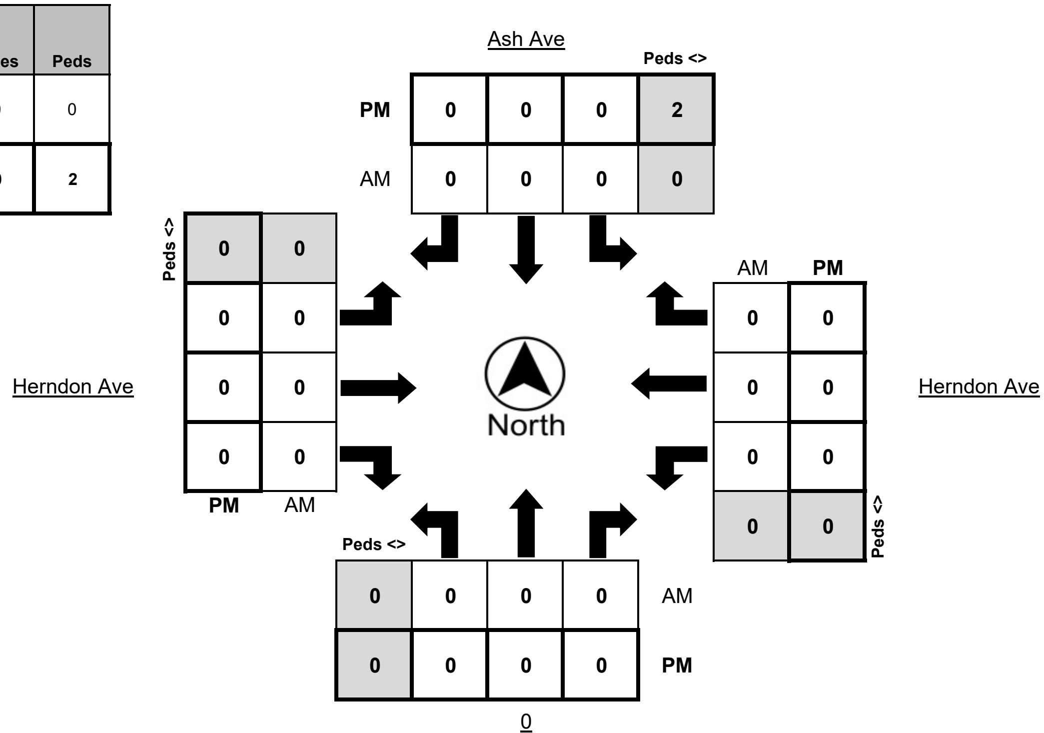
LOCATION	Ash Ave @ Herndon Ave	**LATITUDE**	36.8375
COUNTY	Fresno	**LONGITUDE**	-119.6797
COLLECTION DATE	Thursday, November 17, 2022	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	**0**	**2**



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

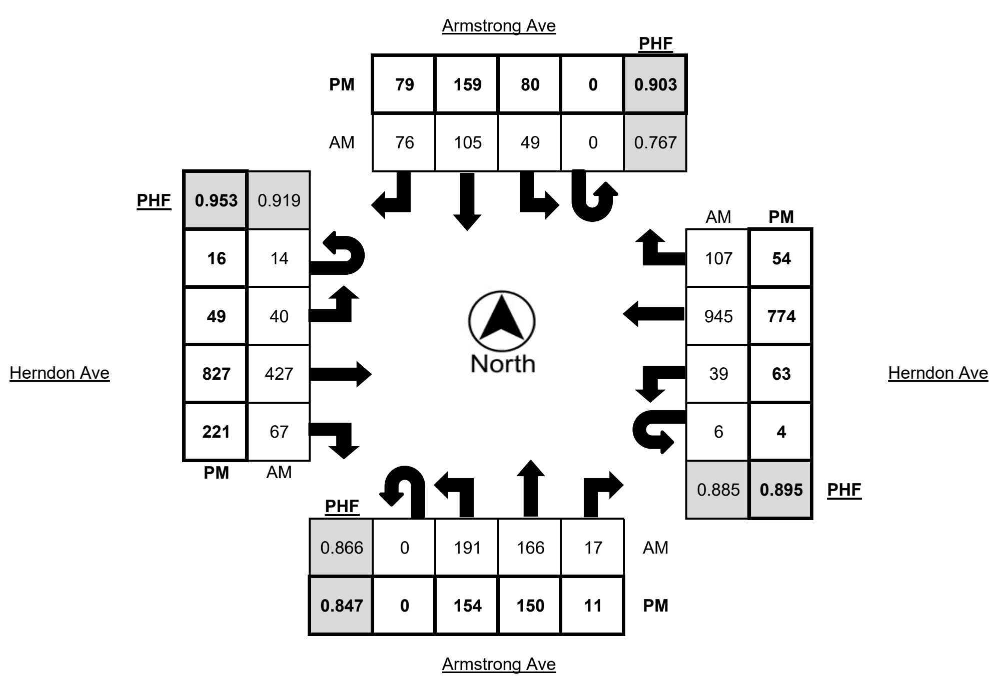
LOCATION Armstrong Ave @ Herndon Ave
LATITUDE 36.8374
COUNTY Fresno
LONGITUDE -119.6752
COLLECTION DATE Thursday, November 17, 2022
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	37	23	3	0	0	11	12	13	0	3	7	72	11	5	1	7	141	14	2
7:15 AM - 7:30 AM	0	52	36	0	0	0	12	23	21	0	5	9	81	15	2	0	4	205	11	4
7:30 AM - 7:45 AM	0	50	46	1	1	0	16	16	20	0	6	6	84	18	1	0	8	267	35	4
7:45 AM - 8:00 AM	0	47	55	6	0	0	15	35	25	1	3	15	112	17	5	1	13	256	35	2
8:00 AM - 8:15 AM	0	61	24	6	1	0	13	20	12	1	4	9	108	17	1	3	12	217	19	5
8:15 AM - 8:30 AM	0	33	41	4	2	0	5	34	19	0	1	10	123	15	2	2	6	205	18	3
8:30 AM - 8:45 AM	0	40	36	2	3	0	9	16	8	0	5	16	108	15	3	0	8	206	16	2
8:45 AM - 9:00 AM	0	28	43	4	0	0	12	19	23	1	6	11	99	20	3	3	4	183	34	0
TOTAL	**0**	**348**	**304**	**26**	**7**	**0**	**93**	**175**	**141**	**3**	**33**	**83**	**787**	**128**	**22**	**10**	**62**	**1680**	**182**	**22**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	47	38	5	0	0	18	39	24	1	1	11	149	43	4	1	15	220	19	1
4:15 PM - 4:30 PM	0	43	41	4	0	0	25	40	15	1	4	15	220	53	0	0	13	185	15	2
4:30 PM - 4:45 PM	0	26	36	2	0	0	13	35	21	0	1	10	209	72	0	0	17	215	18	5
4:45 PM - 5:00 PM	0	50	40	3	0	0	21	44	16	1	7	10	188	50	4	1	16	188	11	1
5:00 PM - 5:15 PM	0	35	33	2	0	0	21	40	27	0	4	14	210	46	0	3	17	186	10	0
5:15 PM - 5:30 PM	0	35	39	10	0	0	23	40	15	0	2	5	170	53	2	2	19	187	7	1
5:30 PM - 5:45 PM	0	45	41	6	1	0	19	47	20	0	2	13	224	56	0	0	17	142	12	0
5:45 PM - 6:00 PM	0	33	29	8	0	0	15	31	16	0	4	9	200	55	2	3	13	136	12	1
TOTAL	**0**	**314**	**297**	**40**	**1**	**0**	**155**	**316**	**154**	**3**	**25**	**87**	**1570**	**428**	**12**	**10**	**127**	**1459**	**104**	**11**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	0	191	166	17	4	0	49	105	76	2	14	40	427	67	9	6	39	945	107	14
4:15 PM - 5:15 PM	0	154	150	11	0	0	80	159	79	2	16	49	827	221	4	4	63	774	54	8

	PHF	Trucks
AM	0.885	1.3%
PM	0.978	0.5%



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

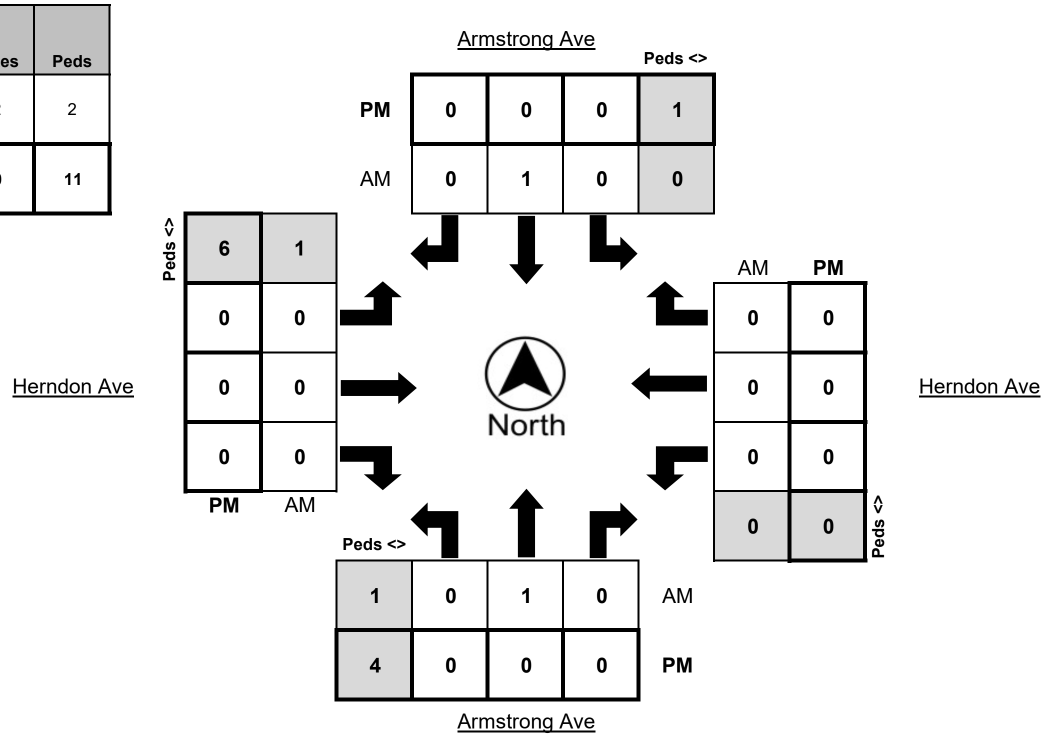
LOCATION Armstrong Ave @ Herndon Ave
LATITUDE 36.8374
COUNTY Fresno
LONGITUDE -119.6752
COLLECTION DATE Thursday, November 17, 2022
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM - 8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0
8:45 AM - 9:00 AM	0	0	2	0	2	2	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**2**	**0**	**2**	**4**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	2
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	1
4:15 PM - 5:15 PM	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	6

	Bikes	Peds
AM Peak Total	2	2
PM Peak Total	0	11



Turning Movement Report

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Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

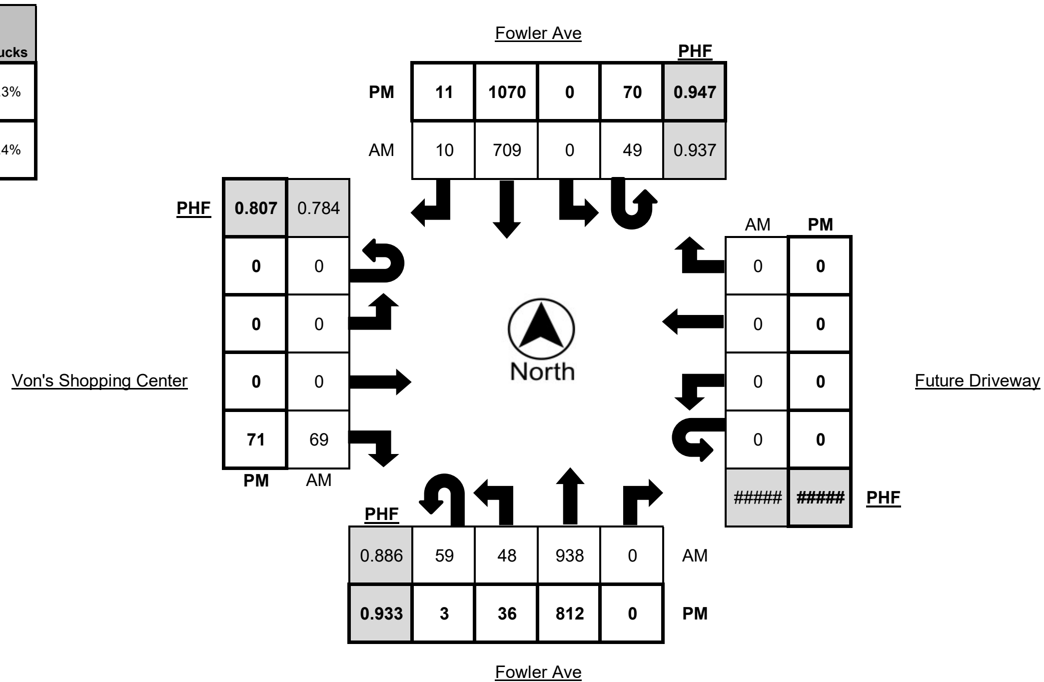
LOCATION	Fowler Ave @ Future Driveway	**LATITUDE**	36.835533°
COUNTY	Fresno	**LONGITUDE**	-119.683230°
COLLECTION DATE	Tuesday, December 6, 2022	**WEATHER**	Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	4	11	147	0	2	10	0	112	3	5	0	0	0	7	0	0	0	0	0	0
7:15 AM - 7:30 AM	5	7	215	0	1	9	0	130	0	5	0	0	0	12	0	0	0	0	0	0
7:30 AM - 7:45 AM	10	13	272	0	3	11	0	165	1	0	0	0	0	14	0	0	0	0	0	0
7:45 AM - 8:00 AM	18	11	245	0	3	12	0	193	0	4	0	0	0	15	0	0	0	0	0	0
8:00 AM - 8:15 AM	20	18	210	0	2	14	0	183	1	1	0	0	0	18	0	0	0	0	0	0
8:15 AM - 8:30 AM	11	6	211	0	2	12	0	168	8	10	0	0	0	22	0	0	0	0	0	0
8:30 AM - 8:45 AM	8	10	191	0	3	12	0	144	7	8	0	0	0	12	0	0	0	0	0	0
8:45 AM - 9:00 AM	6	9	175	0	2	10	0	160	2	8	0	0	0	10	0	0	0	0	0	0
TOTAL	**82**	**85**	**1666**	**0**	**18**	**90**	**0**	**1255**	**22**	**41**	**0**	**0**	**0**	**110**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	3	11	209	0	1	8	1	240	7	0	0	0	0	17	0	0	0	0	0	0
4:15 PM - 4:30 PM	2	8	186	0	1	14	0	285	4	5	0	0	0	19	0	0	0	0	0	0
4:30 PM - 4:45 PM	1	10	193	0	0	24	0	256	2	1	0	0	0	22	0	0	0	0	0	0
4:45 PM - 5:00 PM	2	13	195	0	1	17	0	266	4	2	0	0	0	16	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	8	201	0	0	17	0	259	2	1	0	0	0	19	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	5	223	0	2	12	0	289	3	2	0	0	0	14	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	10	201	0	2	17	1	263	2	3	0	0	0	12	0	0	0	0	0	0
5:45 PM - 6:00 PM	2	11	177	0	1	6	0	251	2	1	0	0	0	10	0	0	0	0	0	0
TOTAL	**10**	**76**	**1585**	**0**	**8**	**115**	**2**	**2109**	**26**	**15**	**0**	**0**	**0**	**129**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	59	48	938	0	10	49	0	709	10	15	0	0	0	69	0	0	0	0	0	0
4:30 PM - 5:30 PM	3	36	812	0	3	70	0	1070	11	6	0	0	0	71	0	0	0	0	0	0

	PHF	**Trucks**
AM	0.952	1.3%
PM	0.949	0.4%



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Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

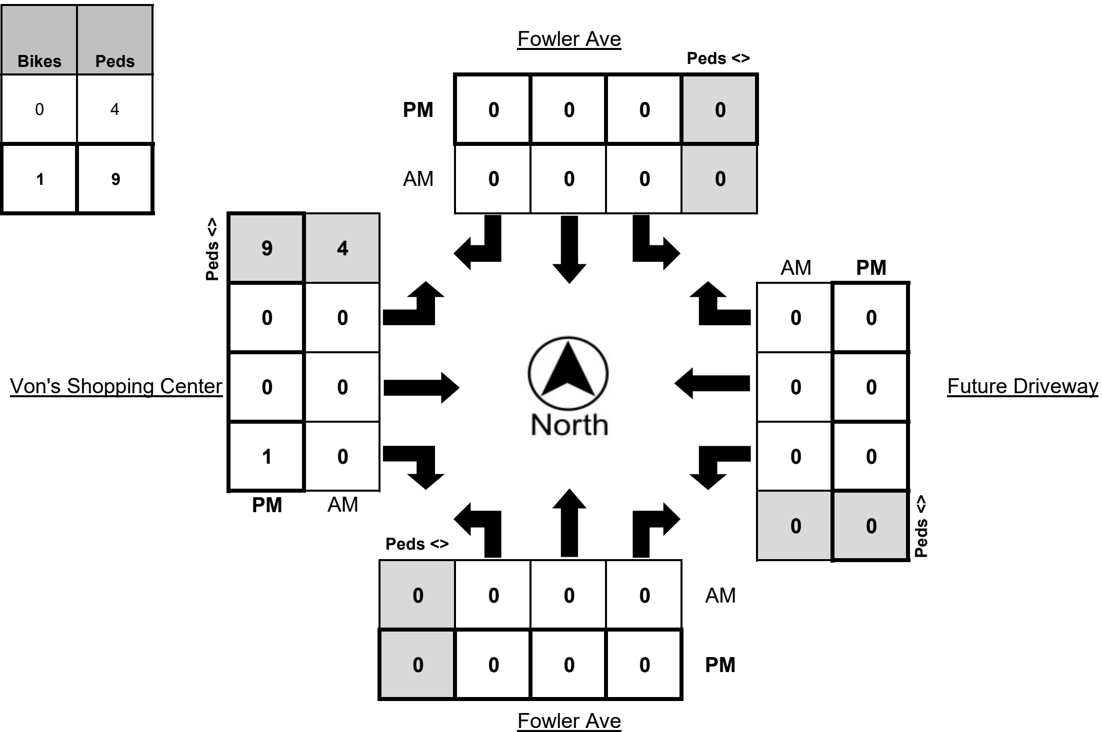
LOCATION	Fowler Ave @ Future Driveway	**LATITUDE**	36.835533°
COUNTY	Fresno	**LONGITUDE**	-119.683230°
COLLECTION DATE	Tuesday, December 6, 2022	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**7**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**11**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	9

	Bikes	Peds
AM Peak Total	0	4
PM Peak Total	**1**	**9**



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

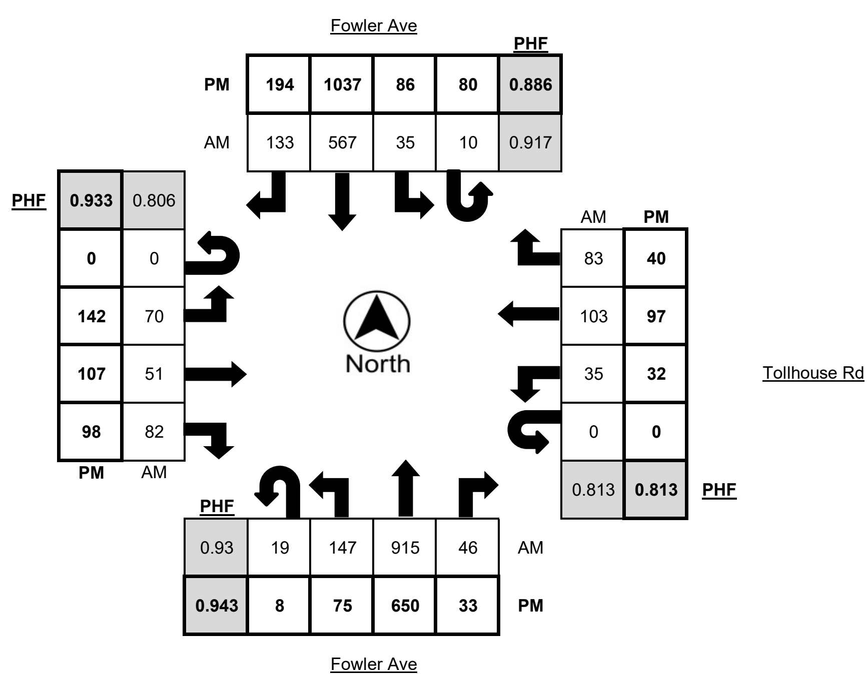
LOCATION Fowler Ave @ Tollhouse Rd
LATITUDE 36.8321
COUNTY Fresno
LONGITUDE -119.6821
COLLECTION DATE Thursday, November 17, 2022
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	2	9	129	5	3	2	6	67	21	6	0	14	8	10	2	0	6	16	21	2
7:15 AM - 7:30 AM	1	17	179	6	1	3	4	121	22	6	0	19	16	22	3	0	6	17	16	1
7:30 AM - 7:45 AM	0	26	270	7	2	1	8	145	36	10	0	18	18	16	2	0	6	14	25	0
7:45 AM - 8:00 AM	15	42	213	17	4	3	10	125	36	2	0	22	24	17	0	0	11	41	16	3
8:00 AM - 8:15 AM	3	40	214	13	6	1	5	143	29	7	0	15	3	26	2	0	7	23	25	2
8:15 AM - 8:30 AM	1	39	218	9	7	5	12	154	32	3	0	15	6	23	2	0	11	25	17	1
8:30 AM - 8:45 AM	2	18	209	18	5	4	10	125	34	1	0	13	16	14	1	0	5	14	12	0
8:45 AM - 9:00 AM	2	16	113	5	0	5	14	126	35	6	0	13	15	7	3	0	6	16	12	1
TOTAL	**26**	**207**	**1545**	**80**	**28**	**24**	**69**	**1006**	**245**	**41**	**0**	**129**	**106**	**135**	**15**	**0**	**58**	**166**	**144**	**10**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	3	24	156	9	4	16	20	255	37	4	0	26	32	30	0	0	4	20	13	0
4:15 PM - 4:30 PM	2	14	148	9	2	9	15	225	25	5	0	24	26	29	0	0	2	23	17	0
4:30 PM - 4:45 PM	3	18	153	12	1	20	18	236	41	3	0	46	24	21	1	0	7	12	14	1
4:45 PM - 5:00 PM	4	19	169	11	2	20	19	248	55	2	0	34	28	31	1	0	6	28	10	0
5:00 PM - 5:15 PM	0	18	179	4	0	26	23	296	49	1	0	36	29	25	0	0	5	22	13	0
5:15 PM - 5:30 PM	1	20	149	6	1	14	26	257	49	2	0	26	26	21	0	0	14	35	3	0
5:30 PM - 5:45 PM	2	10	154	5	0	9	23	234	44	3	0	19	24	32	0	0	3	27	11	1
5:45 PM - 6:00 PM	1	20	131	5	0	7	10	192	32	1	0	22	23	15	0	0	9	27	19	0
TOTAL	**16**	**143**	**1239**	**61**	**10**	**121**	**154**	**1943**	**332**	**21**	**0**	**233**	**212**	**204**	**2**	**0**	**50**	**194**	**100**	**2**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	19	147	915	46	19	10	35	567	133	22	0	70	51	82	6	0	35	103	83	6
4:30 PM - 5:30 PM	8	75	650	33	4	80	86	1037	194	8	0	142	107	98	2	0	32	97	40	1

	PHF	Trucks
AM	0.970	2.3%
PM	0.924	0.6%



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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
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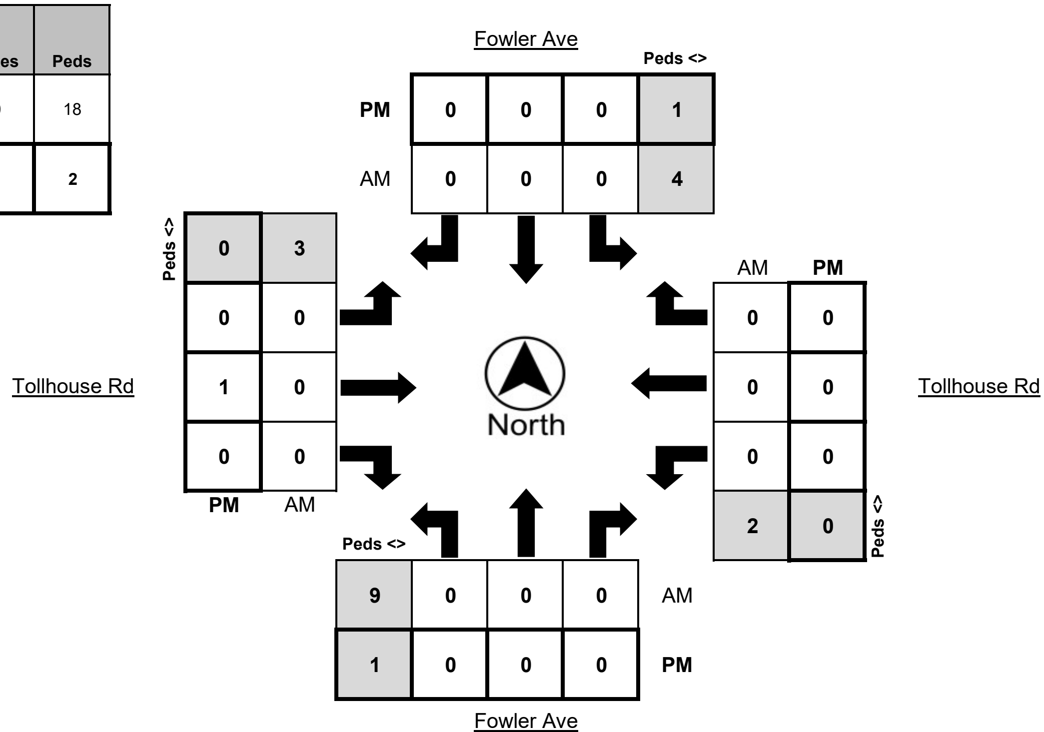
LOCATION Fowler Ave @ Tollhouse Rd
LATITUDE 36.8321
COUNTY Fresno
LONGITUDE -119.6821
COLLECTION DATE Thursday, November 17, 2022
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	1	0	0	0	3	0	0	0	1	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	2
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
TOTAL	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**13**	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**5**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	1	0	1	2	3	1	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**8**	**0**	**1**	**2**	**7**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	4	0	0	0	9	0	0	0	2	0	0	0	3
4:30 PM - 5:30 PM	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	18
PM Peak Total	1	2



Appendix C: Traffic Modeling

October 5, 2022

Kai Han, TE
Fresno Council of Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721

Via Email Only: khan@fresnocog.org

Subject: ***Traffic Modeling Request for the Preparation of a Traffic Impact Analysis and Vehicle Miles Traveled Analysis for the Clovis Unified School District Fowler-Herndon Campus in the City of Clovis (JLB Project 006-045)***

Dear Mr. Han,

JLB Traffic Engineering, Inc. (JLB) hereby requests traffic modeling for the preparation of a **Traffic Impact Analysis (TIA) and Vehicle Miles Traveled (VMT) Analysis** for the proposed **Clovis Unified School District Fowler-Herndon Campus (Project)** located on the southeast quadrant of Fowler Avenue and Herndon Avenue in the City of Clovis. The Project proposes to develop a Special Education Administration Building, an Online School Building and three future Administration Office Buildings. Based on information provided to JLB, the Project will undergo a General Plan Amendment through the City of Clovis. An aerial of the Project vicinity is shown in Exhibit A. The latest Project Site Plan is presented in Exhibit B.

The purpose of the TIA and VMT Analysis is to evaluate the potential on-site and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process.

Scenarios:

The following scenarios are requested:

1. Base Year 2022 (with Link and TAZ modifications)
2. Cumulative Year 2046 plus Project Select Zone (with Link and TAZ modifications)
3. Differences between model runs 2 and 1 above

Changes and/or additions to the Model Network or TAZ's

JLB reviewed the Fresno COG model network for the Base Year 2022 and Cumulative Year 2046. Based on this review, JLB requests the following link and TAZ network modifications. Details on the requested Link and TAZ modifications for Base Year 2022 and Cumulative Year 2046 are illustrated in Exhibit C.

LINK and TAZ MODIFICATIONS (Base Year 2022 Scenario Only):

1. Modify Sunnyside Avenue as follows:
    a. Between Node 26312 and Third Street
        i. Decrease the number of lanes to 1 lane in the southbound direction.

LINK and TAZ MODIFICATIONS (Base Year 2022 and Cumulative Year 2046 plus Project Select Zone Scenarios):

1. Modify Sunnyside Avenue as follows:
   a. Between Node 26350 and Herndon Avenue
      i. Increase the number of lanes to 2 lanes in each direction.
   b. Between Sierra Avenue and Node 26309
      i. Increase the speed limit to 40 MPH in the northbound direction.
2. Modify Fowler Avenue as follows:
   a. Between Alluvial Avenue and Herndon Avenue
      i. Increase the number of lanes to 2 lanes in each direction.
   b. Between Node 26775 and Node 26769
      i. Increase the number of lanes to 2 lanes in the southbound direction.
3. Modify Herndon Avenue as follows:
   a. Between Fowler Avenue and Armstrong Avenue
      i. Increase the number of lanes to 3 lanes in each direction.
   b. Between Armstrong Avenue and Node 45663
      i. Increase the number of lanes to 3 lanes in the eastbound direction.

LINK and Project MODIFICATIONS (Cumulative Year 2042 plus Project Select Zone Scenario Only):

1. Create TAZ A (Project) generally located on the southeast quadrant of Herndon Avenue and Fowler Avenue. TAZ A shall have TAZ connectors to Fowler Avenue and Herndon Avenue. (See Exhibit C for details).
2. Create a roadway link between the northbound and southbound segments of Fowler Avenue at the TAZ connector for TAZ A.
   a. Classification: Local Roadway
   b. Lanes: One lane in the eastbound direction
   c. Speed: 25 MPH

TAZ A (Project) Trip Generation

Table I presents the trip generation for the Special Education Administration building and Online School Building based on information contained within the project operational statement and communication with the project proponent. Table II presents the trip generation for the future Project buildings pursuant to the 11th Edition of the Trip Generation Manual with trip generation rates for School District Office (Land Use 528). Table III presents the combined trip generation at buildout. Phase I of the Project is estimated to generate approximately 690 daily trips, 183 AM peak hour trips and 93 PM peak hour trips, while the future Project phase is estimated to generate approximately 1,293 daily trips, 212 AM peak hour trips and 184 PM peak hour trips. Table III presents the total trip generation of both Phase I and future Project phases, at buildout the Project is estimated to generate approximately 1,983 daily trips, 395 AM peak hour trips and 277 PM peak hour trips. Please run the Project Select Zone with the Project Buildout Trip Generation.

Table I: Proposed Phase I Land Use Trip Generation

Land Use	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
Special Education Admin Building																
Employees	62	Employees	3	186	0.71	95	5	42	2	44	1.05	5	95	3	62	65
Students/Parents	30	Students	2	60	0.60	50	50	9	9	18	0.30	0	100	0	9	9
Online Education Building																
Staff	50	Employees	3	150	1.06	95	5	50	3	53	0.30	5	95	1	14	15
Student/Parent Conference	40	Students	2	80	0.35	50	50	7	7	14	0.00	0	0	0	0	0
Students	100	Students	2	200	0.50	50	50	25	25	50	0.00	0	0	0	0	0
Miscellaneous																
Visitors	3	Each	2	6	0.66	50	50	1	1	2	0.66	50	50	1	1	2
Trash/Recycling	1	Each	2	2	0.00	0	0	0	0	0	0.00	0	0	0	0	0
Delivery	3	Each	2	6	0.66	50	50	1	1	2	0.66	50	50	1	1	2
Total Driveway Trips				**690**				**135**	**48**	**183**				**6**	**87**	**93**

Table II: Future Phases Land Use Trip Generation

Land Use (ITE Code)	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
School District Office (528)	90.000	k.s.f.	14.37	1,293	2.36	76	24	161	51	212	2.04	17	83	31	153	184
Total Driveway Trips				**1,293**				**161**	**51**	**212**				**31**	**153**	**184**

Note: k.s.f. = Dwelling Units

Table III: Project Buildout Trip Generation

Description	Daily	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out	Total
Special Education Administration and Online School	690	135	48	183	6	87	93
Future Administration Buildings	1,293	161	51	212	31	153	184
Total Project Trips	**1,983**	**296**	**99**	**395**	**37**	**240**	**277**

Vehicle Miles Traveled

JLB would like to request to be provided with the Project's VMT in excel format or PDF format.

Project Access

Access to and from the Project site at buildout will predominantly be from two (2) access points. One access point will be on the south side of Herndon Avenue approximately 965 feet east of Fowler Avenue and is proposed as right-in right-out. The second access point will be on the east side of Fowler Avenue approximately 675 feet south of Herndon Avenue and is proposed as a left-in, right-in and right-out. Additional Project details can be found on Exhibit B.

Please feel welcome to contact me if you have any questions or require additional information. I can be reached by phone at (559) 317-6243, or via email at marndt@jlbtraffic.com.

Sincerely,

Matt Arndt
Engineer I/II

cc: Santosh Bhattarai, Fresno COG
Jose Luis Benavides, JLB Traffic Engineering, Inc.

Z:\01 Projects\006 Clovis\006-045 CUSD Fowler-Herndon TIA-VMT\Traffic Modeling\02 Model Request\L10052022 Model Request (006-045).docx

Exhibit A – Project Site Aerial

Exhibit B – Project Site Plan

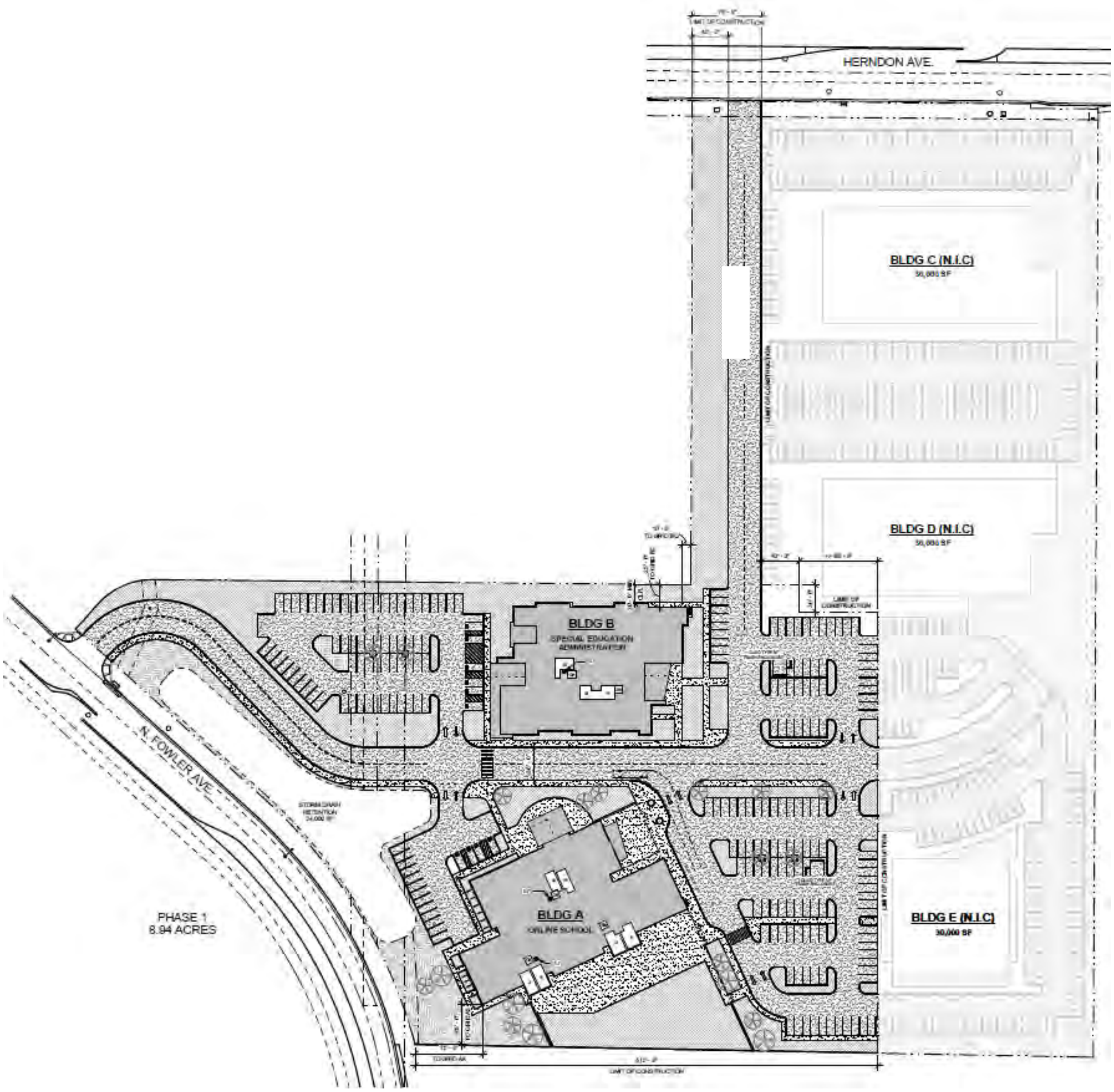
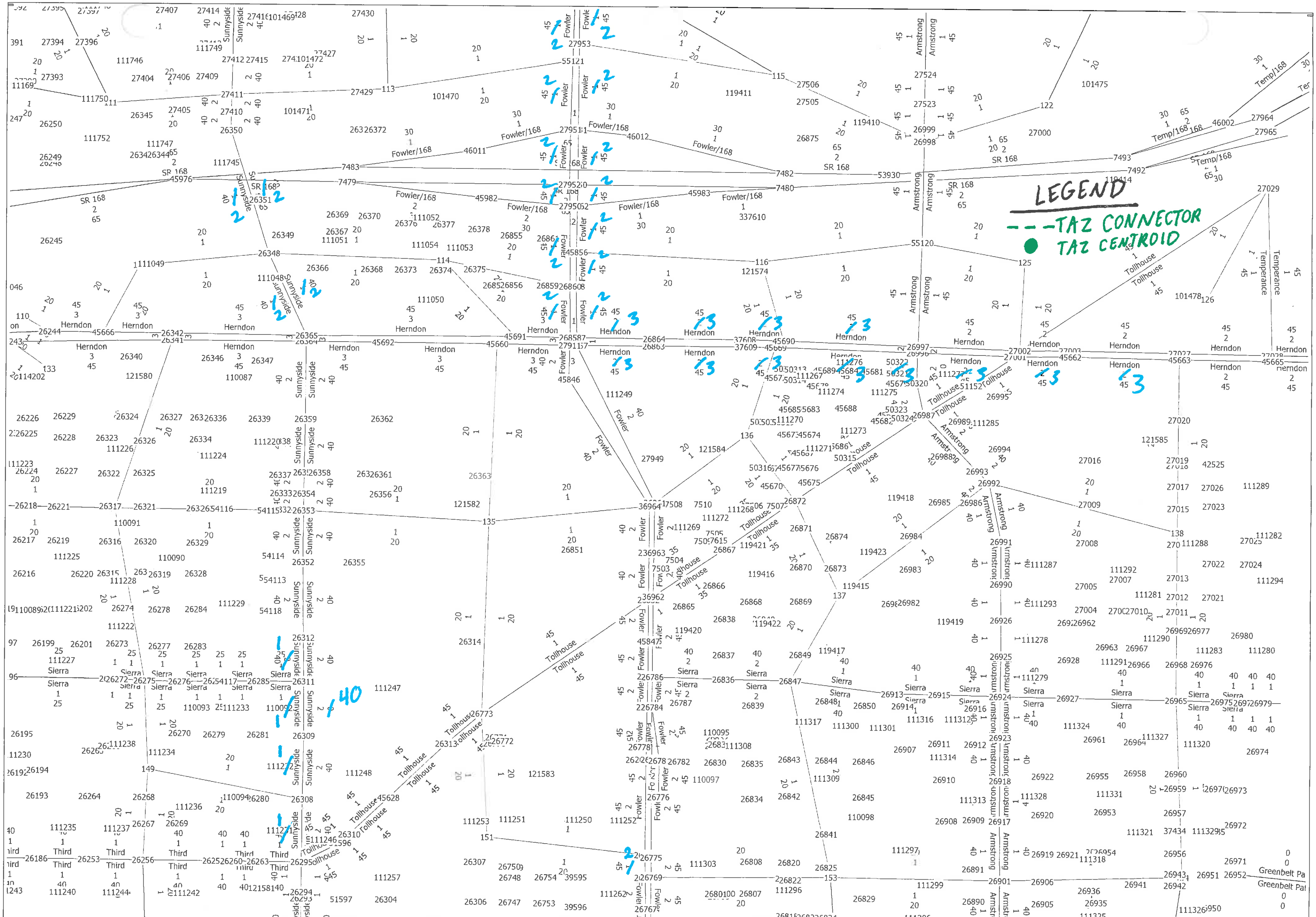
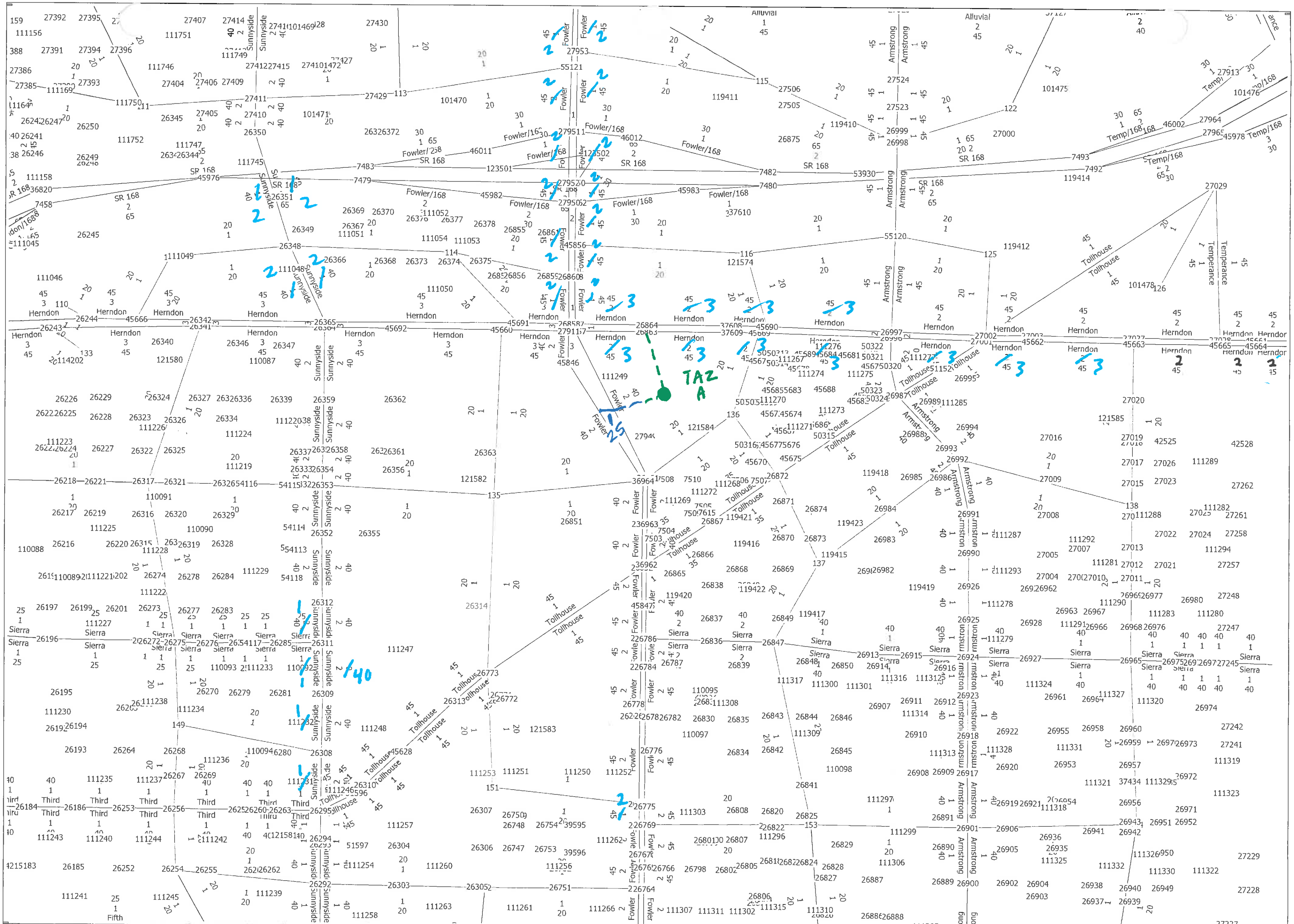


Exhibit C – Link and TAZ Modifications



CUSD Fowler-Herndon TIA & VMT
Base Year 2022
Name, Lanes and Speed

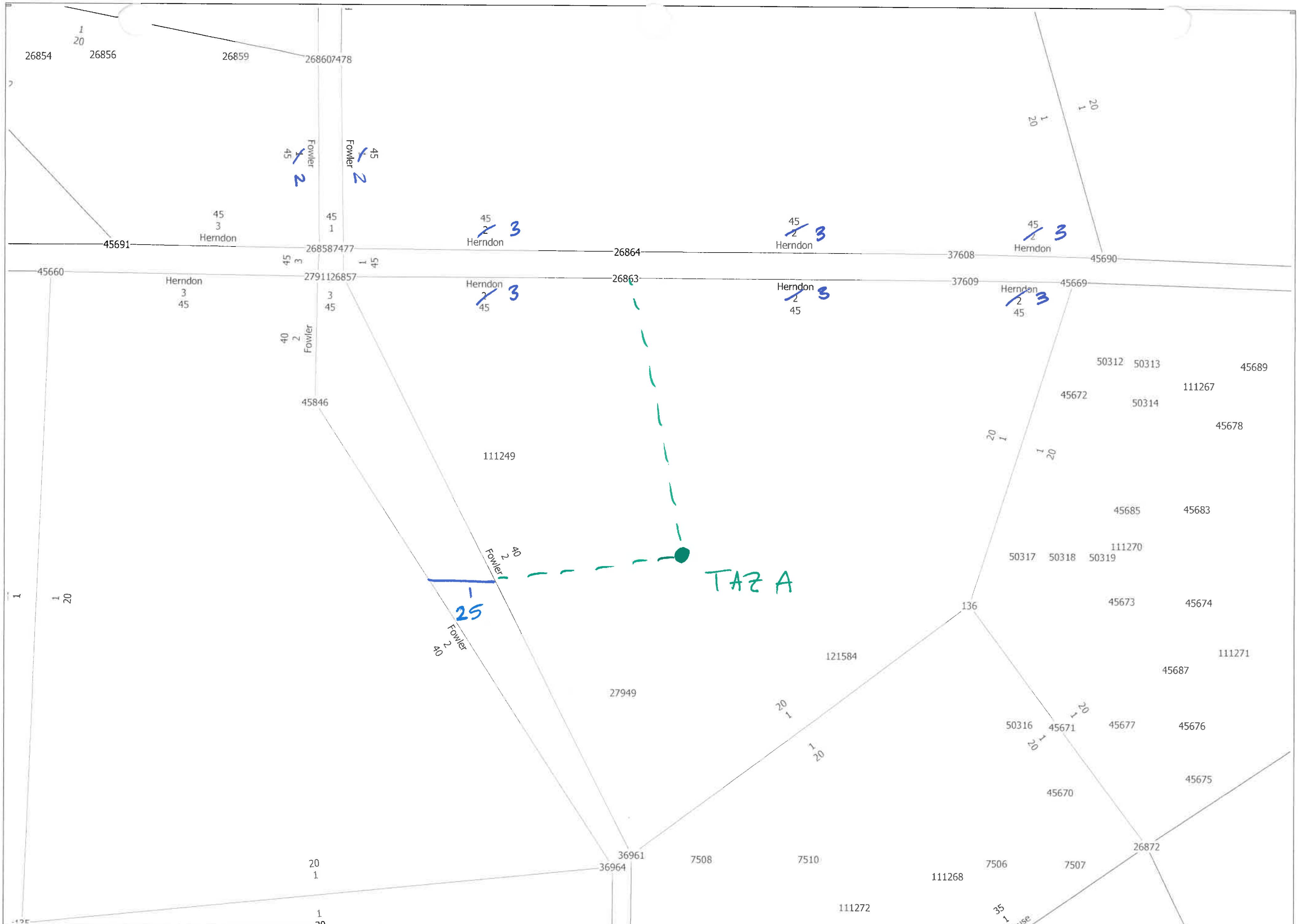
cube



Cumulative Year 2046
Name, Lanes, Speed

cube

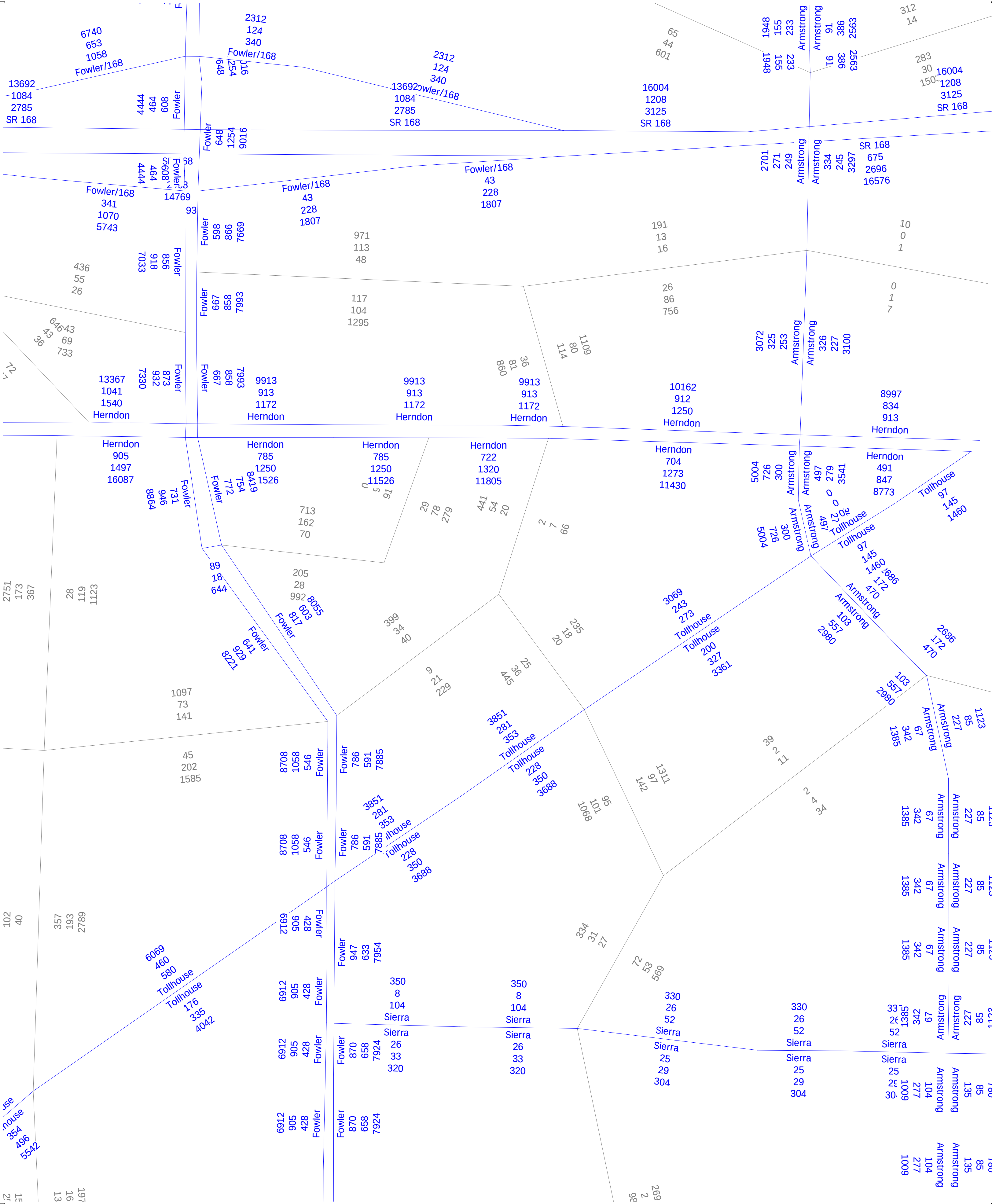
(Licensed to JLB Traffic Engineering, Inc)



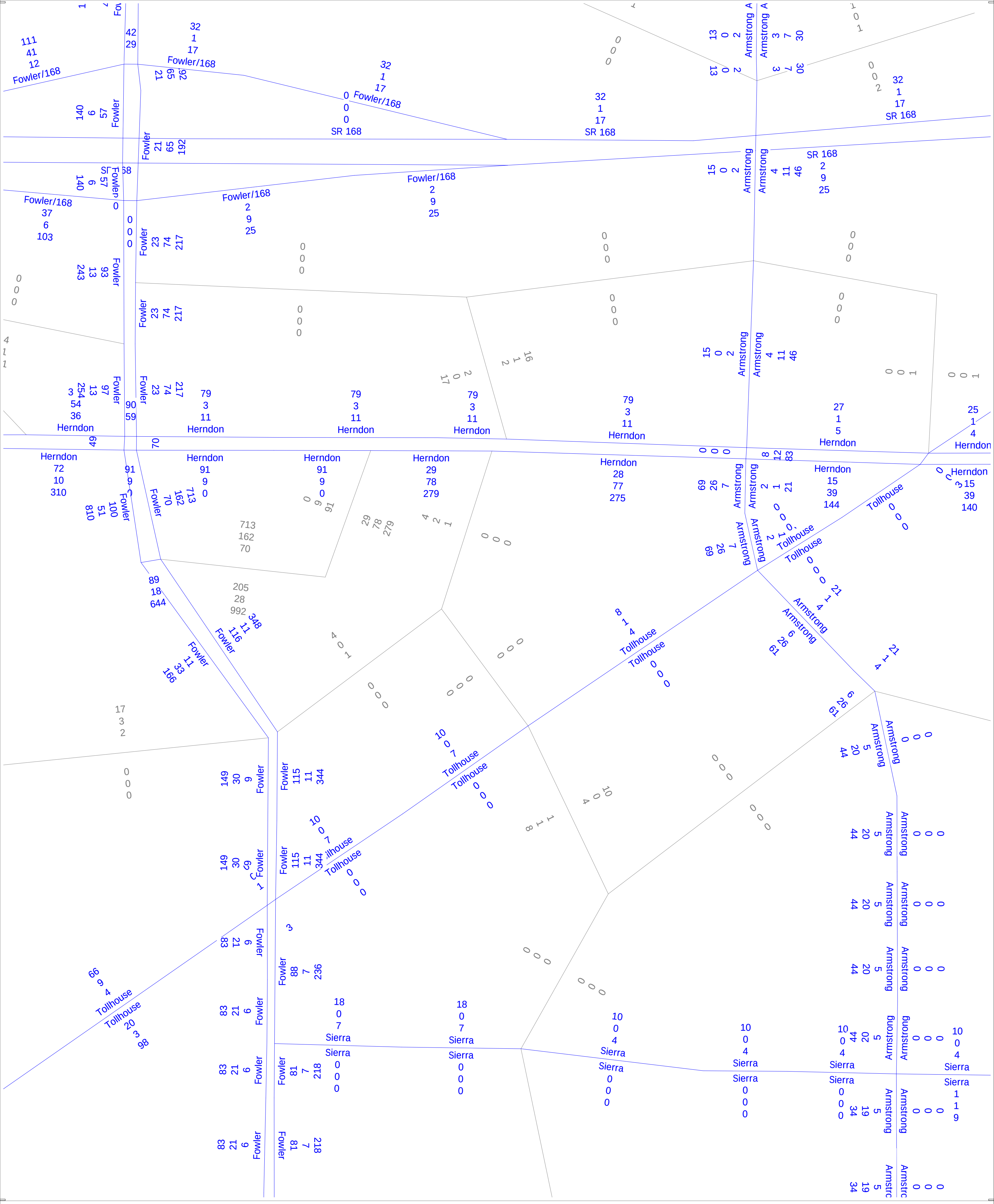
Cumulative Year 2046
Name, Lanes, Speed

cube

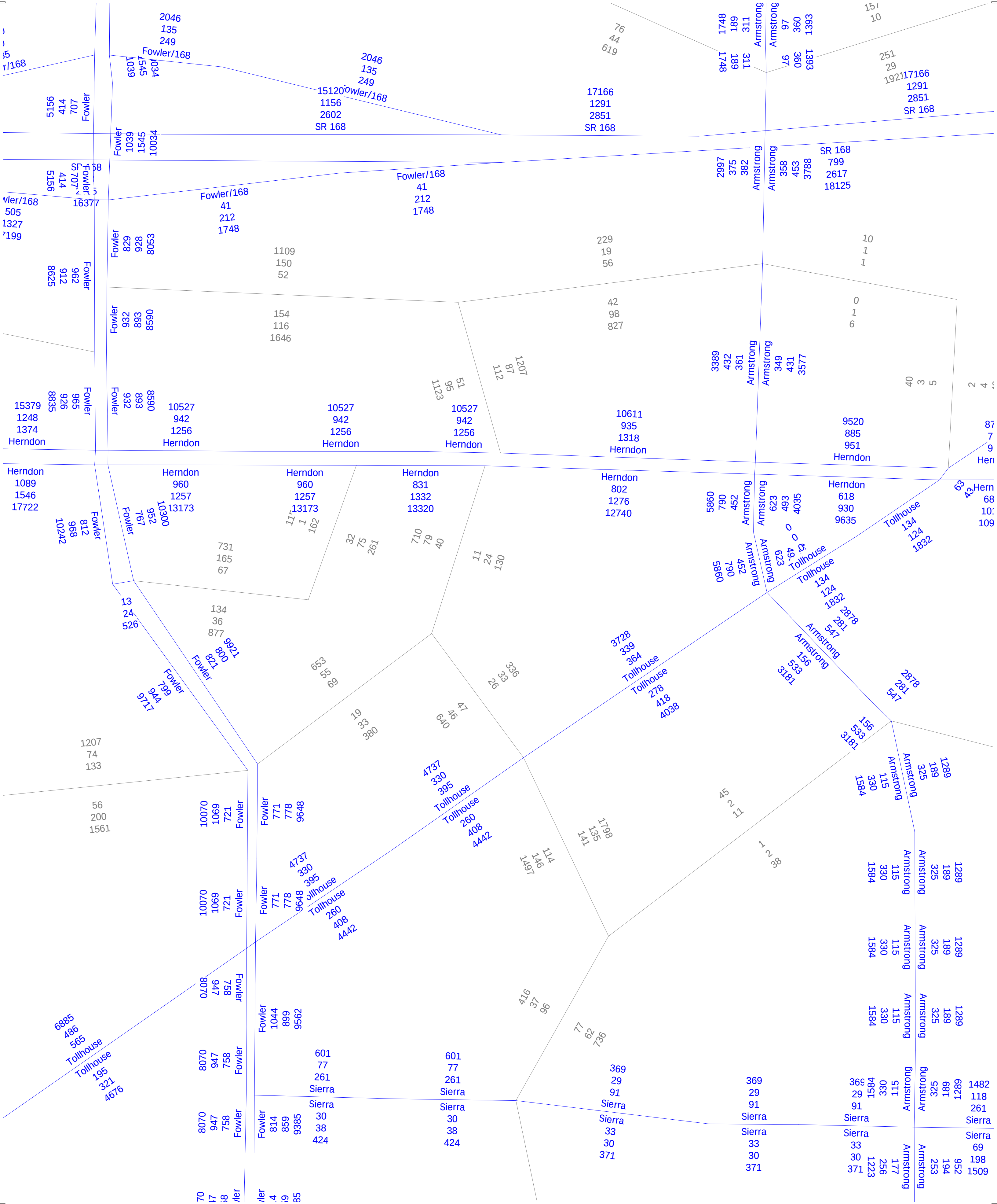
(Licensed to JLB Traffic Engineering, Inc)



CUSD Fowler-Herndon Campus
Base Year 2019
AM, PM and Daily Volumes

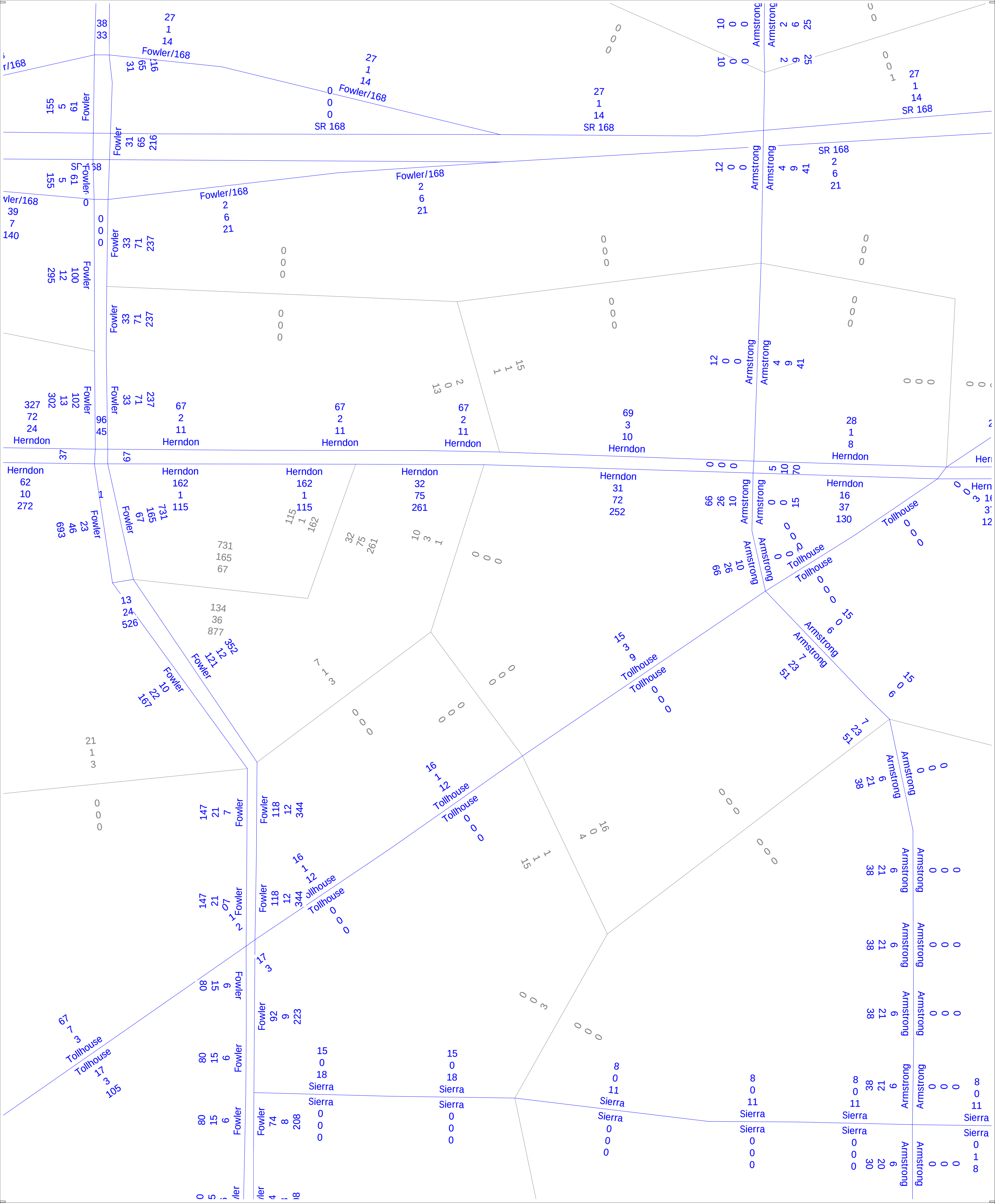


CUSD Fowler-Herndon Campus
2019 Project Only Trips
AM, PM and Daily Volumes

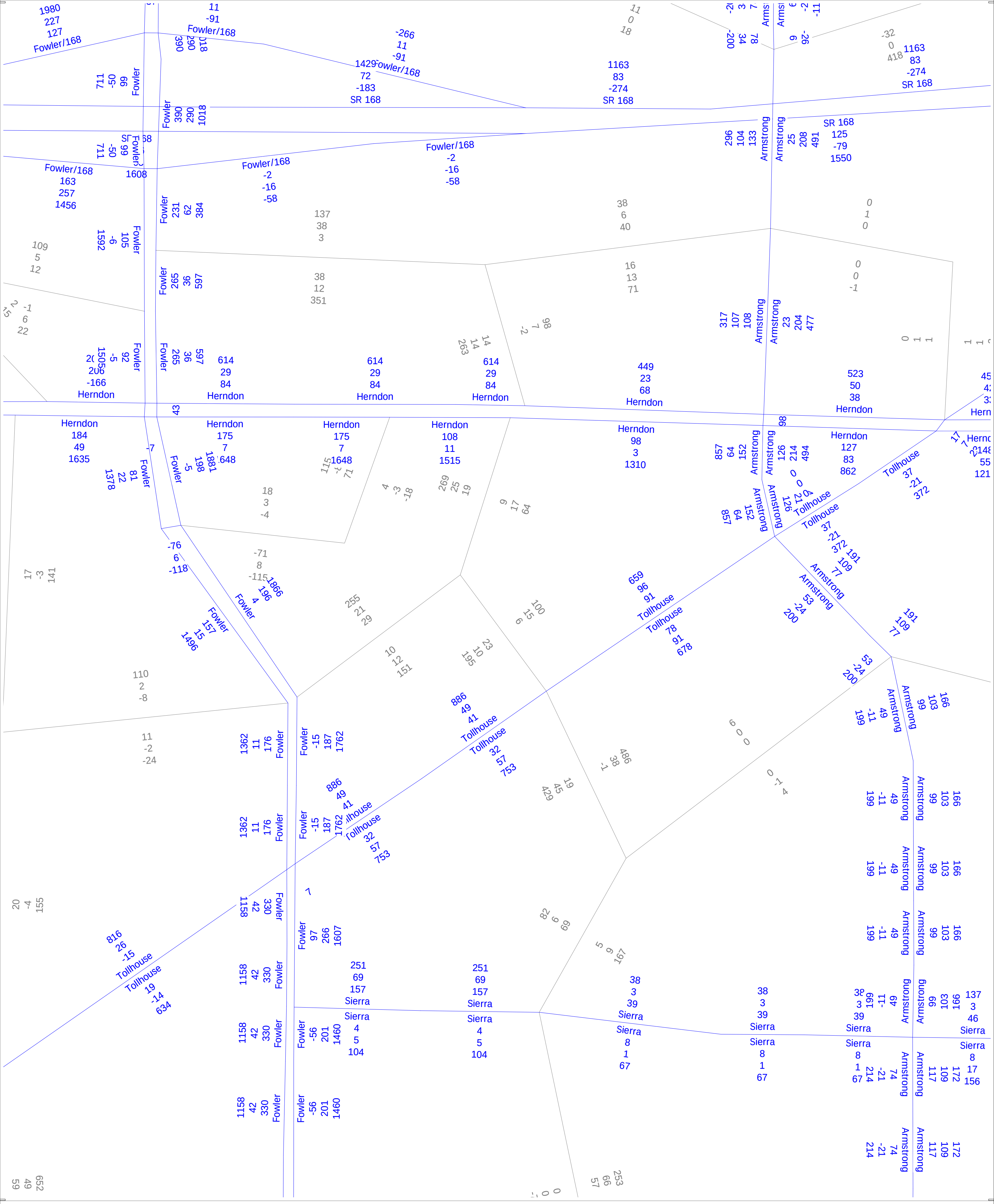


CUSD Fowler-Herndon Campus
2046 plus Project
AM, PM and Daily Volumes

cube



CUSD Fowler-Herndon Campus
2046 Project Only Trips
AM, PM and Daily Volumes



CUSD Fowler-Herndon Campus
2046 Increment
AM, PM and Daily Volumes

cube

Appendix D: Methodology

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Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 6th Edition represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver’s perception of these conditions. Safety is not included in the measures that establish an LOS.

Intersection Levels of Service

One of the more important elements limiting and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop signs and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections, the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay and bicycle perception score. LOS is also considered a performance measure. For the automobile mode, the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. An LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-1.

Table A-1: Signalized Intersection Levels of Service Description (Automobile Mode)

Level of Service	*Description*	*Average Control Delay (Seconds per Vehicle)*
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is really low and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0, the progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.	>80

Note: Source: Highway Capacity Manual 6th Edition

Unsignalized Intersections

The HCM 6th Edition procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i.e., in the absence of traffic control, geometric delay, any incidents and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections are a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words, the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. An LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred to as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. An LOS for a TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-2 provides a description of LOS at unsignalized intersections.

Table A-2: Unsignalized Intersection Levels of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 20-2.

Roundabout Controlled Intersections

Roundabouts are intersections with a generally circular shape, characterized by yield on entry and circulation around a central island. Roundabouts have been used successfully throughout the world and are being used increasingly in the United States, especially since 1990. The procedure used to calculate LOS incorporates a combination of lane-based regression models and gap acceptance models for both single-lane and multi-lane roundabouts. As a result, the capacity models focus on one entry of a roundabout at a time. Table A-3 provides a description of LOS at roundabout intersections.

Table A-3: Roundabout Intersection Level of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 22-8.

Segment Levels of Service

Segments are portions of roads without any interruption of flow. These are typically studied as urban streets, basic freeways, multilane highways or two-lane highways. Each of these categories has further classification and the level of service analysis can differ between them.

Basic Freeway and Multilane Highway Segments

For segments of multilane highways and basic freeways outside the influence of merging, diverging and weaving maneuvers, LOS is defined by density. Density describes a motorist's proximity to other vehicles and is related to a motorist's freedom to maneuver within the traffic stream. Chapter 12 of the Highway Capacity Manual categorizes each LOS as follows:

LOS A describes free-flow operations. FFS prevails on the freeway or multilane highway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.

LOS B represents reasonably free-flow operations, and FFS on the freeway or multilane highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents are still easily absorbed.

LOS C provides for flow with speeds near the FFS of the freeway or multilane highway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.

LOS D is the level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited, and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.

LOS E describes operation at or near capacity. Operations on the freeway or multilane highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or an access point or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream. Toward the upper boundary of LOS E, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.

LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. Breakdowns occur for a number of reasons:

- Traffic incidents can temporarily reduce the capacity of a short segment so that the number of vehicles arriving at a point is greater than the number of vehicles that can move through it.
- Points of recurring congestion, such as merge or weaving segments and lane drops, experience very high demand in which the number of vehicles arriving is greater than the number of vehicles that can be discharged.
- In analyses using forecast volumes, the projected flow rate can exceed the estimated capacity of a given location.

Basic Freeway

Basic Freeway segments generally have four to eight lanes and posted speed limits between 50 and 75 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, total ramp density, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Basic Freeway Segments.

Multilane Highway

Multilane Highway segments generally have four to six lanes and posted speed limits between 40 and 55 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, left side lateral clearance, access point density, terrain type, median type, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Multilane Highway Segments.

Table A-4: Basic Freeway and Multilane Highway Segment Level of Service Description

Level of Service	*Density (Passenger Cars per Mile per Lane)*
A	≤11
B	>11 to 18
C	>18 to 26
D	>26 to 35
E	>35 to 45
F	>45 or Demand Exceeds Capacity

Note: Source: HCM 6th Edition, Exhibit 12-15.

Two-Lane Highway Segments

Two-Lane Highways generally have one lane per direction and only allow passing maneuvers to take place in the opposing lane of traffic. If allowed, passing maneuvers are limited by the availability of gaps in the opposing traffic stream and by the availability of sufficient sight distance for a driver to discern the approach of an opposing vehicle safely. A principal measure of LOS is percent time spent following and follower density. This is the average percent of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Chapter 15 of the Highway Capacity Manual categorizes each LOS as follows:

At **LOS A**, motorists experience high operating speeds on Class I highways and little difficulty in passing. Platoons of three or more vehicles are rare. On Class II highways, speed is controlled primarily by roadway conditions, but a small amount of platooning would be expected. On Class III highways, motorists can maintain operating speeds at or near the facility's FFS.

At **LOS B**, passing demand and passing capacity are balanced. On both Class I and Class II highways, the degree of platooning becomes noticeable. Some speed reductions are present on Class I highways. On Class III highways, maintenance of FFS operation becomes difficult, but the speed reduction is still relatively small.

At **LOS C**, most vehicles travel in platoons. Speeds are noticeably curtailed on all three classes of highways.

At **LOS D**, platooning increases significantly. Passing demand is high on both Class I and Class II facilities, but passing capacity approaches zero. A high percentage of vehicles travels in platoons, and PTSF is noticeable. On Class III highways, the fall-off from FFS is significant.

At **LOS E**, demand is approaching capacity. Passing on Class I and II highways is virtually impossible, and PTSF is more than 80%. Speeds are seriously curtailed. On Class III highways, speed is less than two-thirds of the FFS. The lower limit of LOSE represents capacity.

LOS F exists whenever demand flow in one or both directions exceeds the segment's capacity. Operating conditions are unstable and heavy congestion exists on all classes of two-lane highways.

Two-Lane Highway

The performance measures include average travel speed, segment travel time, percent followers, volume to capacity ratio, follower density and LOS. The LOS is dependent on Highway Class (I, II, or III), lane width, shoulder width, access point density, terrain type, free flow speed, passing lane length, demand flow rate, opposing demand flow rate peak hour factor and total truck percentage. Tables A-5 and A-6 provide a description of LOS for Two-Lane Highway Segments.

Table A-5: Two-Lane Highway Segment Level of Service Description

LOS	***Class I Highways***		***Class II Highways***	***Class III Highways***
	ATS (Mile per Hour)	***PTSF (%)***	***PTSF (%)***	***PFFS (%)***
A	>55	≤35	≤40	>91.7
B	>50 to 55	>35 to 50	>40 to 55	>83.3 to 91.7
C	>45 to 50	>50 to 65	>55 to 70	>75.0 to 83.3
D	>40 to 45	>65 to 80	>70 to 85	>66.7 to 75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: ATS = Average Travel Speed
PTSF = Percent Time Spent Following
PFFS = Percent of Free Flow Speed
Source: HCM 6th Edition, Exhibit 15-3.

Table A-6: Two-Lane Highway Segment Level of Service Description

LOS	***Follower Density (Followers per Mile per Lane)***	
	High Speed Highways Posted Speed Limit ≥ 50 miles per hour	***High Speed Highways Posted Speed Limit < 50 miles per hour***
A	≤2.0	≤2.0
B	>2.0 to 4.0	>2.5 to 5.0
C	>4.0 to 8.0	>5.0 to 10.0
D	>8.0 to 12.0	>10.0 to 15.0
E	>12.0	>15.0

Note: Source: NCHRP 'Improved Analysis of Two-Lane Highway Capacity and Operational Performance, Table 3-23.

Urban Streets (Automobile Mode)

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials.

They not only move through traffic but also provide access to local businesses for passenger cars, transit buses and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) force a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Urban Street Segments LOS

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections. Table A-7 provides a description of LOS for Urban Street Segments.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 80 percent of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 80 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes or inappropriate signal timing at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized as an unstable operation and has significant delay. Such operations may be due to some combination of adverse progression, high volume and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-7: Urban Street Levels of Service (Automobile Mode)

LOS	*Travel Speed Threshold by Base Free-Flow Speed (miles/hour)*							*Volume-to-Capacity Ratio*
	55	**50**	**45**	**40**	**35**	**30**	**25**	
A	>44	>40	>36	>32	>28	>24	>20	≤ 1.0
B	>37	>34	>30	>27	>23	>20	>17	
C	>28	>25	>23	>20	>18	>15	>13	
D	>22	>20	>18	>16	>14	>12	>10	
E	>17	>15	>14	>12	>11	>9	>8	
F	≤17	≤15	≤14	≤12	≤11	≤9	≤8	
F	Any							> 1.0

Note: a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 6th Edition, Exhibit 16-3.

Appendix E: Existing Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	39	149	453	187	48	181	857	115	7	322	612	55
Future Volume (vph)	39	149	453	187	48	181	857	115	7	322	612	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1546		3400	5036	1568		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1546		3400	5036	1568		3400	3505	1545
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	164	498	205	53	199	942	126	8	354	673	60
RTOR Reduction (vph)	0	0	0	147	0	0	0	91	0	0	0	40
Lane Group Flow (vph)	0	207	498	58	0	252	942	35	0	362	673	20
Confl. Peds. (#/hr)				3								4
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		9.7	25.1	25.1		9.1	24.5	24.5		13.2	29.7	29.7
Effective Green, g (s)		9.7	25.1	25.1		9.1	24.5	24.5		13.2	29.7	29.7
Actuated g/C Ratio		0.11	0.28	0.28		0.10	0.28	0.28		0.15	0.34	0.34
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		372	1426	437		349	1392	433		506	1174	517
v/s Ratio Prot		0.06	0.10			c0.07	c0.19			c0.11	c0.19	
v/s Ratio Perm				0.04				0.02				0.01
v/c Ratio		0.56	0.35	0.13		0.72	0.68	0.08		0.72	0.57	0.04
Uniform Delay, d1		37.4	25.3	23.6		38.5	28.5	23.7		35.9	24.2	19.8
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.02	1.05
Incremental Delay, d2		1.8	0.1	0.1		7.2	1.3	0.1		4.8	0.7	0.0
Delay (s)		39.2	25.4	23.8		45.7	29.8	23.8		40.7	25.4	20.8
Level of Service		D	C	C		D	C	C		D	C	C
Approach Delay (s)			28.2				32.3				30.2	
Approach LOS			C				C				C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	16	75	468	70
Future Volume (vph)	16	75	468	70
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.91	0.91	0.91	0.91
Adj. Flow (vph)	18	82	514	77
RTOR Reduction (vph)	0	0	0	57
Lane Group Flow (vph)	0	100	514	20
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		6.1	22.6	22.6
Effective Green, g (s)		6.1	22.6	22.6
Actuated g/C Ratio		0.07	0.26	0.26
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		234	894	394
v/s Ratio Prot		0.03	0.15	
v/s Ratio Perm				0.01
v/c Ratio		0.43	0.57	0.05
Uniform Delay, d1		39.6	28.8	24.9
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		1.3	0.9	0.1
Delay (s)		40.8	29.7	25.0
Level of Service		D	C	C
Approach Delay (s)			30.8	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	3.3

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	127	501	1140	109	0	84
Future Vol, veh/h	10	127	501	1140	109	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	140	551	1253	120	0	92

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	915	1373	0	-	0	-	627
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	486	255	-	-	-	0	364
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	261	261	-	-	-	-	364
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	7.7	0	18.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	261	-	-	-	364
HCM Lane V/C Ratio	0.577	-	-	-	0.254
HCM Control Delay (s)	36	-	-	-	18.2
HCM Lane LOS	E	-	-	-	C
HCM 95th %tile Q(veh)	3.3	-	-	-	1

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	40	427	67	6	39	945	107	191	166	17	49
Future Volume (vph)	14	40	427	67	6	39	945	107	191	166	17	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1548		1752	4959		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1548		1752	4959		1752	3505	1568	1752
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	16	45	480	75	7	44	1062	120	215	187	19	55
RTOR Reduction (vph)	0	0	0	49	0	0	13	0	0	0	14	0
Lane Group Flow (vph)	0	61	480	26	0	51	1169	0	215	187	5	55
Confl. Peds. (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		4.1	24.6	24.6		4.1	24.6		8.5	20.0	20.0	4.4
Effective Green, g (s)		4.1	24.6	24.6		4.1	24.6		8.5	20.0	20.0	4.4
Actuated g/C Ratio		0.06	0.34	0.34		0.06	0.34		0.12	0.28	0.28	0.06
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		99	1718	528		99	1691		206	972	434	106
v/s Ratio Prot		c0.03	0.10			0.03	c0.24		c0.12	c0.05		0.03
v/s Ratio Perm				0.02							0.00	
v/c Ratio		0.62	0.28	0.05		0.52	0.69		1.04	0.19	0.01	0.52
Uniform Delay, d1		33.2	17.3	15.9		33.0	20.5		31.8	19.9	18.9	32.8
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		10.9	0.1	0.0		4.5	1.2		74.6	0.1	0.0	4.2
Delay (s)		44.1	17.4	15.9		37.5	21.7		106.4	20.0	18.9	37.1
Level of Service		D	B	B		D	C		F	B	B	D
Approach Delay (s)			19.9				22.4			64.1		
Approach LOS			B				C			E		

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	105	76
Future Volume (vph)	105	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1548
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	118	85
RTOR Reduction (vph)	0	66
Lane Group Flow (vph)	118	19
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.9	15.9
Effective Green, g (s)	15.9	15.9
Actuated g/C Ratio	0.22	0.22
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	772	341
v/s Ratio Prot	0.03	
v/s Ratio Perm		0.01
v/c Ratio	0.15	0.05
Uniform Delay, d1	22.7	22.2
Progression Factor	1.00	1.00
Incremental Delay, d2	0.1	0.1
Delay (s)	22.8	22.2
Level of Service	C	C
Approach Delay (s)	25.6	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	1.7

Movement	SEU	SET	SER	NWU	NWL	NWT	NEL	NER
Lane Configurations								
Traffic Vol, veh/h	49	709	10	59	48	938	0	69
Future Vol, veh/h	49	709	10	59	48	938	0	69
Conflicting Peds, #/hr	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	50	-	100	-	140	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	52	746	11	62	51	987	0	73

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	987	0	0	746	761	0	-	377
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	-	3.33
Pot Cap-1 Maneuver	336	-	-	479	840	-	0	618
Stage 1	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	0	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	336	-	-	545	545	-	-	616
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	1.1	1.4	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEU	SET	SER
Capacity (veh/h)	616	545	-	336	-	-
HCM Lane V/C Ratio	0.118	0.207	-	0.154	-	-
HCM Control Delay (s)	11.6	13.3	-	17.6	-	-
HCM Lane LOS	B	B	-	C	-	-
HCM 95th %tile Q(veh)	0.4	0.8	-	0.5	-	-

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	19	147	915	46	10	35	567	133	70	51	82	35
Future Volume (vph)	19	147	915	46	10	35	567	133	70	51	82	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98	1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3476			1752	3505	1531	1752	1845	1540	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3476			1752	3505	1531	1752	1845	1540	1752
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	20	152	943	47	10	36	585	137	72	53	85	36
RTOR Reduction (vph)	0	0	3	0	0	0	0	73	0	0	70	0
Lane Group Flow (vph)	0	172	987	0	0	46	585	64	72	53	15	36
Confl. Peds. (#/hr)				2				3			9	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		12.9	33.7			3.9	25.1	25.1	5.7	13.3	13.3	3.9
Effective Green, g (s)		12.9	33.7			3.9	25.1	25.1	5.7	13.3	13.3	3.9
Actuated g/C Ratio		0.17	0.46			0.05	0.34	0.34	0.08	0.18	0.18	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		306	1587			92	1192	520	135	332	277	92
v/s Ratio Prot		c0.10	c0.28			0.03	0.17		c0.04	0.03		0.02
v/s Ratio Perm								0.04			0.01	
v/c Ratio		0.56	0.62			0.50	0.49	0.12	0.53	0.16	0.06	0.39
Uniform Delay, d1		27.9	15.2			34.0	19.3	16.8	32.8	25.5	25.0	33.8
Progression Factor		1.00	1.00			0.99	1.03	1.09	1.00	1.00	1.00	1.00
Incremental Delay, d2		2.4	0.8			4.2	0.3	0.1	4.0	0.2	0.1	2.7
Delay (s)		30.2	16.0			37.7	20.2	18.4	36.8	25.8	25.1	36.5
Level of Service		C	B			D	C	B	D	C	C	D
Approach Delay (s)			18.1				20.9			29.3		
Approach LOS			B				C			C		

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	19.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	103	83
Future Volume (vph)	103	83
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1545
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1545
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	106	86
RTOR Reduction (vph)	0	73
Lane Group Flow (vph)	106	13
Confl. Peds. (#/hr)		4
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	11.5	11.5
Effective Green, g (s)	11.5	11.5
Actuated g/C Ratio	0.16	0.16
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	287	240
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.01
v/c Ratio	0.37	0.06
Uniform Delay, d1	27.9	26.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.8	0.1
Delay (s)	28.7	26.6
Level of Service	C	C
Approach Delay (s)	29.2	
Approach LOS	C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	87	327	867	337	98	243	751	178	32	277	586	82
Future Volume (vph)	87	327	867	337	98	243	751	178	32	277	586	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1546		3400	5036	1548		3400	3505	1546
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1546		3400	5036	1548		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	88	330	876	340	99	245	759	180	32	280	592	83
RTOR Reduction (vph)	0	0	0	135	0	0	0	85	0	0	0	61
Lane Group Flow (vph)	0	418	876	205	0	344	759	95	0	312	592	22
Confl. Peds. (#/hr)				3				1				3
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		14.0	25.0	25.0		12.2	23.2	23.2		10.1	24.3	24.3
Effective Green, g (s)		14.0	25.0	25.0		12.2	23.2	23.2		10.1	24.3	24.3
Actuated g/C Ratio		0.15	0.28	0.28		0.13	0.26	0.26		0.11	0.27	0.27
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		525	1391	427		458	1290	396		379	941	415
v/s Ratio Prot		c0.12	c0.17			0.10	0.15			c0.09	0.17	
v/s Ratio Perm				0.13				0.06				0.01
v/c Ratio		0.80	0.63	0.48		0.75	0.59	0.24		0.82	0.63	0.05
Uniform Delay, d1		36.9	28.7	27.3		37.7	29.5	26.7		39.3	29.1	24.6
Progression Factor		1.00	1.00	1.00		1.00	1.01	1.03		0.99	1.03	1.10
Incremental Delay, d2		8.2	0.9	0.9		6.8	0.7	0.3		13.5	1.3	0.1
Delay (s)		45.1	29.6	28.2		44.5	30.4	27.7		52.5	31.3	27.1
Level of Service		D	C	C		D	C	C		D	C	C
Approach Delay (s)			33.3				33.8				37.6	
Approach LOS			C				C				D	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	18.6
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	184	608	124
Future Volume (vph)	20	184	608	124
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99
Adj. Flow (vph)	20	186	614	125
RTOR Reduction (vph)	0	0	0	71
Lane Group Flow (vph)	0	206	614	54
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		10.4	24.6	24.6
Effective Green, g (s)		10.4	24.6	24.6
Actuated g/C Ratio		0.11	0.27	0.27
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		390	952	420
v/s Ratio Prot		0.06	c0.18	
v/s Ratio Perm				0.04
v/c Ratio		0.53	0.64	0.13
Uniform Delay, d1		37.7	29.1	24.9
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		1.3	1.5	0.1
Delay (s)		39.0	30.6	25.0
Level of Service		D	C	C
Approach Delay (s)			31.7	
Approach LOS			C	

Intersection Summary

Intersection							
Int Delay, s/veh	4.3						

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	19	133	1049	941	123	0	266
Future Vol, veh/h	19	133	1049	941	123	0	266
Conflicting Peds, #/hr	0	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	20	139	1093	980	128	0	277

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	716	1110	0	-	0	-	492
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	626	343	-	-	-	0	445
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	327	327	-	-	-	-	444
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	25.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	327	-	-	-	444
HCM Lane V/C Ratio	0.484	-	-	-	0.624
HCM Control Delay (s)	25.9	-	-	-	25.6
HCM Lane LOS	D	-	-	-	D
HCM 95th %tile Q(veh)	2.5	-	-	-	4.2

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	16	49	827	221	4	63	774	54	154	150	11	80
Future Volume (vph)	16	49	827	221	4	63	774	54	154	150	11	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1545		1752	4983		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1545		1752	4983		1752	3505	1568	1752
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	16	50	844	226	4	64	790	55	157	153	11	82
RTOR Reduction (vph)	0	0	0	125	0	0	8	0	0	0	8	0
Lane Group Flow (vph)	0	66	844	101	0	68	837	0	157	153	3	82
Confl. Peds. (#/hr)				4				1				
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		4.1	19.8	19.8		4.1	19.8		8.6	16.6	16.6	6.2
Effective Green, g (s)		4.1	19.8	19.8		4.1	19.8		8.6	16.6	16.6	6.2
Actuated g/C Ratio		0.06	0.30	0.30		0.06	0.30		0.13	0.25	0.25	0.09
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		109	1517	465		109	1501		229	885	396	165
v/s Ratio Prot		0.04	0.17			c0.04	c0.17		c0.09	0.04		0.05
v/s Ratio Perm				0.07							0.00	
v/c Ratio		0.61	0.56	0.22		0.62	0.56		0.69	0.17	0.01	0.50
Uniform Delay, d1		30.0	19.3	17.2		30.0	19.3		27.3	19.2	18.4	28.3
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		9.2	0.4	0.2		10.6	0.5		8.2	0.1	0.0	2.3
Delay (s)		39.2	19.7	17.4		40.7	19.7		35.5	19.3	18.4	30.6
Level of Service		D	B	B		D	B		D	B	B	C
Approach Delay (s)			20.4				21.3			27.2		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	19.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	159	79
Future Volume (vph)	159	79
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1544
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1544
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	162	81
RTOR Reduction (vph)	0	63
Lane Group Flow (vph)	162	18
Confl. Peds. (#/hr)		6
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	14.2	14.2
Effective Green, g (s)	14.2	14.2
Actuated g/C Ratio	0.22	0.22
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	757	333
v/s Ratio Prot	c0.05	
v/s Ratio Perm		0.01
v/c Ratio	0.21	0.05
Uniform Delay, d1	21.2	20.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.1	0.1
Delay (s)	21.3	20.5
Level of Service	C	C
Approach Delay (s)	23.4	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	1.3

Movement	SEU	SET	SER	NWU	NWL	NWT	NEL	NER
Lane Configurations								
Traffic Vol, veh/h	70	1070	11	3	36	812	0	71
Future Vol, veh/h	70	1070	11	3	36	812	0	71
Conflicting Peds, #/hr	0	0	9	0	9	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	50	-	100	-	140	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	74	1126	12	3	38	855	0	75

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	855	0	0	1126	1147	0	-	572
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	-	3.33
Pot Cap-1 Maneuver	408	-	-	273	599	-	0	461
Stage 1	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	0	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	408	-	-	530	530	-	-	457
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	SE			NW			NE
HCM Control Delay, s	1			0.6			14.4
HCM LOS							B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEU	SET	SER
Capacity (veh/h)	457	530	-	408	-	-
HCM Lane V/C Ratio	0.164	0.077	-	0.181	-	-
HCM Control Delay (s)	14.4	12.4	-	15.8	-	-
HCM Lane LOS	B	B	-	C	-	-
HCM 95th %tile Q(veh)	0.6	0.3	-	0.7	-	-

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	8	75	650	33	80	86	1037	194	142	107	98	32
Future Volume (vph)	8	75	650	33	80	86	1037	194	142	107	98	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.99	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3479			1752	3505	1568	1752	1845	1548	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3479			1752	3505	1568	1752	1845	1548	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	82	707	36	87	93	1127	211	154	116	107	35
RTOR Reduction (vph)	0	0	3	0	0	0	0	63	0	0	82	0
Lane Group Flow (vph)	0	91	740	0	0	180	1127	148	154	116	25	35
Confl. Peds. (#/hr)											1	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		5.8	31.7			8.3	34.6	34.6	8.7	18.7	18.7	2.7
Effective Green, g (s)		5.8	31.7			8.3	34.6	34.6	8.7	18.7	18.7	2.7
Actuated g/C Ratio		0.07	0.39			0.10	0.43	0.43	0.11	0.23	0.23	0.03
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		126	1371			180	1508	674	189	429	360	58
v/s Ratio Prot		0.05	0.21			c0.10	c0.32		c0.09	0.06		0.02
v/s Ratio Perm								0.09			0.02	
v/c Ratio		0.72	0.54			1.00	0.75	0.22	0.81	0.27	0.07	0.60
Uniform Delay, d1		36.5	18.7			36.1	19.2	14.4	35.1	25.3	24.1	38.3
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		18.4	0.4			67.1	2.1	0.2	22.9	0.3	0.1	16.4
Delay (s)		54.9	19.1			103.1	21.3	14.6	57.9	25.6	24.1	54.8
Level of Service		D	B			F	C	B	E	C	C	D
Approach Delay (s)			23.0				30.1			38.4		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	19.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	97	40
Future Volume (vph)	97	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	105	43
RTOR Reduction (vph)	0	36
Lane Group Flow (vph)	105	7
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	12.7	12.7
Effective Green, g (s)	12.7	12.7
Actuated g/C Ratio	0.16	0.16
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	291	244
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.00
v/c Ratio	0.36	0.03
Uniform Delay, d1	30.2	28.6
Progression Factor	1.00	1.00
Incremental Delay, d2	0.8	0.0
Delay (s)	31.0	28.7
Level of Service	C	C
Approach Delay (s)	35.0	
Approach LOS	C	

Intersection Summary

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	124	137	196	143	88	88	239	222	210	240	265	160
Average Queue (ft)	55	78	111	63	38	47	108	110	115	142	159	90
95th Queue (ft)	111	135	165	116	78	79	196	187	197	229	258	196
Link Distance (ft)			1854	1854	1854				1202	1202	1202	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)							0				29	0
Queuing Penalty (veh)							0				33	0

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	201	214	186	219	207	72	124	157	211	188
Average Queue (ft)	110	122	114	126	19	33	39	104	109	29
95th Queue (ft)	189	190	198	216	80	64	79	147	184	86
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	1	1	0	8				0	11	
Queuing Penalty (veh)	4	3	0	4				0	8	

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	98	22	66
Average Queue (ft)	47	1	30
95th Queue (ft)	97	10	52
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	T
Maximum Queue (ft)	72	109	136	133	67	70	207	194	218	200	291	54
Average Queue (ft)	36	49	64	60	25	30	122	115	113	124	81	3
95th Queue (ft)	71	100	120	115	52	64	196	185	195	194	206	24
Link Distance (ft)		1211	1211	1211			228	228	228		1568	1568
Upstream Blk Time (%)									0			
Queuing Penalty (veh)									0			
Storage Bay Dist (ft)	410				100	110				120		
Storage Blk Time (%)				1			11			20	0	
Queuing Penalty (veh)				0			5			17	0	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	46	80	111	98	78
Average Queue (ft)	4	31	53	21	38
95th Queue (ft)	19	72	92	66	67
Link Distance (ft)			188	188	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	130	100			80
Storage Blk Time (%)		0	1	0	0
Queuing Penalty (veh)		0	1	0	0

Intersection: 5: Driveway & Fowler Avenue

Movement	SE	NW	NE
Directions Served	U	UL	R
Maximum Queue (ft)	53	75	65
Average Queue (ft)	20	31	25
95th Queue (ft)	48	62	46
Link Distance (ft)			580
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50	140	
Storage Blk Time (%)	1		
Queuing Penalty (veh)	4		

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	269	366	418	79	136	130	57	128	97	61	111
Average Queue (ft)	109	155	150	23	70	77	11	37	38	13	52
95th Queue (ft)	212	299	314	60	129	129	37	82	82	38	103
Link Distance (ft)		3220	3220		1261	1261			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	2	8				3			1		
Queuing Penalty (veh)	10	13				4			1		

Network Summary

Network wide Queuing Penalty: 109

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	285	330	1888	1845	1487	234	299	348	495	312	361	160
Average Queue (ft)	259	294	932	866	313	105	190	189	175	159	162	106
95th Queue (ft)	336	397	2007	1941	903	177	302	331	364	240	259	190
Link Distance (ft)			1854	1854	1854				1202	1202	1202	
Upstream Blk Time (%)			4	0								
Queuing Penalty (veh)			0	0								
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)	41	62	0			0	5	8	1		29	6
Queuing Penalty (veh)	120	179	0			0	13	19	5		52	15

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	247	304	318	324	210	125	136	265	251	200
Average Queue (ft)	173	185	154	152	31	70	90	150	157	55
95th Queue (ft)	284	304	282	270	130	120	132	230	244	139
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	11	25	3	9			0	8	22	
Queuing Penalty (veh)	32	73	9	8			0	17	27	

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	118	22	126
Average Queue (ft)	52	4	63
95th Queue (ft)	93	19	106
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)	0		
Queuing Penalty (veh)	2		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	R
Maximum Queue (ft)	113	163	186	222	200	104	172	188	196	199	241	9
Average Queue (ft)	48	76	101	116	61	40	99	90	92	107	72	2
95th Queue (ft)	95	152	183	203	146	76	161	154	163	180	171	7
Link Distance (ft)		1211	1211	1211			228	228	228		1568	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	410				100	110				120		130
Storage Blk Time (%)				11	0	0	6			13	1	
Queuing Penalty (veh)				25	1	0	4			10	2	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	159	164	91	78
Average Queue (ft)	69	61	30	39
95th Queue (ft)	125	109	69	65
Link Distance (ft)		188	188	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			80
Storage Blk Time (%)	6	2	1	0
Queuing Penalty (veh)	5	1	0	0

Intersection: 5: Driveway & Fowler Avenue

Movement	SE	NW	NE
Directions Served	U	UL	R
Maximum Queue (ft)	75	52	44
Average Queue (ft)	24	13	22
95th Queue (ft)	62	41	42
Link Distance (ft)			580
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50	140	
Storage Blk Time (%)	2		
Queuing Penalty (veh)	9		

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	146	211	200	378	391	342	230	309	311	82	138
Average Queue (ft)	55	110	102	144	157	152	23	146	74	23	57
95th Queue (ft)	110	184	182	258	269	259	93	274	203	56	106
Link Distance (ft)		3220	3220		1261	1261			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)		2		0	1	16		7	1		
Queuing Penalty (veh)		1		0	2	30		15	3		

Network Summary

Network wide Queuing Penalty: 679

Appendix F: Existing plus Project Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	39	149	491	221	48	192	857	115	7	358	635	55
Future Volume (vph)	39	149	491	221	48	192	857	115	7	358	635	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1546		3400	5036	1568		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1546		3400	5036	1568		3400	3505	1545
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	164	540	243	53	211	942	126	8	393	698	60
RTOR Reduction (vph)	0	0	0	193	0	0	0	91	0	0	0	42
Lane Group Flow (vph)	0	207	540	50	0	264	942	35	0	401	698	18
Confl. Peds. (#/hr)				3								4
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		9.6	18.4	18.4		16.1	24.9	24.9		13.6	27.5	27.5
Effective Green, g (s)		9.6	18.4	18.4		16.1	24.9	24.9		13.6	27.5	27.5
Actuated g/C Ratio		0.11	0.20	0.20		0.18	0.28	0.28		0.15	0.31	0.31
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		363	1030	316		608	1394	434		514	1072	472
v/s Ratio Prot		c0.06	0.11			0.08	c0.19			c0.12	c0.20	
v/s Ratio Perm				0.03				0.02				0.01
v/c Ratio		0.57	0.52	0.16		0.43	0.68	0.08		0.78	0.65	0.04
Uniform Delay, d1		38.2	31.9	29.4		32.8	28.9	24.0		36.7	27.0	21.9
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		0.99	0.99	0.90
Incremental Delay, d2		2.2	0.5	0.2		0.5	1.3	0.1		7.5	1.4	0.0
Delay (s)		40.3	32.3	29.6		33.3	30.2	24.1		43.8	28.1	19.7
Level of Service		D	C	C		C	C	C		D	C	B
Approach Delay (s)			33.3				30.3				33.1	
Approach LOS			C				C				C	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	18.6
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	16	128	512	70
Future Volume (vph)	16	128	512	70
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.91	0.91	0.91	0.91
Adj. Flow (vph)	18	141	563	77
RTOR Reduction (vph)	0	0	0	57
Lane Group Flow (vph)	0	159	563	20
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		9.3	23.2	23.2
Effective Green, g (s)		9.3	23.2	23.2
Actuated g/C Ratio		0.10	0.26	0.26
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		351	904	398
v/s Ratio Prot		0.05	c0.16	
v/s Ratio Perm				0.01
v/c Ratio		0.45	0.62	0.05
Uniform Delay, d1		37.9	29.5	25.1
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		0.9	1.3	0.1
Delay (s)		38.8	30.8	25.1
Level of Service		D	C	C
Approach Delay (s)			31.9	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	638	91	0	1245	0	29
Future Vol, veh/h	638	91	0	1245	0	29
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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	701	100	0	1368	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	401
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.93
Pot Cap-1 Maneuver	-	-	0	-	0	509
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	509
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	509	-	-	-
HCM Lane V/C Ratio	0.063	-	-	-
HCM Control Delay (s)	12.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	127	530	1151	109	0	84
Future Vol, veh/h	10	127	530	1151	109	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	140	582	1265	120	0	92

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	923	1385	0	-	0	-	633
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	481	252	-	-	-	0	360
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	258	258	-	-	-	-	360
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	7.6	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	258	-	-	-	360
HCM Lane V/C Ratio	0.584	-	-	-	0.256
HCM Control Delay (s)	36.8	-	-	-	18.4
HCM Lane LOS	E	-	-	-	C
HCM 95th %tile Q(veh)	3.4	-	-	-	1

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	44	444	75	6	39	952	107	193	166	17	49
Future Volume (vph)	14	44	444	75	6	39	952	107	193	166	17	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1548		1752	4960		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1548		1752	4960		1752	3505	1568	1752
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	16	49	499	84	7	44	1070	120	217	187	19	55
RTOR Reduction (vph)	0	0	0	53	0	0	13	0	0	0	14	0
Lane Group Flow (vph)	0	65	499	31	0	51	1177	0	217	187	5	55
Confl. Peds. (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		5.9	27.1	27.1		4.2	25.4		8.4	19.6	19.6	4.5
Effective Green, g (s)		5.9	27.1	27.1		4.2	25.4		8.4	19.6	19.6	4.5
Actuated g/C Ratio		0.08	0.36	0.36		0.06	0.34		0.11	0.26	0.26	0.06
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		138	1834	563		98	1693		197	923	413	105
v/s Ratio Prot		c0.04	0.10			0.03	c0.24		c0.12	c0.05		0.03
v/s Ratio Perm				0.02							0.00	
v/c Ratio		0.47	0.27	0.05		0.52	0.70		1.10	0.20	0.01	0.52
Uniform Delay, d1		32.8	16.7	15.3		34.1	21.2		33.0	21.3	20.2	33.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		2.5	0.1	0.0		4.9	1.3		93.9	0.1	0.0	4.7
Delay (s)		35.3	16.8	15.4		39.0	22.4		126.9	21.4	20.3	38.6
Level of Service		D	B	B		D	C		F	C	C	D
Approach Delay (s)			18.4				23.1			75.5		
Approach LOS			B				C			E		

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	19.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	105	78
Future Volume (vph)	105	78
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1548
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	118	88
RTOR Reduction (vph)	0	69
Lane Group Flow (vph)	118	19
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.7	15.7
Effective Green, g (s)	15.7	15.7
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	739	326
v/s Ratio Prot	0.03	
v/s Ratio Perm		0.01
v/c Ratio	0.16	0.06
Uniform Delay, d1	24.0	23.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.1	0.1
Delay (s)	24.1	23.5
Level of Service	C	C
Approach Delay (s)	26.9	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	2.7

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations														
Traffic Vol, veh/h	49	89	720	10	59	48	938	116	0	0	69	0	0	70
Future Vol, veh/h	49	89	720	10	59	48	938	116	0	0	69	0	0	70
Conflicting Peds, #/hr	0	0	0	4	0	4	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	100	-	140	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	52	94	758	11	62	51	987	122	0	0	73	0	0	74

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	1109	1109	0	0	758	773	0	0	-	-	383	-	-	555
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	280	620	-	-	471	832	-	-	0	0	612	0	0	473
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	396	396	-	-	538	538	-	-	-	-	610	-	-	473
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	3.1	1.2	11.7	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	610	538	-	-	396	-	-	473
HCM Lane V/C Ratio	0.119	0.209	-	-	0.367	-	-	0.156
HCM Control Delay (s)	11.7	13.5	-	-	19.3	-	-	14
HCM Lane LOS	B	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.4	0.8	-	-	1.7	-	-	0.5

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	19	147	1004	46	10	35	574	137	90	51	82	35
Future Volume (vph)	19	147	1004	46	10	35	574	137	90	51	82	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98	1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3479			1752	3505	1531	1752	1845	1540	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3479			1752	3505	1531	1752	1845	1540	1752
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	20	152	1035	47	10	36	592	141	93	53	85	36
RTOR Reduction (vph)	0	0	3	0	0	0	0	94	0	0	67	0
Lane Group Flow (vph)	0	172	1079	0	0	46	592	47	93	53	18	36
Confl. Peds. (#/hr)				2				3			9	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		11.7	33.0			4.0	25.7	25.7	7.0	16.5	16.5	4.0
Effective Green, g (s)		11.7	33.0			4.0	25.7	25.7	7.0	16.5	16.5	4.0
Actuated g/C Ratio		0.15	0.43			0.05	0.34	0.34	0.09	0.22	0.22	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		267	1500			91	1177	514	160	397	332	91
v/s Ratio Prot		0.10	c0.31			0.03	c0.17		c0.05	0.03		0.02
v/s Ratio Perm								0.03			0.01	
v/c Ratio		0.64	0.72			0.51	0.50	0.09	0.58	0.13	0.06	0.40
Uniform Delay, d1		30.4	17.9			35.3	20.3	17.4	33.3	24.2	23.8	35.1
Progression Factor		1.00	1.00			1.05	1.05	1.32	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.2	1.7			4.4	0.3	0.1	5.3	0.2	0.1	2.8
Delay (s)		35.7	19.6			41.4	21.7	23.1	38.6	24.4	23.9	37.9
Level of Service		D	B			D	C	C	D	C	C	D
Approach Delay (s)			21.8				23.1			29.9		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	103	90
Future Volume (vph)	103	90
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1545
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1545
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	106	93
RTOR Reduction (vph)	0	77
Lane Group Flow (vph)	106	16
Confl. Peds. (#/hr)		4
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	13.5	13.5
Effective Green, g (s)	13.5	13.5
Actuated g/C Ratio	0.18	0.18
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	325	272
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.01
v/c Ratio	0.33	0.06
Uniform Delay, d1	27.5	26.2
Progression Factor	1.00	1.00
Incremental Delay, d2	0.6	0.1
Delay (s)	28.1	26.3
Level of Service	C	C
Approach Delay (s)	28.9	
Approach LOS	C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	87	327	870	344	98	246	751	178	32	332	660	82
Future Volume (vph)	87	327	870	344	98	246	751	178	32	332	660	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1545		3400	5036	1548		3400	3505	1546
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1545		3400	5036	1548		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	88	330	879	347	99	248	759	180	32	335	667	83
RTOR Reduction (vph)	0	0	0	152	0	0	0	81	0	0	0	59
Lane Group Flow (vph)	0	418	879	195	0	347	759	99	0	367	667	24
Confl. Peds. (#/hr)				3				1				3
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		15.2	26.1	26.1		13.8	24.7	24.7		13.1	28.0	28.0
Effective Green, g (s)		15.2	26.1	26.1		13.8	24.7	24.7		13.1	28.0	28.0
Actuated g/C Ratio		0.16	0.27	0.27		0.14	0.25	0.25		0.13	0.29	0.29
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		529	1346	413		480	1274	391		456	1005	443
v/s Ratio Prot		c0.12	c0.17			0.10	0.15			c0.11	c0.19	
v/s Ratio Perm				0.13				0.06				0.02
v/c Ratio		0.79	0.65	0.47		0.72	0.60	0.25		0.80	0.66	0.05
Uniform Delay, d1		39.7	31.7	30.0		40.1	32.1	29.1		41.0	30.7	25.2
Progression Factor		1.00	1.00	1.00		1.00	1.01	1.02		1.00	1.03	1.09
Incremental Delay, d2		7.9	1.1	0.9		5.3	0.8	0.3		9.9	1.7	0.1
Delay (s)		47.5	32.9	30.8		45.4	33.0	30.0		50.8	33.2	27.5
Level of Service		D	C	C		D	C	C		D	C	C
Approach Delay (s)			36.2				35.9				38.5	
Approach LOS			D				D				D	

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	190	615	124
Future Volume (vph)	20	190	615	124
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99
Adj. Flow (vph)	20	192	621	125
RTOR Reduction (vph)	0	0	0	68
Lane Group Flow (vph)	0	212	621	57
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		11.1	26.0	26.0
Effective Green, g (s)		11.1	26.0	26.0
Actuated g/C Ratio		0.11	0.27	0.27
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		386	933	411
v/s Ratio Prot		0.06	0.18	
v/s Ratio Perm				0.04
v/c Ratio		0.55	0.67	0.14
Uniform Delay, d1		40.9	31.9	27.3
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		1.6	1.8	0.2
Delay (s)		42.5	33.7	27.4
Level of Service		D	C	C
Approach Delay (s)			34.8	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1201	9	0	1229	0	78
Future Vol, veh/h	1201	9	0	1229	0	78
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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1251	9	0	1280	0	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	630
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.93
Pot Cap-1 Maneuver	-	-	0	-	0	362
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	362
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB		WB		NB	
HCM Control Delay, s	0		0		17.8	
HCM LOS					C	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	362	-	-	-
HCM Lane V/C Ratio	0.224	-	-	-
HCM Control Delay (s)	17.8	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	19	133	1127	944	123	0	266
Future Vol, veh/h	19	133	1127	944	123	0	266
Conflicting Peds, #/hr	0	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	20	139	1174	983	128	0	277

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	718	1113	0	-	0	-	494
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	625	342	-	-	-	0	444
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	326	326	-	-	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	25.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	326	-	-	-	443
HCM Lane V/C Ratio	0.486	-	-	-	0.625
HCM Control Delay (s)	26	-	-	-	25.8
HCM Lane LOS	D	-	-	-	D
HCM 95th %tile Q(veh)	2.5	-	-	-	4.2

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	16	60	867	248	4	63	776	54	155	150	11	80
Future Volume (vph)	16	60	867	248	4	63	776	54	155	150	11	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1545		1752	4983		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1545		1752	4983		1752	3505	1568	1752
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	16	61	885	253	4	64	792	55	158	153	11	82
RTOR Reduction (vph)	0	0	0	128	0	0	8	0	0	0	8	0
Lane Group Flow (vph)	0	77	885	125	0	68	839	0	158	153	3	82
Confl. Peds. (#/hr)				4				1				
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		6.0	22.7	22.7		4.2	20.9		8.5	16.7	16.7	6.0
Effective Green, g (s)		6.0	22.7	22.7		4.2	20.9		8.5	16.7	16.7	6.0
Actuated g/C Ratio		0.09	0.33	0.33		0.06	0.30		0.12	0.24	0.24	0.09
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		153	1666	511		107	1518		217	853	381	153
v/s Ratio Prot		c0.04	c0.18			0.04	0.17		c0.09	0.04		0.05
v/s Ratio Perm				0.08							0.00	
v/c Ratio		0.50	0.53	0.25		0.64	0.55		0.73	0.18	0.01	0.54
Uniform Delay, d1		29.9	18.6	16.7		31.5	19.9		28.9	20.5	19.7	30.0
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		2.6	0.3	0.3		11.7	0.4		11.5	0.1	0.0	3.6
Delay (s)		32.5	19.0	17.0		43.2	20.4		40.5	20.6	19.7	33.5
Level of Service		C	B	B		D	C		D	C	B	C
Approach Delay (s)			19.4				22.1			30.3		
Approach LOS			B				C			C		

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	159	79
Future Volume (vph)	159	79
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1544
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1544
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	162	81
RTOR Reduction (vph)	0	64
Lane Group Flow (vph)	162	17
Confl. Peds. (#/hr)		6
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	14.2	14.2
Effective Green, g (s)	14.2	14.2
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	725	319
v/s Ratio Prot	c0.05	
v/s Ratio Perm		0.01
v/c Ratio	0.22	0.05
Uniform Delay, d1	22.6	21.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	0.1
Delay (s)	22.8	21.9
Level of Service	C	C
Approach Delay (s)	25.3	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	2.5

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations														
Traffic Vol, veh/h	70	17	1103	11	3	36	812	11	0	0	71	0	0	162
Future Vol, veh/h	70	17	1103	11	3	36	812	11	0	0	71	0	0	162
Conflicting Peds, #/hr	0	0	0	9	0	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	100	-	140	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	74	18	1161	12	3	38	855	12	0	0	75	0	0	171

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	866	867	0	0	1161	1182	0	0	-	-	590	-	-	434
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	402	766	-	-	259	581	-	-	0	0	448	0	0	567
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	327	327	-	-	511	511	-	-	-	-	444	-	-	567
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.5	0.6	14.7	14.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	444	511	-	-	327	-	-	567
HCM Lane V/C Ratio	0.168	0.08	-	-	0.28	-	-	0.301
HCM Control Delay (s)	14.7	12.7	-	-	20.2	-	-	14.1
HCM Lane LOS	B	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.6	0.3	-	-	1.1	-	-	1.3

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	8	75	658	33	80	86	1061	203	145	107	98	32
Future Volume (vph)	8	75	658	33	80	86	1061	203	145	107	98	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.99	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3480			1752	3505	1568	1752	1845	1548	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3480			1752	3505	1568	1752	1845	1548	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	82	715	36	87	93	1153	221	158	116	107	35
RTOR Reduction (vph)	0	0	3	0	0	0	0	63	0	0	82	0
Lane Group Flow (vph)	0	91	748	0	0	180	1153	158	158	116	25	35
Confl. Peds. (#/hr)											1	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		5.9	32.9			8.2	35.6	35.6	8.5	18.7	18.7	2.7
Effective Green, g (s)		5.9	32.9			8.2	35.6	35.6	8.5	18.7	18.7	2.7
Actuated g/C Ratio		0.07	0.40			0.10	0.44	0.44	0.10	0.23	0.23	0.03
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		126	1404			176	1531	684	182	423	355	58
v/s Ratio Prot		0.05	0.21			c0.10	c0.33		c0.09	0.06		0.02
v/s Ratio Perm								0.10			0.02	
v/c Ratio		0.72	0.53			1.02	0.75	0.23	0.87	0.27	0.07	0.60
Uniform Delay, d1		37.0	18.5			36.6	19.3	14.4	35.9	25.8	24.6	38.9
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		18.4	0.4			73.9	2.1	0.2	32.6	0.4	0.1	16.4
Delay (s)		55.4	18.9			110.6	21.4	14.6	68.6	26.2	24.7	55.3
Level of Service		E	B			F	C	B	E	C	C	E
Approach Delay (s)			22.8				30.8			43.3		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	97	40
Future Volume (vph)	97	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	105	43
RTOR Reduction (vph)	0	36
Lane Group Flow (vph)	105	7
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	12.9	12.9
Effective Green, g (s)	12.9	12.9
Actuated g/C Ratio	0.16	0.16
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	292	245
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.00
v/c Ratio	0.36	0.03
Uniform Delay, d1	30.6	29.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.8	0.0
Delay (s)	31.4	29.0
Level of Service	C	C
Approach Delay (s)	35.4	
Approach LOS	D	

Intersection Summary

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	144	201	222	203	166	138	198	173	241	288	305	160
Average Queue (ft)	69	83	132	88	79	75	84	88	124	145	157	64
95th Queue (ft)	116	138	193	160	134	121	158	152	211	230	244	158
Link Distance (ft)			1854	1854	1854				865	865	865	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)			0						0		33	0
Queuing Penalty (veh)			0						0		38	1

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	214	283	219	240	210	88	132	255	217	200
Average Queue (ft)	111	135	125	143	20	49	64	137	135	35
95th Queue (ft)	172	207	210	238	81	84	105	213	201	111
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	0	2	1	9			0	7	19	
Queuing Penalty (veh)	0	7	5	5			0	9	13	

Intersection: 2: Project Driveway A & Herndon Avenue

Movement	NB
Directions Served	R
Maximum Queue (ft)	31
Average Queue (ft)	19
95th Queue (ft)	43
Link Distance (ft)	515
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	135	52	66
Average Queue (ft)	62	4	31
95th Queue (ft)	123	22	58
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)	1		
Queuing Penalty (veh)	2		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	T
Maximum Queue (ft)	91	114	134	135	50	210	258	224	248	200	532	450
Average Queue (ft)	46	50	53	59	23	44	118	115	126	181	322	73
95th Queue (ft)	84	108	115	117	51	107	201	187	217	242	536	317
Link Distance (ft)		1211	1211	1211			228	228	228		1568	1568
Upstream Blk Time (%)						0	0	0	1			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110				120		
Storage Blk Time (%)				3		0	12			77	6	
Queuing Penalty (veh)				2		0	6			64	11	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	14	96	95	80	73
Average Queue (ft)	3	39	44	15	33
95th Queue (ft)	11	78	83	55	55
Link Distance (ft)			188	188	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	130	100			80
Storage Blk Time (%)		1	1	0	0
Queuing Penalty (veh)		0	1	0	0

Intersection: 5: Driveway/Project Driveway B & Fowler Avenue

Movement	SE	SE	NW	NW	NW	NE	SW
Directions Served	UL	T	UL	T	TR	R	R
Maximum Queue (ft)	104	84	66	64	21	62	149
Average Queue (ft)	41	3	31	2	1	26	30
95th Queue (ft)	89	28	65	21	10	48	71
Link Distance (ft)		704		1241	1241	580	388
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		140				
Storage Blk Time (%)	11						
Queuing Penalty (veh)	39						

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	270	379	332	56	203	235	230	153	134	76	111
Average Queue (ft)	128	191	175	17	87	94	26	61	38	24	48
95th Queue (ft)	233	324	321	44	169	190	119	118	93	52	87
Link Distance (ft)		3220	3220		1241	1241			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	8	14				8	0		2		
Queuing Penalty (veh)	38	22				11	0		3		

Network Summary

Network wide Queuing Penalty: 279

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	285	330	1101	1087	666	264	299	335	180	217	242	160
Average Queue (ft)	234	259	560	503	178	125	205	194	111	144	151	115
95th Queue (ft)	347	404	1163	1082	385	213	322	325	171	197	217	192
Link Distance (ft)			1854	1854	1854				865	865	865	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)	41	47	0		0	1	10	7			35	10
Queuing Penalty (veh)	119	137	1		0	2	25	17			63	25

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	247	305	621	562	210	177	257	268	276	200
Average Queue (ft)	219	252	309	196	56	96	118	160	163	65
95th Queue (ft)	294	367	611	386	184	161	200	236	249	164
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	34	55	3	16		2	4	10	28	2
Queuing Penalty (veh)	112	183	11	13		5	13	22	34	5

Intersection: 2: Project Driveway A & Herndon Avenue

Movement	NB
Directions Served	R
Maximum Queue (ft)	94
Average Queue (ft)	40
95th Queue (ft)	72
Link Distance (ft)	515
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	SB
Directions Served	UL	R
Maximum Queue (ft)	143	215
Average Queue (ft)	65	83
95th Queue (ft)	121	152
Link Distance (ft)		902
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	120	
Storage Blk Time (%)	2	
Queuing Penalty (veh)	6	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	T
Maximum Queue (ft)	156	178	195	219	195	89	203	157	170	198	270	40
Average Queue (ft)	56	88	104	116	62	44	105	98	88	135	90	1
95th Queue (ft)	122	176	187	198	123	73	166	151	150	207	213	13
Link Distance (ft)		1211	1211	1211			228	228	228		1568	1568
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	410				100	110				120		
Storage Blk Time (%)				11	1		8			33	3	
Queuing Penalty (veh)				26	2		5			25	5	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	14	114	116	107	75
Average Queue (ft)	3	50	58	33	35
95th Queue (ft)	11	95	99	85	63
Link Distance (ft)			188	188	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	130	100			80
Storage Blk Time (%)		1	1	2	0
Queuing Penalty (veh)		1	1	1	0

Intersection: 5: Driveway/Project Driveway B & Fowler Avenue

Movement	SE	NW	NE	SW
Directions Served	UL	UL	R	R
Maximum Queue (ft)	56	22	87	107
Average Queue (ft)	22	11	25	51
95th Queue (ft)	45	27	51	90
Link Distance (ft)			580	388
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	140		
Storage Blk Time (%)	2			
Queuing Penalty (veh)	13			

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	79	202	237	361	354	401	230	178	115	77	155
Average Queue (ft)	41	121	113	175	200	185	55	88	48	26	49
95th Queue (ft)	84	202	202	328	357	337	190	152	98	61	108
Link Distance (ft)		3220	3220		1241	1241			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)		2		17	3	20	1		2		
Queuing Penalty (veh)		2		90	5	41	5		4		

Network Summary

Network wide Queuing Penalty: 1017

Appendix G: Near Term plus Project Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	39	151	578	230	48	203	913	121	7	363	644	79
Future Volume (vph)	39	151	578	230	48	203	913	121	7	363	644	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1545		3400	5036	1568		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1545		3400	5036	1568		3400	3505	1545
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	166	635	253	53	223	1003	133	8	399	708	87
RTOR Reduction (vph)	0	0	0	197	0	0	0	95	0	0	0	60
Lane Group Flow (vph)	0	209	635	56	0	276	1003	38	0	407	708	27
Confl. Peds. (#/hr)				3								4
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		9.7	20.6	20.6		15.4	26.3	26.3		14.0	28.2	28.2
Effective Green, g (s)		9.7	20.6	20.6		15.4	26.3	26.3		14.0	28.2	28.2
Actuated g/C Ratio		0.10	0.22	0.22		0.17	0.28	0.28		0.15	0.30	0.30
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		356	1121	344		566	1431	445		514	1068	471
v/s Ratio Prot		0.06	0.13			c0.08	c0.20			c0.12	c0.20	
v/s Ratio Perm				0.04				0.02				0.02
v/c Ratio		0.59	0.57	0.16		0.49	0.70	0.08		0.79	0.66	0.06
Uniform Delay, d1		39.5	32.0	29.0		35.0	29.6	24.3		37.8	28.0	22.7
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		0.99	0.99	0.94
Incremental Delay, d2		2.5	0.7	0.2		0.7	1.6	0.1		8.2	1.6	0.1
Delay (s)		42.0	32.6	29.2		35.6	31.2	24.4		45.6	29.2	21.5
Level of Service		D	C	C		D	C	C		D	C	C
Approach Delay (s)			33.6				31.4				34.2	
Approach LOS			C				C				C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	18.6
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	16	134	520	73
Future Volume (vph)	16	134	520	73
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.91	0.91	0.91	0.91
Adj. Flow (vph)	18	147	571	80
RTOR Reduction (vph)	0	0	0	59
Lane Group Flow (vph)	0	165	571	21
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		9.7	23.9	23.9
Effective Green, g (s)		9.7	23.9	23.9
Actuated g/C Ratio		0.10	0.26	0.26
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		356	905	399
v/s Ratio Prot		0.05	c0.16	
v/s Ratio Perm				0.01
v/c Ratio		0.46	0.63	0.05
Uniform Delay, d1		39.0	30.4	25.8
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		1.0	1.4	0.1
Delay (s)		39.9	31.8	25.8
Level of Service		D	C	C
Approach Delay (s)			32.9	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	757	91	0	1318	0	29
Future Vol, veh/h	757	91	0	1318	0	29
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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	832	100	0	1448	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	466
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.93
Pot Cap-1 Maneuver	-	-	0	-	0	463
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	463
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	463	-	-	-
HCM Lane V/C Ratio	0.069	-	-	-
HCM Control Delay (s)	13.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	127	649	1224	109	0	84
Future Vol, veh/h	10	127	649	1224	109	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	140	713	1345	120	0	92

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	982	1465	0	-	0	-	673
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	446	230	-	-	-	0	339
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	235	235	-	-	-	-	339
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	7.7	0	19.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	235	-	-	-	339
HCM Lane V/C Ratio	0.641	-	-	-	0.272
HCM Control Delay (s)	44	-	-	-	19.5
HCM Lane LOS	E	-	-	-	C
HCM 95th %tile Q(veh)	3.9	-	-	-	1.1

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	51	561	75	6	76	1021	116	193	176	22	52
Future Volume (vph)	14	51	561	75	6	76	1021	116	193	176	22	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1548		1752	4959		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1548		1752	4959		1752	3505	1568	1752
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	16	57	630	84	7	85	1147	130	217	198	25	58
RTOR Reduction (vph)	0	0	0	55	0	0	12	0	0	0	18	0
Lane Group Flow (vph)	0	73	630	29	0	92	1265	0	217	198	7	58
Confl. Peds. (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		5.9	26.3	26.3		5.9	26.3		8.3	19.8	19.8	4.5
Effective Green, g (s)		5.9	26.3	26.3		5.9	26.3		8.3	19.8	19.8	4.5
Actuated g/C Ratio		0.08	0.35	0.35		0.08	0.35		0.11	0.26	0.26	0.06
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	1754	539		136	1727		192	919	411	104
v/s Ratio Prot		0.04	0.13			c0.05	c0.26		c0.12	c0.06		0.03
v/s Ratio Perm				0.02							0.00	
v/c Ratio		0.54	0.36	0.05		0.68	0.73		1.13	0.22	0.02	0.56
Uniform Delay, d1		33.5	18.3	16.3		33.9	21.5		33.6	21.8	20.6	34.5
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		4.0	0.1	0.0		12.5	1.6		104.3	0.1	0.0	6.3
Delay (s)		37.5	18.4	16.4		46.4	23.2		137.9	21.9	20.6	40.9
Level of Service		D	B	B		D	C		F	C	C	D
Approach Delay (s)			20.0				24.7			79.0		
Approach LOS			B				C			E		

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	123	83
Future Volume (vph)	123	83
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1548
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	138	93
RTOR Reduction (vph)	0	73
Lane Group Flow (vph)	138	20
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	16.0	16.0
Effective Green, g (s)	16.0	16.0
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	742	328
v/s Ratio Prot	0.04	
v/s Ratio Perm		0.01
v/c Ratio	0.19	0.06
Uniform Delay, d1	24.4	23.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.1	0.1
Delay (s)	24.5	23.8
Level of Service	C	C
Approach Delay (s)	27.6	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	2.7

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations														
Traffic Vol, veh/h	49	89	741	10	59	48	981	116	0	0	69	0	0	70
Future Vol, veh/h	49	89	741	10	59	48	981	116	0	0	69	0	0	70
Conflicting Peds, #/hr	0	0	0	4	0	4	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	100	-	140	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	52	94	780	11	62	51	1033	122	0	0	73	0	0	74

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	1155	1155	0	0	780	795	0	0	-	-	394	-	-	578
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	262	595	-	-	456	816	-	-	0	0	602	0	0	457
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	373	373	-	-	522	522	-	-	-	-	600	-	-	457
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	3.2	1.2	11.8	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	600	522	-	-	373	-	-	457
HCM Lane V/C Ratio	0.121	0.216	-	-	0.389	-	-	0.161
HCM Control Delay (s)	11.8	13.8	-	-	20.7	-	-	14.4
HCM Lane LOS	B	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.4	0.8	-	-	1.8	-	-	0.6

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	19	147	1044	47	10	35	594	138	93	52	82	36
Future Volume (vph)	19	147	1044	47	10	35	594	138	93	52	82	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98	1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3479			1752	3505	1530	1752	1845	1539	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3479			1752	3505	1530	1752	1845	1539	1752
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	20	152	1076	48	10	36	612	142	96	54	85	37
RTOR Reduction (vph)	0	0	2	0	0	0	0	95	0	0	64	0
Lane Group Flow (vph)	0	172	1122	0	0	46	612	47	96	54	21	37
Confl. Peds. (#/hr)				2				3			9	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		11.2	33.5			4.2	26.9	26.9	10.2	19.7	19.7	4.2
Effective Green, g (s)		11.2	33.5			4.2	26.9	26.9	10.2	19.7	19.7	4.2
Actuated g/C Ratio		0.14	0.42			0.05	0.33	0.33	0.13	0.24	0.24	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		243	1445			91	1169	510	221	450	376	91
v/s Ratio Prot		0.10	c0.32			0.03	c0.17		c0.05	0.03		0.02
v/s Ratio Perm								0.03			0.01	
v/c Ratio		0.71	0.78			0.51	0.52	0.09	0.43	0.12	0.06	0.41
Uniform Delay, d1		33.1	20.3			37.2	21.7	18.5	32.5	23.7	23.3	37.0
Progression Factor		1.00	1.00			1.05	1.05	1.30	1.00	1.00	1.00	1.00
Incremental Delay, d2		9.1	2.7			4.4	0.4	0.1	1.4	0.1	0.1	2.9
Delay (s)		42.2	23.0			43.4	23.3	24.1	33.9	23.8	23.4	39.9
Level of Service		D	C			D	C	C	C	C	C	D
Approach Delay (s)			25.6				24.6			27.8		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	110	90
Future Volume (vph)	110	90
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1545
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1545
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	113	93
RTOR Reduction (vph)	0	77
Lane Group Flow (vph)	113	16
Confl. Peds. (#/hr)		4
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	13.7	13.7
Effective Green, g (s)	13.7	13.7
Actuated g/C Ratio	0.17	0.17
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	313	262
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.01
v/c Ratio	0.36	0.06
Uniform Delay, d1	29.6	28.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.1
Delay (s)	30.3	28.1
Level of Service	C	C
Approach Delay (s)	30.9	
Approach LOS	C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	87	333	942	351	98	283	911	196	32	341	674	95
Future Volume (vph)	87	333	942	351	98	283	911	196	32	341	674	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1545		3400	5036	1548		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1545		3400	5036	1548		3400	3505	1545
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	88	336	952	355	99	286	920	198	32	344	681	96
RTOR Reduction (vph)	0	0	0	148	0	0	0	69	0	0	0	64
Lane Group Flow (vph)	0	424	952	207	0	385	920	129	0	376	681	32
Confl. Peds. (#/hr)				3				1				3
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		16.9	29.2	29.2		15.7	28.0	28.0		15.1	30.8	30.8
Effective Green, g (s)		16.9	29.2	29.2		15.7	28.0	28.0		15.1	30.8	30.8
Actuated g/C Ratio		0.16	0.28	0.28		0.15	0.26	0.26		0.14	0.29	0.29
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		541	1385	425		503	1329	408		483	1017	448
v/s Ratio Prot		c0.12	c0.19			0.11	0.18			c0.11	c0.19	
v/s Ratio Perm				0.13				0.08				0.02
v/c Ratio		0.78	0.69	0.49		0.77	0.69	0.32		0.78	0.67	0.07
Uniform Delay, d1		42.8	34.4	32.2		43.4	35.2	31.4		43.9	33.2	27.3
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.03	1.10
Incremental Delay, d2		7.3	1.4	0.9		6.8	1.6	0.4		7.8	1.7	0.1
Delay (s)		50.2	35.8	33.1		50.3	36.7	31.8		51.6	35.9	30.1
Level of Service		D	D	C		D	D	C		D	D	C
Approach Delay (s)			38.8				39.6				40.5	
Approach LOS			D				D				D	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	106.1	Sum of lost time (s)	18.6
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	199	637	125
Future Volume (vph)	20	199	637	125
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99
Adj. Flow (vph)	20	201	643	126
RTOR Reduction (vph)	0	0	0	67
Lane Group Flow (vph)	0	221	643	59
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		11.8	27.5	27.5
Effective Green, g (s)		11.8	27.5	27.5
Actuated g/C Ratio		0.11	0.26	0.26
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		378	908	400
v/s Ratio Prot		0.07	0.18	
v/s Ratio Perm				0.04
v/c Ratio		0.58	0.71	0.15
Uniform Delay, d1		44.8	35.7	30.3
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		2.3	2.5	0.2
Delay (s)		47.1	38.2	30.5
Level of Service		D	D	C
Approach Delay (s)			39.2	
Approach LOS			D	

Intersection Summary

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1295	9	0	1446	0	78
Future Vol, veh/h	1295	9	0	1446	0	78
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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1349	9	0	1506	0	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	679
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.93
Pot Cap-1 Maneuver	-	-	0	-	0	336
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	336
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	336	-	-	-
HCM Lane V/C Ratio	0.242	-	-	-
HCM Control Delay (s)	19.1	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.9	-	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	19	133	1221	1161	123	0	266
Future Vol, veh/h	19	133	1221	1161	123	0	266
Conflicting Peds, #/hr	0	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	20	139	1272	1209	128	0	277

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	883	1339	0	-	0	-	607
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	506	265	-	-	-	0	375
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	240	240	-	-	-	-	374
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB			WB		SB
HCM Control Delay, s	5			0		37.6
HCM LOS						E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	240	-	-	-	374
HCM Lane V/C Ratio	0.66	-	-	-	0.741
HCM Control Delay (s)	45.1	-	-	-	37.6
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	4.1	-	-	-	5.8

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	16	65	957	248	4	183	991	71	155	173	12	90
Future Volume (vph)	16	65	957	248	4	183	991	71	155	173	12	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1545		1752	4981		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1545		1752	4981		1752	3505	1568	1752
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	16	66	977	253	4	187	1011	72	158	177	12	92
RTOR Reduction (vph)	0	0	0	117	0	0	7	0	0	0	9	0
Lane Group Flow (vph)	0	82	977	136	0	191	1076	0	158	177	3	92
Confl. Peds. (#/hr)				4				1				
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		6.2	23.6	23.6		8.1	25.5		8.1	16.3	16.3	6.2
Effective Green, g (s)		6.2	23.6	23.6		8.1	25.5		8.1	16.3	16.3	6.2
Actuated g/C Ratio		0.08	0.32	0.32		0.11	0.35		0.11	0.22	0.22	0.08
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		148	1623	498		193	1735		193	780	349	148
v/s Ratio Prot		0.05	0.19			c0.11	c0.22		c0.09	0.05		0.05
v/s Ratio Perm				0.09							0.00	
v/c Ratio		0.55	0.60	0.27		0.99	0.62		0.82	0.23	0.01	0.62
Uniform Delay, d1		32.2	20.9	18.4		32.5	19.8		31.8	23.3	22.2	32.4
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		4.4	0.6	0.3		61.1	0.7		22.9	0.1	0.0	7.9
Delay (s)		36.6	21.5	18.7		93.6	20.5		54.7	23.4	22.2	40.2
Level of Service		D	C	B		F	C		D	C	C	D
Approach Delay (s)			21.9				31.5			37.6		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	19.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	180	86
Future Volume (vph)	180	86
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1544
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1544
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	184	88
RTOR Reduction (vph)	0	71
Lane Group Flow (vph)	184	17
Confl. Peds. (#/hr)		6
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	14.4	14.4
Effective Green, g (s)	14.4	14.4
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	689	303
v/s Ratio Prot	c0.05	
v/s Ratio Perm		0.01
v/c Ratio	0.27	0.06
Uniform Delay, d1	24.9	23.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	0.1
Delay (s)	25.1	24.0
Level of Service	C	C
Approach Delay (s)	28.7	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	2.4

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations														
Traffic Vol, veh/h	70	17	1154	11	3	36	845	11	0	0	71	0	0	162
Future Vol, veh/h	70	17	1154	11	3	36	845	11	0	0	71	0	0	162
Conflicting Peds, #/hr	0	0	0	9	0	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	100	-	140	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	74	18	1215	12	3	38	889	12	0	0	75	0	0	171

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	901	901	0	0	1215	1236	0	0	-	-	617	-	-	451
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	381	744	-	-	239	554	-	-	0	0	430	0	0	553
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	307	307	-	-	484	484	-	-	-	-	426	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.5	0.6	15.2	14.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	426	484	-	-	307	-	-	553
HCM Lane V/C Ratio	0.175	0.085	-	-	0.298	-	-	0.308
HCM Control Delay (s)	15.2	13.1	-	-	21.6	-	-	14.4
HCM Lane LOS	C	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.6	0.3	-	-	1.2	-	-	1.3

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	8	75	689	35	80	86	1107	208	147	114	98	33
Future Volume (vph)	8	75	689	35	80	86	1107	208	147	114	98	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.99	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3479			1752	3505	1568	1752	1845	1548	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3479			1752	3505	1568	1752	1845	1548	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	82	749	38	87	93	1203	226	160	124	107	36
RTOR Reduction (vph)	0	0	3	0	0	0	0	62	0	0	85	0
Lane Group Flow (vph)	0	91	784	0	0	180	1203	164	160	124	22	36
Confl. Peds. (#/hr)											1	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		5.8	32.8			8.2	35.6	35.6	8.5	16.6	16.6	4.2
Effective Green, g (s)		5.8	32.8			8.2	35.6	35.6	8.5	16.6	16.6	4.2
Actuated g/C Ratio		0.07	0.41			0.10	0.44	0.44	0.11	0.21	0.21	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		125	1412			177	1544	690	184	379	318	91
v/s Ratio Prot		0.05	0.23			c0.10	c0.34		c0.09	0.07		0.02
v/s Ratio Perm								0.10			0.01	
v/c Ratio		0.73	0.56			1.02	0.78	0.24	0.87	0.33	0.07	0.40
Uniform Delay, d1		36.7	18.4			36.3	19.3	14.1	35.6	27.3	25.9	37.1
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		19.0	0.5			72.1	2.6	0.2	32.6	0.5	0.1	2.8
Delay (s)		55.7	18.9			108.4	21.8	14.3	68.2	27.9	26.0	39.9
Level of Service		E	B			F	C	B	E	C	C	D
Approach Delay (s)			22.7				30.4			43.8		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	19.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	102	40
Future Volume (vph)	102	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	111	43
RTOR Reduction (vph)	0	36
Lane Group Flow (vph)	111	7
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	12.3	12.3
Effective Green, g (s)	12.3	12.3
Actuated g/C Ratio	0.15	0.15
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	280	235
v/s Ratio Prot	c0.06	
v/s Ratio Perm		0.00
v/c Ratio	0.40	0.03
Uniform Delay, d1	30.9	29.2
Progression Factor	1.00	1.00
Incremental Delay, d2	0.9	0.0
Delay (s)	31.8	29.2
Level of Service	C	C
Approach Delay (s)	32.8	
Approach LOS	C	

Intersection Summary

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	157	177	253	256	176	175	194	194	240	281	342	160
Average Queue (ft)	61	83	136	114	84	68	100	91	115	146	157	75
95th Queue (ft)	120	141	205	205	154	133	176	171	200	247	272	177
Link Distance (ft)			1854	1854	1854				865	865	865	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)			0						0		28	2
Queuing Penalty (veh)			0						0		33	6

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	246	304	382	273	210	91	269	304	261	200
Average Queue (ft)	122	147	163	156	34	49	78	141	135	36
95th Queue (ft)	208	238	285	260	131	86	145	221	224	116
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	2	6	3	12				8	22	0
Queuing Penalty (veh)	7	20	13	10				13	16	0

Intersection: 2: Project Driveway A & Herndon Avenue

Movement	EB	NB
Directions Served	TR	R
Maximum Queue (ft)	48	73
Average Queue (ft)	2	23
95th Queue (ft)	16	50
Link Distance (ft)	865	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	111	70	103
Average Queue (ft)	49	5	34
95th Queue (ft)	95	30	77
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	1	0	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	T
Maximum Queue (ft)	89	114	156	174	49	209	252	262	216	200	458	319
Average Queue (ft)	42	59	72	77	22	50	149	147	146	173	239	13
95th Queue (ft)	77	113	130	142	44	106	225	234	207	245	448	108
Link Distance (ft)		1211	1211	1211			228	228	228		1568	1568
Upstream Blk Time (%)						0	1	1	0			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110				120		
Storage Blk Time (%)				4			19			65	3	
Queuing Penalty (veh)				3			15			58	5	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	9	86	116	102	66
Average Queue (ft)	2	36	50	17	33
95th Queue (ft)	7	68	86	60	58
Link Distance (ft)			188	188	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	130	100			80
Storage Blk Time (%)		0	1	0	0
Queuing Penalty (veh)		0	0	0	0

Intersection: 5: Driveway/Project Driveway B & Fowler Avenue

Movement	SE	SE	SE	NW	NW	NW	NE	SW
Directions Served	UL	T	T	UL	T	TR	R	R
Maximum Queue (ft)	131	99	130	88	27	29	109	84
Average Queue (ft)	47	3	4	29	1	4	35	30
95th Queue (ft)	89	33	43	68	9	18	68	60
Link Distance (ft)		704	704		1241	1241	580	388
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	50			140				
Storage Blk Time (%)	8							
Queuing Penalty (veh)	29							

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	267	334	348	77	176	170	38	150	88	58	149
Average Queue (ft)	117	183	180	26	91	100	5	72	24	16	63
95th Queue (ft)	231	291	284	57	156	163	19	122	63	41	118
Link Distance (ft)		3220	3220		1241	1241			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	9	9				12			0		
Queuing Penalty (veh)	45	16				17			0		

Network Summary

Network wide Queuing Penalty: 308

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	285	330	1869	1869	1834	330	300	350	872	852	309	160
Average Queue (ft)	258	292	1087	1047	654	146	273	316	572	385	231	142
95th Queue (ft)	334	403	2137	2100	1594	256	361	425	1006	772	316	206
Link Distance (ft)			1854	1854	1854				865	865	865	
Upstream Blk Time (%)			11	3	0				2	0		
Queuing Penalty (veh)			0	0	0				10	0		
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)	39	63	2		3	4	64	57			44	6
Queuing Penalty (veh)	123	198	7		9	12	193	173			87	18

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	246	255	258	361	210	209	270	326	308	200
Average Queue (ft)	122	142	158	173	51	78	110	177	174	78
95th Queue (ft)	215	216	229	260	147	136	204	276	275	192
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	2	3	4	20	1	0	2	15	29	0
Queuing Penalty (veh)	8	11	16	19	2	0	5	34	36	0

Intersection: 2: Project Driveway A & Herndon Avenue

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	118	96
Average Queue (ft)	7	43
95th Queue (ft)	48	70
Link Distance (ft)	283	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	EB	WB	SB
Directions Served	UL	T	R	R
Maximum Queue (ft)	130	115	41	274
Average Queue (ft)	71	7	3	119
95th Queue (ft)	126	53	18	209
Link Distance (ft)		283		902
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	120		80	
Storage Blk Time (%)	3	0		
Queuing Penalty (veh)	12	0		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	B10	B10	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	T	T	L
Maximum Queue (ft)	113	249	252	285	200	210	336	232	240	640	577	200
Average Queue (ft)	62	116	140	156	105	203	285	135	136	268	223	144
95th Queue (ft)	104	209	233	260	218	235	369	213	197	598	543	240
Link Distance (ft)		1211	1211	1211			228	228	228	2285	2285	
Upstream Blk Time (%)						0	69	0	0			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110						120
Storage Blk Time (%)				22	1	90	6					48
Queuing Penalty (veh)				54	3	295	10					41

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	R
Maximum Queue (ft)	434	320	15	103	121	141	114
Average Queue (ft)	175	24	3	68	66	41	37
95th Queue (ft)	388	151	10	98	107	98	80
Link Distance (ft)	1568	1568			188	188	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			130	100			80
Storage Blk Time (%)	1			4	3	0	2
Queuing Penalty (veh)	2			3	3	0	2

Intersection: 5: Driveway/Project Driveway B & Fowler Avenue

Movement	SE	NW	NE	SW
Directions Served	UL	UL	R	R
Maximum Queue (ft)	56	68	84	147
Average Queue (ft)	30	19	31	47
95th Queue (ft)	51	47	62	91
Link Distance (ft)			580	388
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	140		
Storage Blk Time (%)	3			
Queuing Penalty (veh)	18			

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	84	205	216	379	385	390	230	219	250	60	92
Average Queue (ft)	38	101	97	150	164	160	32	122	57	15	48
95th Queue (ft)	71	171	176	282	290	284	144	214	134	42	84
Link Distance (ft)		3220	3220		1241	1241			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)		1		1	2	18			2		
Queuing Penalty (veh)		1		8	3	38			4		

Network Summary

Network wide Queuing Penalty: 1460

Appendix H: Cumulative Year 2046 No Project Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	39	184	558	241	48	209	940	128	7	337	687	79
Future Volume (vph)	39	184	558	241	48	209	940	128	7	337	687	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1546		3400	5036	1568		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1546		3400	5036	1568		3400	3505	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	200	607	262	52	227	1022	139	8	366	747	86
RTOR Reduction (vph)	0	0	0	185	0	0	0	98	0	0	0	59
Lane Group Flow (vph)	0	242	607	77	0	279	1022	41	0	374	747	27
Confl. Peds. (#/hr)				3								4
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		9.1	26.6	26.6		9.1	26.6	26.6		12.3	28.7	28.7
Effective Green, g (s)		9.1	26.6	26.6		9.1	26.6	26.6		12.3	28.7	28.7
Actuated g/C Ratio		0.10	0.29	0.29		0.10	0.29	0.29		0.14	0.32	0.32
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		340	1472	451		340	1472	458		459	1105	487
v/s Ratio Prot		c0.07	0.12			0.08	c0.20			c0.11	c0.21	
v/s Ratio Perm				0.05				0.03				0.02
v/c Ratio		0.71	0.41	0.17		0.82	0.69	0.09		0.81	0.68	0.06
Uniform Delay, d1		39.7	25.9	24.0		40.1	28.6	23.4		38.2	27.1	21.7
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		0.99	0.99	0.60
Incremental Delay, d2		6.9	0.2	0.2		14.6	1.4	0.1		10.6	1.7	0.0
Delay (s)		46.6	26.1	24.2		54.7	30.0	23.5		48.6	28.5	13.1
Level of Service		D	C	C		D	C	C		D	C	B
Approach Delay (s)			30.1				34.2				33.6	
Approach LOS			C				C				C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	16	86	564	80
Future Volume (vph)	16	86	564	80
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	93	613	87
RTOR Reduction (vph)	0	0	0	64
Lane Group Flow (vph)	0	110	613	23
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		8.0	24.4	24.4
Effective Green, g (s)		8.0	24.4	24.4
Actuated g/C Ratio		0.09	0.27	0.27
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		298	939	414
v/s Ratio Prot		0.03	c0.17	
v/s Ratio Perm				0.02
v/c Ratio		0.37	0.65	0.06
Uniform Delay, d1		39.1	29.5	24.7
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		0.8	1.6	0.1
Delay (s)		39.9	31.2	24.8
Level of Service		D	C	C
Approach Delay (s)			31.7	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	3.6

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	127	634	1271	109	0	84
Future Vol, veh/h	10	127	634	1271	109	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	138	689	1382	118	0	91

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1009	1500	0	-	0	-	691
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	431	221	-	-	-	0	330
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	226	226	-	-	-	-	330
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	8.4	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	226	-	-	-	330
HCM Lane V/C Ratio	0.659	-	-	-	0.277
HCM Control Delay (s)	47.1	-	-	-	20
HCM Lane LOS	E	-	-	-	C
HCM 95th %tile Q(veh)	4.1	-	-	-	1.1

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	52	544	85	6	76	1014	116	255	222	23	72
Future Volume (vph)	14	52	544	85	6	76	1014	116	255	222	23	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1548		1752	4958		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1548		1752	4958		1752	3505	1568	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	57	591	92	7	83	1102	126	277	241	25	78
RTOR Reduction (vph)	0	0	0	69	0	0	13	0	0	0	19	0
Lane Group Flow (vph)	0	72	591	23	0	90	1215	0	277	241	6	78
Confl. Peds. (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		5.9	18.6	18.6		12.7	25.4		10.6	18.1	18.1	5.9
Effective Green, g (s)		5.9	18.6	18.6		12.7	25.4		10.6	18.1	18.1	5.9
Actuated g/C Ratio		0.08	0.25	0.25		0.17	0.34		0.14	0.24	0.24	0.08
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		139	1260	387		299	1694		249	853	381	139
v/s Ratio Prot		0.04	c0.12			0.05	c0.25		c0.16	c0.07		c0.04
v/s Ratio Perm				0.01							0.00	
v/c Ratio		0.52	0.47	0.06		0.30	0.72		1.11	0.28	0.02	0.56
Uniform Delay, d1		32.8	23.7	21.2		26.9	21.3		31.8	22.8	21.3	33.0
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		3.2	0.3	0.1		0.6	1.5		90.6	0.2	0.0	5.1
Delay (s)		36.1	23.9	21.3		27.5	22.8		122.4	23.0	21.4	38.1
Level of Service		D	C	C		C	C		F	C	C	D
Approach Delay (s)			24.8				23.1			73.6		
Approach LOS			C				C			E		

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	19.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	155	111
Future Volume (vph)	155	111
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	168	121
RTOR Reduction (vph)	0	99
Lane Group Flow (vph)	168	22
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	13.4	13.4
Effective Green, g (s)	13.4	13.4
Actuated g/C Ratio	0.18	0.18
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	632	279
v/s Ratio Prot	0.05	
v/s Ratio Perm		0.01
v/c Ratio	0.27	0.08
Uniform Delay, d1	26.2	25.3
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	0.1
Delay (s)	26.4	25.4
Level of Service	C	C
Approach Delay (s)	28.6	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	1.7

Movement	SEU	SET	SER	NWU	NWL	NWT	NEL	NER
Lane Configurations								
Traffic Vol, veh/h	49	886	10	59	48	1040	0	69
Future Vol, veh/h	49	886	10	59	48	1040	0	69
Conflicting Peds, #/hr	0	0	4	0	4	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	50	-	100	-	140	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	52	933	11	62	51	1095	0	73

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	1095	0	0	933	948	0	-	471
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	-	3.33
Pot Cap-1 Maneuver	286	-	-	364	714	-	0	536
Stage 1	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	0	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	286	-	-	422	422	-	-	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	1.1	1.5	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEU	SET	SER
Capacity (veh/h)	534	422	-	286	-	-
HCM Lane V/C Ratio	0.136	0.267	-	0.18	-	-
HCM Control Delay (s)	12.8	16.6	-	20.3	-	-
HCM Lane LOS	B	C	-	C	-	-
HCM 95th %tile Q(veh)	0.5	1.1	-	0.6	-	-

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	19	160	995	50	10	44	703	165	76	56	90	42
Future Volume (vph)	19	160	995	50	10	44	703	165	76	56	90	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98	1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3476			1752	3505	1531	1752	1845	1540	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3476			1752	3505	1531	1752	1845	1540	1752
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	20	165	1026	52	10	45	725	170	78	58	93	43
RTOR Reduction (vph)	0	0	3	0	0	0	0	122	0	0	73	0
Lane Group Flow (vph)	0	185	1075	0	0	55	725	48	78	58	20	43
Confl. Peds. (#/hr)				2				3			9	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		16.7	34.2			4.1	22.0	22.0	6.8	16.9	16.9	4.1
Effective Green, g (s)		16.7	34.2			4.1	22.0	22.0	6.8	16.9	16.9	4.1
Actuated g/C Ratio		0.21	0.44			0.05	0.28	0.28	0.09	0.22	0.22	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		373	1518			91	984	430	152	398	332	91
v/s Ratio Prot		0.11	c0.31			0.03	c0.21		c0.04	0.03		0.02
v/s Ratio Perm								0.03			0.01	
v/c Ratio		0.50	0.71			0.60	0.74	0.11	0.51	0.15	0.06	0.47
Uniform Delay, d1		27.1	18.0			36.3	25.5	20.9	34.2	24.9	24.4	36.0
Progression Factor		1.00	1.00			0.98	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.0	1.5			10.8	2.9	0.1	2.9	0.2	0.1	3.8
Delay (s)		28.1	19.5			46.6	28.3	21.0	37.1	25.0	24.5	39.9
Level of Service		C	B			D	C	C	D	C	C	D
Approach Delay (s)			20.8				28.1			28.9		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	19.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	121	99
Future Volume (vph)	121	99
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1545
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1545
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	125	102
RTOR Reduction (vph)	0	84
Lane Group Flow (vph)	125	18
Confl. Peds. (#/hr)		4
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	14.2	14.2
Effective Green, g (s)	14.2	14.2
Actuated g/C Ratio	0.18	0.18
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	334	280
v/s Ratio Prot	c0.07	
v/s Ratio Perm		0.01
v/c Ratio	0.37	0.07
Uniform Delay, d1	28.1	26.6
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.1
Delay (s)	28.9	26.7
Level of Service	C	C
Approach Delay (s)	29.8	
Approach LOS	C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	87	337	939	348	98	280	911	207	32	339	749	105
Future Volume (vph)	87	337	939	348	98	280	911	207	32	339	749	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1545		3400	5036	1548		3400	3505	1546
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1545		3400	5036	1548		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	88	340	948	352	99	283	920	209	32	342	757	106
RTOR Reduction (vph)	0	0	0	145	0	0	0	76	0	0	0	65
Lane Group Flow (vph)	0	428	948	207	0	382	920	133	0	374	757	41
Confl. Peds. (#/hr)				3				1				3
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		15.1	28.3	28.3		14.1	27.3	27.3		13.1	30.4	30.4
Effective Green, g (s)		15.1	28.3	28.3		14.1	27.3	27.3		13.1	30.4	30.4
Actuated g/C Ratio		0.15	0.28	0.28		0.14	0.27	0.27		0.13	0.30	0.30
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		500	1389	426		467	1339	411		434	1038	458
v/s Ratio Prot		c0.13	c0.19			0.11	0.18			c0.11	c0.22	
v/s Ratio Perm				0.13				0.09				0.03
v/c Ratio		0.86	0.68	0.49		0.82	0.69	0.32		0.86	0.73	0.09
Uniform Delay, d1		42.7	33.1	31.1		43.0	33.8	30.2		43.9	32.4	26.1
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.02	1.07
Incremental Delay, d2		13.5	1.4	0.9		10.7	1.5	0.5		16.0	2.6	0.1
Delay (s)		56.2	34.5	31.9		53.7	35.3	30.7		59.7	35.8	28.1
Level of Service		E	C	C		D	D	C		E	D	C
Approach Delay (s)			39.4				39.3				42.4	
Approach LOS			D				D				D	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	102.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	193	630	125
Future Volume (vph)	20	193	630	125
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99
Adj. Flow (vph)	20	195	636	126
RTOR Reduction (vph)	0	0	0	67
Lane Group Flow (vph)	0	215	636	59
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		11.2	28.5	28.5
Effective Green, g (s)		11.2	28.5	28.5
Actuated g/C Ratio		0.11	0.28	0.28
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		371	973	429
v/s Ratio Prot		0.06	0.18	
v/s Ratio Perm				0.04
v/c Ratio		0.58	0.65	0.14
Uniform Delay, d1		43.5	32.7	27.8
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		2.2	1.6	0.1
Delay (s)		45.7	34.3	28.0
Level of Service		D	C	C
Approach Delay (s)			36.0	
Approach LOS			D	

Intersection Summary

Intersection	
Int Delay, s/veh	5.9

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	19	133	1143	1158	123	0	266
Future Vol, veh/h	19	133	1143	1158	123	0	266
Conflicting Peds, #/hr	0	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	20	139	1191	1206	128	0	277

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	881	1336	0	-	0	-	605
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	507	266	-	-	-	0	376
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	241	241	-	-	-	-	375
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	5.2	0	37.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	241	-	-	-	375
HCM Lane V/C Ratio	0.657	-	-	-	0.739
HCM Control Delay (s)	44.7	-	-	-	37.4
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	4.1	-	-	-	5.8

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	16	54	917	222	4	183	989	71	259	253	17	107
Future Volume (vph)	16	54	917	222	4	183	989	71	259	253	17	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.98		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1544		1752	4981		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1544		1752	4981		1752	3505	1568	1752
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	16	55	936	227	4	187	1009	72	264	258	17	109
RTOR Reduction (vph)	0	0	0	104	0	0	7	0	0	0	13	0
Lane Group Flow (vph)	0	71	936	123	0	191	1074	0	264	258	4	109
Confl. Peds. (#/hr)				4				1				
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		6.2	24.1	24.1		10.2	28.1		14.3	21.0	21.0	8.5
Effective Green, g (s)		6.2	24.1	24.1		10.2	28.1		14.3	21.0	21.0	8.5
Actuated g/C Ratio		0.07	0.29	0.29		0.12	0.34		0.17	0.25	0.25	0.10
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		131	1465	449		215	1690		302	888	397	179
v/s Ratio Prot		0.04	0.19			c0.11	c0.22		c0.15	c0.07		0.06
v/s Ratio Perm				0.08							0.00	
v/c Ratio		0.54	0.64	0.28		0.89	0.64		0.87	0.29	0.01	0.61
Uniform Delay, d1		36.9	25.6	22.6		35.7	23.0		33.4	24.9	23.1	35.6
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		4.5	0.9	0.3		32.6	0.8		23.2	0.2	0.0	5.8
Delay (s)		41.4	26.5	23.0		68.4	23.8		56.6	25.1	23.1	41.3
Level of Service		D	C	C		E	C		E	C	C	D
Approach Delay (s)			26.7				30.5			40.5		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	19.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	212	106
Future Volume (vph)	212	106
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1543
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1543
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	216	108
RTOR Reduction (vph)	0	88
Lane Group Flow (vph)	216	20
Confl. Peds. (#/hr)		6
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.2	15.2
Effective Green, g (s)	15.2	15.2
Actuated g/C Ratio	0.18	0.18
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	643	283
v/s Ratio Prot	0.06	
v/s Ratio Perm		0.01
v/c Ratio	0.34	0.07
Uniform Delay, d1	29.4	28.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.1
Delay (s)	29.7	28.1
Level of Service	C	C
Approach Delay (s)	32.2	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	1.3

Movement	SEU	SET	SER	NWU	NWL	NWT	NEL	NER
Lane Configurations								
Traffic Vol, veh/h	70	1121	11	3	36	1053	0	71
Future Vol, veh/h	70	1121	11	3	36	1053	0	71
Conflicting Peds, #/hr	0	0	9	0	9	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	50	-	100	-	140	-	-	0
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	74	1180	12	3	38	1108	0	75

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	1108	0	0	1180	1201	0	-	599
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	-	3.33
Pot Cap-1 Maneuver	280	-	-	252	571	-	0	442
Stage 1	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	0	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	280	-	-	501	501	-	-	438
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	1.3	0.5	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEU	SET	SER
Capacity (veh/h)	438	501	-	280	-	-
HCM Lane V/C Ratio	0.171	0.082	-	0.263	-	-
HCM Control Delay (s)	14.9	12.8	-	22.4	-	-
HCM Lane LOS	B	B	-	C	-	-
HCM 95th %tile Q(veh)	0.6	0.3	-	1	-	-

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	8	102	879	44	80	87	1083	199	144	114	98	41
Future Volume (vph)	8	102	879	44	80	87	1083	199	144	114	98	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.99	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3480			1752	3505	1568	1752	1845	1548	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3480			1752	3505	1568	1752	1845	1548	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	111	955	48	87	95	1177	216	157	124	107	45
RTOR Reduction (vph)	0	0	3	0	0	0	0	66	0	0	82	0
Lane Group Flow (vph)	0	120	1000	0	0	182	1177	150	157	124	25	45
Confl. Peds. (#/hr)											1	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		7.9	32.9			8.9	34.3	34.3	7.9	19.9	19.9	4.5
Effective Green, g (s)		7.9	32.9			8.9	34.3	34.3	7.9	19.9	19.9	4.5
Actuated g/C Ratio		0.09	0.39			0.10	0.40	0.40	0.09	0.23	0.23	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		162	1343			183	1411	631	162	430	361	92
v/s Ratio Prot		0.07	0.29			c0.10	c0.34		c0.09	c0.07		0.03
v/s Ratio Perm								0.10			0.02	
v/c Ratio		0.74	0.74			0.99	0.83	0.24	0.97	0.29	0.07	0.49
Uniform Delay, d1		37.7	22.5			38.1	22.9	16.8	38.5	26.8	25.4	39.2
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		16.6	2.3			64.6	4.4	0.2	60.8	0.4	0.1	4.0
Delay (s)		54.2	24.8			102.7	27.3	17.0	99.3	27.2	25.5	43.3
Level of Service		D	C			F	C	B	F	C	C	D
Approach Delay (s)			28.0				34.6			55.9		
Approach LOS			C				C			E		

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	19.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	125	52
Future Volume (vph)	125	52
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	136	57
RTOR Reduction (vph)	0	46
Lane Group Flow (vph)	136	11
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	16.5	16.5
Effective Green, g (s)	16.5	16.5
Actuated g/C Ratio	0.19	0.19
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	357	299
v/s Ratio Prot	c0.07	
v/s Ratio Perm		0.01
v/c Ratio	0.38	0.04
Uniform Delay, d1	29.9	27.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.1
Delay (s)	30.6	27.9
Level of Service	C	C
Approach Delay (s)	32.4	
Approach LOS	C	

Intersection Summary

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	174	159	214	177	134	133	299	339	303	327	362	160
Average Queue (ft)	82	102	134	95	58	60	170	173	145	161	186	104
95th Queue (ft)	147	157	199	167	123	106	281	296	240	242	289	212
Link Distance (ft)			1854	1854	1854				1202	1202	1202	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)							2	6	0		35	1
Queuing Penalty (veh)							6	18	1		45	4

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	202	215	320	272	210	86	69	215	260	200
Average Queue (ft)	113	136	141	150	33	36	34	134	145	52
95th Queue (ft)	176	202	250	232	117	70	69	193	231	152
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	0	1	4	11				6	19	0
Queuing Penalty (veh)	1	5	13	9				6	15	0

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	120	22	84
Average Queue (ft)	56	2	34
95th Queue (ft)	103	12	66
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)	1		
Queuing Penalty (veh)	1		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	T
Maximum Queue (ft)	109	154	177	221	85	210	226	219	218	200	1146	1154
Average Queue (ft)	44	75	87	89	31	64	160	151	147	186	570	432
95th Queue (ft)	87	151	159	160	67	154	220	216	210	232	1223	1194
Link Distance (ft)		1211	1211	1211			228	228	228		1568	1568
Upstream Blk Time (%)						0	0	0	0			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110				120		
Storage Blk Time (%)				10	0	3	21			67	8	
Queuing Penalty (veh)				9	0	9	17			75	21	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	28	97	132	94	98
Average Queue (ft)	5	56	55	25	49
95th Queue (ft)	18	93	100	65	87
Link Distance (ft)			188	188	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	130	100			80
Storage Blk Time (%)		2	0	0	2
Queuing Penalty (veh)		2	0	0	2

Intersection: 5: Driveway & Fowler Avenue

Movement	SE	SE	NW	NE
Directions Served	U	R	UL	R
Maximum Queue (ft)	52	22	94	69
Average Queue (ft)	26	1	36	28
95th Queue (ft)	52	7	77	63
Link Distance (ft)				580
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	100	140	
Storage Blk Time (%)	2			
Queuing Penalty (veh)	9			

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	256	318	307	56	258	302	53	110	71	58	156
Average Queue (ft)	98	158	152	23	115	133	9	54	27	18	57
95th Queue (ft)	188	256	273	49	227	240	31	103	65	42	111
Link Distance (ft)		3220	3220		1261	1261			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	1	5			0	13					
Queuing Penalty (veh)	6	10			0	22					

Network Summary

Network wide Queuing Penalty: 304

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	285	330	1710	1681	1371	242	255	325	306	310	325	160
Average Queue (ft)	278	319	1038	961	286	118	192	187	161	182	194	122
95th Queue (ft)	300	356	1906	1824	788	203	245	267	248	269	299	209
Link Distance (ft)			1854	1854	1854				1202	1202	1202	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)	52	74	0		0	0	0	1	1		43	7
Queuing Penalty (veh)	162	230	0		0	1	1	2	3		88	21

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	247	305	709	625	210	152	178	241	269	200
Average Queue (ft)	207	239	302	243	50	63	89	162	172	75
95th Queue (ft)	283	347	617	463	161	124	157	230	244	181
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)			1							
Queuing Penalty (veh)			4							
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	22	44	4	17		0	2	12	24	0
Queuing Penalty (veh)	81	165	15	18		1	6	26	30	0

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	114	22	132
Average Queue (ft)	49	1	66
95th Queue (ft)	91	10	113
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)	1		
Queuing Penalty (veh)	2		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	B10	B10	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	T	T	L
Maximum Queue (ft)	137	239	287	311	200	210	300	264	299	210	141	200
Average Queue (ft)	66	133	153	171	91	160	209	161	157	29	13	180
95th Queue (ft)	122	238	268	297	200	229	325	240	237	126	70	237
Link Distance (ft)		1211	1211	1211			228	228	228	2285	2285	
Upstream Blk Time (%)						0	15	1	1			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110						120
Storage Blk Time (%)				25	1	49	21					56
Queuing Penalty (veh)				56	2	160	38					70

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	R
Maximum Queue (ft)	609	619	29	157	160	136	90
Average Queue (ft)	310	34	4	75	84	57	43
95th Queue (ft)	595	243	15	123	141	119	76
Link Distance (ft)	1568	1568			188	188	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			130	100			80
Storage Blk Time (%)	10			6	8	2	1
Queuing Penalty (veh)	26			6	9	2	1

Intersection: 5: Driveway & Fowler Avenue

Movement	SE	NW	NW	NE
Directions Served	U	UL	T	R
Maximum Queue (ft)	72	50	32	66
Average Queue (ft)	25	17	2	23
95th Queue (ft)	59	42	12	45
Link Distance (ft)			1261	580
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50	140		
Storage Blk Time (%)	3			
Queuing Penalty (veh)	15			

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	270	646	632	163	358	378	230	237	260	40	128
Average Queue (ft)	159	260	225	97	194	197	72	138	69	17	61
95th Queue (ft)	308	517	447	160	303	309	228	232	145	35	113
Link Distance (ft)		3220	3220		1261	1261			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	34	9			3	27	0	0	2		
Queuing Penalty (veh)	151	9			5	53	0	1	5		

Network Summary

Network wide Queuing Penalty: 1470

Appendix I: Cumulative Year 2046 plus Project Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	39	184	596	275	48	220	940	128	7	373	710	79
Future Volume (vph)	39	184	596	275	48	220	940	128	7	373	710	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1545		3400	5036	1568		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1545		3400	5036	1568		3400	3505	1545
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	200	648	299	52	239	1022	139	8	405	772	86
RTOR Reduction (vph)	0	0	0	204	0	0	0	98	0	0	0	59
Lane Group Flow (vph)	0	242	648	95	0	291	1022	41	0	413	772	27
Confl. Peds. (#/hr)				3								4
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		9.1	21.4	21.4		14.8	27.1	27.1		13.6	30.0	30.0
Effective Green, g (s)		9.1	21.4	21.4		14.8	27.1	27.1		13.6	30.0	30.0
Actuated g/C Ratio		0.10	0.23	0.23		0.16	0.29	0.29		0.14	0.32	0.32
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		327	1139	349		531	1442	449		488	1111	489
v/s Ratio Prot		c0.07	0.13			0.09	c0.20			c0.12	c0.22	
v/s Ratio Perm				0.06				0.03				0.02
v/c Ratio		0.74	0.57	0.27		0.55	0.71	0.09		0.85	0.69	0.06
Uniform Delay, d1		41.6	32.5	30.2		36.8	30.2	24.7		39.5	28.3	22.5
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		0.99	0.99	0.95
Incremental Delay, d2		8.7	0.7	0.4		1.2	1.6	0.1		12.8	1.9	0.0
Delay (s)		50.3	33.2	30.6		38.0	31.8	24.8		51.8	29.8	21.3
Level of Service		D	C	C		D	C	C		D	C	C
Approach Delay (s)			36.0				32.4				36.4	
Approach LOS			D				C				D	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	16	139	608	80
Future Volume (vph)	16	139	608	80
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	151	661	87
RTOR Reduction (vph)	0	0	0	63
Lane Group Flow (vph)	0	168	661	24
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		9.8	26.2	26.2
Effective Green, g (s)		9.8	26.2	26.2
Actuated g/C Ratio		0.10	0.28	0.28
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		352	970	428
v/s Ratio Prot		0.05	c0.19	
v/s Ratio Perm				0.02
v/c Ratio		0.48	0.68	0.06
Uniform Delay, d1		40.0	30.5	25.1
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		1.0	2.0	0.1
Delay (s)		41.0	32.5	25.2
Level of Service		D	C	C
Approach Delay (s)			33.3	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	771	91	0	1376	0	29
Future Vol, veh/h	771	91	0	1376	0	29
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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	838	99	0	1496	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	469
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.93
Pot Cap-1 Maneuver	-	-	0	-	0	461
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	461
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	461	-	-	-
HCM Lane V/C Ratio	0.068	-	-	-
HCM Control Delay (s)	13.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	127	663	1282	109	0	84
Future Vol, veh/h	10	127	663	1282	109	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	138	721	1393	118	0	91

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	1017	1511	0	-	0	-	697
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	426	218	-	-	-	0	327
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	223	223	-	-	-	-	327
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	8.3	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	223	-	-	-	327
HCM Lane V/C Ratio	0.668	-	-	-	0.279
HCM Control Delay (s)	48.5	-	-	-	20.2
HCM Lane LOS	E	-	-	-	C
HCM 95th %tile Q(veh)	4.2	-	-	-	1.1

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	56	561	93	6	76	1021	116	257	222	23	72
Future Volume (vph)	14	56	561	93	6	76	1021	116	257	222	23	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1548		1752	4959		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1548		1752	4959		1752	3505	1568	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	61	610	101	7	83	1110	126	279	241	25	78
RTOR Reduction (vph)	0	0	0	67	0	0	12	0	0	0	19	0
Lane Group Flow (vph)	0	76	610	34	0	90	1224	0	279	241	6	78
Confl. Peds. (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		5.9	26.6	26.6		5.9	26.6		12.5	20.4	20.4	6.8
Effective Green, g (s)		5.9	26.6	26.6		5.9	26.6		12.5	20.4	20.4	6.8
Actuated g/C Ratio		0.07	0.34	0.34		0.07	0.34		0.16	0.26	0.26	0.09
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		131	1702	523		131	1676		278	908	406	151
v/s Ratio Prot		0.04	0.12			c0.05	c0.25		c0.16	c0.07		0.04
v/s Ratio Perm				0.02							0.00	
v/c Ratio		0.58	0.36	0.07		0.69	0.73		1.00	0.27	0.02	0.52
Uniform Delay, d1		35.2	19.6	17.6		35.5	22.9		33.1	23.2	21.7	34.4
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		6.4	0.1	0.1		13.9	1.7		54.9	0.2	0.0	3.0
Delay (s)		41.6	19.8	17.7		49.4	24.6		88.0	23.3	21.7	37.3
Level of Service		D	B	B		D	C		F	C	C	D
Approach Delay (s)			21.6				26.3			56.4		
Approach LOS			C				C			E		

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	19.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	155	113
Future Volume (vph)	155	113
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	168	123
RTOR Reduction (vph)	0	100
Lane Group Flow (vph)	168	23
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	14.7	14.7
Effective Green, g (s)	14.7	14.7
Actuated g/C Ratio	0.19	0.19
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	654	289
v/s Ratio Prot	0.05	
v/s Ratio Perm		0.01
v/c Ratio	0.26	0.08
Uniform Delay, d1	27.3	26.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	0.1
Delay (s)	27.5	26.5
Level of Service	C	C
Approach Delay (s)	29.3	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	2.8

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations														
Traffic Vol, veh/h	49	89	897	10	59	48	1040	116	0	0	69	0	0	70
Future Vol, veh/h	49	89	897	10	59	48	1040	116	0	0	69	0	0	70
Conflicting Peds, #/hr	0	0	0	4	0	4	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	100	-	140	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	52	94	944	11	62	51	1095	122	0	0	73	0	0	74

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	1217	1217	0	0	944	959	0	0	-	-	476	-	-	609
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	238	563	-	-	358	707	-	-	0	0	532	0	0	436
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	342	342	-	-	415	415	-	-	-	-	530	-	-	436
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	3	1.4	12.9	14.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	530	415	-	-	342	-	-	436
HCM Lane V/C Ratio	0.137	0.271	-	-	0.425	-	-	0.169
HCM Control Delay (s)	12.9	16.9	-	-	23	-	-	14.9
HCM Lane LOS	B	C	-	-	C	-	-	B
HCM 95th %tile Q(veh)	0.5	1.1	-	-	2	-	-	0.6

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	19	160	1084	50	10	44	710	169	96	56	90	42
Future Volume (vph)	19	160	1084	50	10	44	710	169	96	56	90	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98	1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3478			1752	3505	1530	1752	1845	1539	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3478			1752	3505	1530	1752	1845	1539	1752
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	20	165	1118	52	10	45	732	174	99	58	93	43
RTOR Reduction (vph)	0	0	3	0	0	0	0	109	0	0	70	0
Lane Group Flow (vph)	0	185	1167	0	0	55	732	65	99	58	23	43
Confl. Peds. (#/hr)				2				3			9	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		11.2	34.5			4.3	28.0	28.0	10.2	20.0	20.0	4.3
Effective Green, g (s)		11.2	34.5			4.3	28.0	28.0	10.2	20.0	20.0	4.3
Actuated g/C Ratio		0.14	0.42			0.05	0.34	0.34	0.12	0.24	0.24	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		239	1461			91	1195	521	217	449	374	91
v/s Ratio Prot		0.11	c0.34			0.03	c0.21		c0.06	0.03		0.02
v/s Ratio Perm								0.04			0.01	
v/c Ratio		0.77	0.80			0.60	0.61	0.12	0.46	0.13	0.06	0.47
Uniform Delay, d1		34.2	20.8			38.1	22.5	18.6	33.4	24.2	23.8	37.8
Progression Factor		1.00	1.00			1.04	1.05	1.20	1.00	1.00	1.00	1.00
Incremental Delay, d2		14.4	3.1			10.8	0.9	0.1	1.5	0.1	0.1	3.8
Delay (s)		48.6	23.9			50.4	24.5	22.5	34.9	24.4	23.9	41.6
Level of Service		D	C			D	C	C	C	C	C	D
Approach Delay (s)			27.3				25.6			28.4		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	121	106
Future Volume (vph)	121	106
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1545
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1545
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	125	109
RTOR Reduction (vph)	0	90
Lane Group Flow (vph)	125	19
Confl. Peds. (#/hr)		4
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	14.1	14.1
Effective Green, g (s)	14.1	14.1
Actuated g/C Ratio	0.17	0.17
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	316	265
v/s Ratio Prot	c0.07	
v/s Ratio Perm		0.01
v/c Ratio	0.40	0.07
Uniform Delay, d1	30.2	28.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.8	0.1
Delay (s)	31.0	28.6
Level of Service	C	C
Approach Delay (s)	31.7	
Approach LOS	C	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	87	337	942	355	98	283	911	207	32	394	823	105
Future Volume (vph)	87	337	942	355	98	283	911	207	32	394	823	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3400	5036	1545		3400	5036	1548		3400	3505	1545
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3400	5036	1545		3400	5036	1548		3400	3505	1545
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	88	340	952	359	99	286	920	209	32	398	831	106
RTOR Reduction (vph)	0	0	0	151	0	0	0	74	0	0	0	62
Lane Group Flow (vph)	0	428	952	208	0	385	920	135	0	430	831	44
Confl. Peds. (#/hr)				3				1				3
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	7	7	4		3	3	8		5	5	2	
Permitted Phases				4				8				2
Actuated Green, G (s)		16.1	29.8	29.8		15.1	28.8	28.8		16.1	34.3	34.3
Effective Green, g (s)		16.1	29.8	29.8		15.1	28.8	28.8		16.1	34.3	34.3
Actuated g/C Ratio		0.15	0.27	0.27		0.14	0.26	0.26		0.15	0.31	0.31
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3	5.3		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		498	1368	419		468	1322	406		498	1095	483
v/s Ratio Prot		c0.13	c0.19			0.11	0.18			c0.13	c0.24	
v/s Ratio Perm				0.13				0.09				0.03
v/c Ratio		0.86	0.70	0.50		0.82	0.70	0.33		0.86	0.76	0.09
Uniform Delay, d1		45.7	35.9	33.6		46.0	36.5	32.7		45.7	34.0	26.7
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.02	1.06
Incremental Delay, d2		13.8	1.6	0.9		11.1	1.6	0.5		14.4	3.1	0.1
Delay (s)		59.5	37.4	34.5		57.1	38.1	33.2		60.1	37.7	28.4
Level of Service		E	D	C		E	D	C		E	D	C
Approach Delay (s)			42.3				42.3				44.0	
Approach LOS			D				D				D	

Intersection Summary			
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	18.6
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	199	637	125
Future Volume (vph)	20	199	637	125
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		4.2	4.9	4.9
Lane Util. Factor		0.97	0.95	1.00
Frpb, ped/bikes		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3400	3505	1546
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3400	3505	1546
Peak-hour factor, PHF	0.99	0.99	0.99	0.99
Adj. Flow (vph)	20	201	643	126
RTOR Reduction (vph)	0	0	0	65
Lane Group Flow (vph)	0	221	643	61
Confl. Peds. (#/hr)				3
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		11.9	30.1	30.1
Effective Green, g (s)		11.9	30.1	30.1
Actuated g/C Ratio		0.11	0.27	0.27
Clearance Time (s)		4.2	4.9	4.9
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		368	961	424
v/s Ratio Prot		0.07	0.18	
v/s Ratio Perm				0.04
v/c Ratio		0.60	0.67	0.14
Uniform Delay, d1		46.6	35.4	30.1
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		2.8	1.8	0.2
Delay (s)		49.4	37.2	30.2
Level of Service		D	D	C
Approach Delay (s)			39.0	
Approach LOS			D	

Intersection Summary

Intersection						
Int Delay, s/veh	0.5					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1295	9	0	1446	0	78
Future Vol, veh/h	1295	9	0	1446	0	78
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
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1349	9	0	1506	0	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	679
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.93
Pot Cap-1 Maneuver	-	-	0	-	0	336
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	336
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	336	-	-	-
HCM Lane V/C Ratio	0.242	-	-	-
HCM Control Delay (s)	19.1	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.9	-	-	-

Intersection							
Int Delay, s/veh	5.8						

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	19	133	1221	1161	123	0	266
Future Vol, veh/h	19	133	1221	1161	123	0	266
Conflicting Peds, #/hr	0	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	120	-	-	80	-	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	20	139	1272	1209	128	0	277

Major/Minor	Major1			Major2		Minor2	
Conflicting Flow All	883	1339	0	-	0	-	607
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	5.66	5.36	-	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	2.33	3.13	-	-	-	-	3.93
Pot Cap-1 Maneuver	506	265	-	-	-	0	375
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	240	240	-	-	-	-	374
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	5	0	37.6
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	240	-	-	-	374
HCM Lane V/C Ratio	0.66	-	-	-	0.741
HCM Control Delay (s)	45.1	-	-	-	37.6
HCM Lane LOS	E	-	-	-	E
HCM 95th %tile Q(veh)	4.1	-	-	-	5.8

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	16	65	957	249	4	183	991	71	260	253	17	107
Future Volume (vph)	16	65	957	249	4	183	991	71	260	253	17	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95	1.00	1.00
Frpb, ped/bikes		1.00	1.00	0.98		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	5036	1544		1752	4981		1752	3505	1568	1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	5036	1544		1752	4981		1752	3505	1568	1752
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	16	66	977	254	4	187	1011	72	265	258	17	109
RTOR Reduction (vph)	0	0	0	110	0	0	7	0	0	0	13	0
Lane Group Flow (vph)	0	82	977	144	0	191	1076	0	265	258	4	109
Confl. Peds. (#/hr)				4				1				
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA	Perm	Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4							2	
Actuated Green, G (s)		6.2	25.4	25.4		10.1	29.3		14.3	21.0	21.0	8.6
Effective Green, g (s)		6.2	25.4	25.4		10.1	29.3		14.3	21.0	21.0	8.6
Actuated g/C Ratio		0.07	0.30	0.30		0.12	0.35		0.17	0.25	0.25	0.10
Clearance Time (s)		4.2	5.3	5.3		4.2	5.3		4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		129	1520	466		210	1735		297	875	391	179
v/s Ratio Prot		0.05	0.19			c0.11	c0.22		c0.15	c0.07		0.06
v/s Ratio Perm				0.09							0.00	
v/c Ratio		0.64	0.64	0.31		0.91	0.62		0.89	0.29	0.01	0.61
Uniform Delay, d1		37.9	25.4	22.6		36.5	22.8		34.1	25.6	23.7	36.1
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		9.8	0.9	0.4		37.6	0.7		26.7	0.2	0.0	5.8
Delay (s)		47.7	26.4	23.0		74.2	23.5		60.8	25.7	23.7	41.9
Level of Service		D	C	C		E	C		E	C	C	D
Approach Delay (s)			27.0				31.1			42.9		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	212	106
Future Volume (vph)	212	106
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1543
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1543
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	216	108
RTOR Reduction (vph)	0	88
Lane Group Flow (vph)	216	20
Confl. Peds. (#/hr)		6
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.3	15.3
Effective Green, g (s)	15.3	15.3
Actuated g/C Ratio	0.18	0.18
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	637	280
v/s Ratio Prot	0.06	
v/s Ratio Perm		0.01
v/c Ratio	0.34	0.07
Uniform Delay, d1	30.0	28.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.1
Delay (s)	30.3	28.6
Level of Service	C	C
Approach Delay (s)	32.8	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	2.9

Movement	SEU	SEL	SET	SER	NWU	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations														
Traffic Vol, veh/h	70	17	1154	11	3	36	1053	11	0	0	71	0	0	162
Future Vol, veh/h	70	17	1154	11	3	36	1053	11	0	0	71	0	0	162
Conflicting Peds, #/hr	0	0	0	9	0	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	100	-	140	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	74	18	1215	12	3	38	1108	12	0	0	75	0	0	171

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	1120	1120	0	0	1215	1236	0	0	-	-	617	-	-	560
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	275	614	-	-	239	554	-	-	0	0	430	0	0	469
Stage 1	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	209	209	-	-	484	484	-	-	-	-	426	-	-	469
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	2.4	0.5	15.2	17
HCM LOS			C	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	426	484	-	-	209	-	-	469
HCM Lane V/C Ratio	0.175	0.085	-	-	0.438	-	-	0.364
HCM Control Delay (s)	15.2	13.1	-	-	35	-	-	17
HCM Lane LOS	C	B	-	-	E	-	-	C
HCM 95th %tile Q(veh)	0.6	0.3	-	-	2.1	-	-	1.6

Movement	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NET	NER	SWL
Lane Configurations												
Traffic Volume (vph)	8	102	887	44	80	87	1107	208	147	114	98	41
Future Volume (vph)	8	102	887	44	80	87	1107	208	147	114	98	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.99	1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (prot)		1752	3480			1752	3505	1568	1752	1845	1548	1752
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95
Satd. Flow (perm)		1752	3480			1752	3505	1568	1752	1845	1548	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	111	964	48	87	95	1203	226	160	124	107	45
RTOR Reduction (vph)	0	0	3	0	0	0	0	66	0	0	82	0
Lane Group Flow (vph)	0	120	1009	0	0	182	1203	160	160	124	25	45
Confl. Peds. (#/hr)											1	
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6			4	
Actuated Green, G (s)		7.9	32.9			8.9	34.3	34.3	7.9	19.9	19.9	4.5
Effective Green, g (s)		7.9	32.9			8.9	34.3	34.3	7.9	19.9	19.9	4.5
Actuated g/C Ratio		0.09	0.39			0.10	0.40	0.40	0.09	0.23	0.23	0.05
Clearance Time (s)		4.2	5.3			4.2	4.9	4.9	4.2	5.3	5.3	4.2
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		162	1343			183	1411	631	162	430	361	92
v/s Ratio Prot		0.07	0.29			c0.10	c0.34		c0.09	c0.07		0.03
v/s Ratio Perm								0.10			0.02	
v/c Ratio		0.74	0.75			0.99	0.85	0.25	0.99	0.29	0.07	0.49
Uniform Delay, d1		37.7	22.6			38.1	23.2	16.9	38.6	26.8	25.4	39.2
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		16.6	2.4			64.6	5.2	0.2	66.4	0.4	0.1	4.0
Delay (s)		54.2	25.0			102.7	28.4	17.1	105.0	27.2	25.5	43.3
Level of Service		D	C			F	C	B	F	C	C	D
Approach Delay (s)			28.1				35.2			58.6		
Approach LOS			C				D			E		

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	19.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SWT	SWR
Lane Configurations		
Traffic Volume (vph)	125	52
Future Volume (vph)	125	52
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	5.3
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1845	1548
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1845	1548
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	136	57
RTOR Reduction (vph)	0	46
Lane Group Flow (vph)	136	11
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	8	
Permitted Phases		8
Actuated Green, G (s)	16.5	16.5
Effective Green, g (s)	16.5	16.5
Actuated g/C Ratio	0.19	0.19
Clearance Time (s)	5.3	5.3
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	357	299
v/s Ratio Prot	c0.07	
v/s Ratio Perm		0.01
v/c Ratio	0.38	0.04
Uniform Delay, d1	29.9	27.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.1
Delay (s)	30.6	27.9
Level of Service	C	C
Approach Delay (s)	32.4	
Approach LOS	C	

Intersection Summary

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	160	187	199	206	176	156	217	176	249	306	293	160
Average Queue (ft)	84	101	132	103	77	96	98	91	150	178	193	112
95th Queue (ft)	143	170	205	184	148	153	171	145	239	266	289	218
Link Distance (ft)			1854	1854	1854				865	865	865	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)									0		38	0
Queuing Penalty (veh)									0		49	1

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	230	217	283	274	210	136	270	391	334	200
Average Queue (ft)	123	143	148	160	35	53	97	188	183	53
95th Queue (ft)	205	203	245	254	134	105	206	299	291	163
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	1	2	3	10		0		16	29	
Queuing Penalty (veh)	2	7	12	8		0		25	23	

Intersection: 2: Project Driveway A & Herndon Avenue

Movement	EB	NB
Directions Served	TR	R
Maximum Queue (ft)	22	101
Average Queue (ft)	1	24
95th Queue (ft)	7	59
Link Distance (ft)	865	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	EB	WB	SB
Directions Served	UL	T	R	R
Maximum Queue (ft)	116	109	26	107
Average Queue (ft)	51	4	4	38
95th Queue (ft)	100	36	18	71
Link Distance (ft)		283		902
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	120		80	
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	L	T	T
Maximum Queue (ft)	88	204	170	156	68	209	257	261	272	200	534	414
Average Queue (ft)	39	76	92	97	30	70	151	150	153	190	286	54
95th Queue (ft)	76	155	159	159	56	145	229	231	239	220	534	275
Link Distance (ft)		1211	1211	1211			228	228	228		1568	1568
Upstream Blk Time (%)						0	2	1	2			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110				120		
Storage Blk Time (%)				10		2	20			66	10	
Queuing Penalty (veh)				9		8	17			73	27	

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	14	97	109	94	122
Average Queue (ft)	2	49	67	29	46
95th Queue (ft)	9	83	95	79	85
Link Distance (ft)			188	188	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	130	100			80
Storage Blk Time (%)		1	1	1	1
Queuing Penalty (veh)		1	0	1	1

Intersection: 5: Driveway/Project Driveway B & Fowler Avenue

Movement	SE	SE	NW	NW	NE	SW
Directions Served	UL	T	UL	TR	R	R
Maximum Queue (ft)	137	130	82	21	87	109
Average Queue (ft)	51	7	28	3	32	36
95th Queue (ft)	102	53	63	14	71	78
Link Distance (ft)		704		1241	580	388
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	50		140			
Storage Blk Time (%)	11	0				
Queuing Penalty (veh)	50	0				

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	269	356	423	95	308	322	230	133	90	61	222
Average Queue (ft)	116	201	191	26	132	144	58	63	33	17	68
95th Queue (ft)	231	310	316	67	264	277	204	112	66	43	146
Link Distance (ft)		3220	3220		1241	1241			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	7	12			1	15	0		0		1
Queuing Penalty (veh)	40	21			1	26	0		0		0

Network Summary

Network wide Queuing Penalty: 403

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	285	330	1487	1434	725	288	300	350	575	499	356	160
Average Queue (ft)	255	289	794	722	282	137	264	283	306	232	257	141
95th Queue (ft)	347	396	1515	1403	590	255	345	406	526	359	364	208
Link Distance (ft)			1854	1854	1854				865	865	865	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	240	240				240	250	250				80
Storage Blk Time (%)	49	59	1		3	2	43	34	0		47	8
Queuing Penalty (veh)	153	187	3		11	8	129	104	1		97	24

Intersection: 1: Fowler Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	247	305	704	597	210	196	269	379	355	200
Average Queue (ft)	214	255	355	288	120	73	111	201	208	106
95th Queue (ft)	296	367	625	479	267	142	218	293	303	232
Link Distance (ft)			704	704				2490	2490	
Upstream Blk Time (%)			0							
Queuing Penalty (veh)			1							
Storage Bay Dist (ft)	190	190			140	150	150			100
Storage Blk Time (%)	35	48	12	29		1	2	20	34	1
Queuing Penalty (veh)	144	197	49	30		2	6	44	42	2

Intersection: 2: Project Driveway A & Herndon Avenue

Movement	NB
Directions Served	R
Maximum Queue (ft)	98
Average Queue (ft)	40
95th Queue (ft)	68
Link Distance (ft)	515
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Herndon Avenue & Ash Avenue

Movement	EB	WB	SB
Directions Served	UL	R	R
Maximum Queue (ft)	183	31	210
Average Queue (ft)	74	4	110
95th Queue (ft)	139	19	162
Link Distance (ft)			902
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	120	80	
Storage Blk Time (%)	4		
Queuing Penalty (veh)	16		

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	B10	B10	NB
Directions Served	UL	T	T	T	R	UL	T	T	TR	T	T	L
Maximum Queue (ft)	139	282	331	370	200	210	318	261	301	347	329	200
Average Queue (ft)	72	144	174	202	118	189	245	152	160	125	92	183
95th Queue (ft)	120	264	314	352	245	240	367	236	268	343	277	227
Link Distance (ft)		1211	1211	1211			228	228	228	2285	2285	
Upstream Blk Time (%)						0	46	1	2			
Queuing Penalty (veh)						0	0	0	0			
Storage Bay Dist (ft)	410				100	110						120
Storage Blk Time (%)				28	0	73	13					65
Queuing Penalty (veh)				69	1	242	25					82

Intersection: 4: Armstrong Avenue & Herndon Avenue

Movement	NB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	R
Maximum Queue (ft)	1323	1244	51	159	161	132	98
Average Queue (ft)	657	513	4	66	81	44	46
95th Queue (ft)	1393	1321	20	126	129	103	84
Link Distance (ft)	1568	1568			188	188	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			130	100			80
Storage Blk Time (%)	13			5	4	1	2
Queuing Penalty (veh)	33			5	4	1	2

Intersection: 5: Driveway/Project Driveway B & Fowler Avenue

Movement	SE	SE	SE	NW	NW	NE	SW
Directions Served	UL	T	T	UL	T	R	R
Maximum Queue (ft)	87	103	80	44	26	65	126
Average Queue (ft)	34	3	3	14	1	31	65
95th Queue (ft)	69	34	26	40	8	60	122
Link Distance (ft)		704	704		1241	580	388
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50			140			
Storage Blk Time (%)	6	0					
Queuing Penalty (veh)	35	0					

Intersection: 6: Tollhouse Road & Fowler Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	NE	NE	SW	SW
Directions Served	UL	T	TR	UL	T	T	R	L	T	L	T
Maximum Queue (ft)	269	282	309	229	307	372	230	190	137	81	150
Average Queue (ft)	71	165	173	105	204	217	85	85	58	23	63
95th Queue (ft)	154	251	267	204	305	336	252	144	117	56	118
Link Distance (ft)		3220	3220		1241	1241			1476		1219
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	170			260			100	240		200	
Storage Blk Time (%)	0	6			3	30			3		
Queuing Penalty (veh)	0	7			5	62			8		

Network Summary

Network wide Queuing Penalty: 1830

Initial Study Appendix G

Clovis Unified School District

New District Facilities Project

Vehicle Miles Traveled Analysis

Vehicle Miles Traveled Analysis

Clovis Unified School District Fowler-Herndon Campus

Located on the Southeast Quadrant of Fowler Avenue and Herndon Avenue

In the City of Clovis, California

Prepared for:

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June 26, 2023

Project No. 006-045

JLB TRAFFIC ENGINEERING, INC.

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Traffic Engineering, Transportation Planning, & Parking Solutions

Vehicle Miles Traveled Analysis

For the Clovis Unified School District Fowler-Herndon Campus located on the Southeast Quadrant of Fowler Avenue at Herndon Avenue

In the City of Clovis, CA

June 26, 2023

This Vehicle Miles Traveled Analysis has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

Jose Luis Benavides, P.E., T.E.

President

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Table of Contents

List of Tables

List of Appendices

Project Description

This report describes a Vehicle Miles Traveled (VMT) Analysis prepared by JLB Traffic Engineering, Inc. (JLB) for the Clovis Unified School District (CUSD) Fowler-Herndon Campus (Project) located on the southeast quadrant of Fowler Avenue at Herndon Avenue in the City of Clovis. The Project proposes to develop the site with a Special Education Building, an Online School Building and three future Administration Office Buildings.

VMT Analysis

Regulatory Setting

Senate Bill (SB) 743 requires that relevant California Environmental Quality Act (CEQA) analysis of transportation impacts be conducted using a metric known as VMT instead of level of service (LOS). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roads. If the project adds excessive car travel onto our roads, the project may cause a significant transportation impact.

The State CEQA Guidelines were amended to implement SB 743, by adding Section 15064.3. Among its provisions, Section 15064.3 confirms that, except with respect to transportation projects, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, LOS measures of impacts on traffic facilities are no longer a relevant CEQA criteria for transportation impacts.

CEQA Guidelines Section 15064.3(b)(4) states that "[a] lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revision to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section."

On October 17, 2022, the City of Clovis adopted the *Transportation Impact Analysis Guidelines* (VMT Guidelines) for VMT pursuant to Senate Bill 743 which was effective on July 1, 2020. The City of Clovis VMT Guidelines document was prepared and adopted consistent with the requirements of CEQA Guidelines Sections 15064.3 and 15064.7. The December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA (TA) published by the Governor's Office of Planning and Research (OPR), was utilized as a reference and guidance document in the preparation of the Clovis VMT thresholds.

The City of Clovis VMT Guidelines adopted a screening standard and criteria that can be used to screen out qualified development projects that meet the adopted criteria from needing to prepare a detailed VMT Analysis. These criteria may be size, location, proximity to transit, of trip making potential. In general development projects that are consistent with the City of Clovis' General Plan and Zoning and that that meet one or more of the following criteria can be screened out from a quantitative VMT analysis.

1. Project Located in a Transit Priority Area/High Quality Transit Corridor (within 0.5 miles of a transit stop).
2. Project is Local-serving Retail of less than 100,000 square feet.
3. Project is a Low Trip Generator (Less than 500 average daily trips)
4. Project is 100% Affordable Housing Units
5. Project is located in a Low VMT Zone

This screening tool is consistent with the OPR December 2018 Guidance referenced above. The screening tool includes an analysis of those portions of the City that satisfy the standard of reducing VMT by 13% from existing per capita and per employee VMT averages within the relevant region. The relevant region adopted by the City of Clovis VMT Guidelines is Fresno County. The City of Clovis VMT Guidelines Section 2.1.1.6. regarding project screening states that "… projects that are inconsistent with the RTP/SCS would not qualify for screening out of a detailed VMT analysis".

For projects that are not screened out, a quantitative analysis of VMT impacts must be prepared and compared against the adopted VMT thresholds of significance. The Clovis VMT Guidelines document includes thresholds of significance for development projects, transportation projects, and land use plans. These thresholds of significance were developed using the County of Fresno as the applicable region, and the required reduction of VMT (as adopted in the Clovis VMT Thresholds) corresponds to Fresno County's contribution to the statewide GHG emission reduction target. In order to reach the statewide GHG reduction target of 15%, Fresno County must reduce its GHG emissions by 13%. The method of reducing GHG by 13% is to reduce VMT by 13% as well.

ABM VMT Results

VMT is simply the product of a number of trips and those trips' lengths. The first step in a VMT analysis is to establish the baseline average VMT, which requires the definition of a region. The Clovis VMT Guidelines provide that the Fresno County average VMT per Capita (appropriate for residential land uses) and Employee (appropriate for office/commercial non-retail land uses) are 16.1 and 25.6, respectively. The City's threshold targets a 13% reduction in VMT for residential and office/commercial non-retail land uses and a net zero (0) increase in regional VMT for commercial retail land uses. After discussions with the City of Clovis, it was decided that this project would be analyzed as an office land use due to the majority of the trips being generated by employees.

The City's adopted thresholds for development projects correspond to the regional averages modeled by Fresno COG's ABM. For residential and office development projects, the adopted threshold of significance is a 13% reduction, which means that projects that generate VMT in excess of a 13% reduction from the existing regional VMT per capita or per employee would have a significant environmental impact. Projects that reduce VMT by 13% or more are less than significant. The adopted threshold for all other land use types that don't require a General Plan Amendment or Zone Change is no net increase in VMT per employee. The adopted threshold for retail projects is any net increase in Regional VMT compared to the existing Regional VMT. Quantitative assessments of the VMT generated by a development project are determined using the COG ABM, which is a tour-based model.

For mixed use projects, the City of Clovis VMT Guidelines state that the VMT can be estimated based on each component of the project, independently, after taking credit for internal trip capture. It also confirms that mixed use projects must use the Fresno COG's Activity Based Model. The VMT per capita (for the residential component) and the total VMT (for the retail component) is then compared against the relevant threshold.

The target VMT for residential and commercial non-retail land uses are (16.1 X (1-.13) = 14.0) 14.0 VMT per capita and (25.6 X (1-.13) = 22.3) 22.3 VMT per employee, respectively. The target VMT for all other type of land uses that are consistent with the General Plan is 25.6 VMT per employee. The threshold for retail land uses is a net zero (0) increase in Regional VMT for retail land uses (City of Clovis, 2020).

The Project's trip generation with land use and square footages were provided to Kittelson & Associates in order to conduct a Project-specific VMT analysis using the Fresno COG ABM for Project components. Table I summarizes the VMT results for the Project derived from Fresno COG ABM and the relevant threshold. Based on Fresno COG ABM VMT results, the Project has an average VMT of 27.5 VMT per employee. This can be broken into an internal component and external component of 10.0 VMT per employee and 17.5 VMT per employee, respectively. The Fresno COG ABM VMT Output can be found in Appendix A. However, after further consideration, JLB has determined that the external component of this average VMT is unrealistically high and does not consider that most employees of CUSD live within Fresno County. Therefore, JLB has contacted the CUSD to obtain zip code data on the employees that currently work at the facilities that this Project will be replacing and adding to. Since the VMT output from the Fresno COG ABM is unrealistically high for this Project, JLB has used employee zip code data to accurately analyze the average VMT per employee.

CUSD Data Driven Results

CUSD delivered employee data of employees that are currently working at facilities that this Project will be replacing and adding upon. The VMT resulting from this information will be a more realistic and accurate output. This data included 73 employees and the zip codes in which they reside. The center of homes in that zip code was used to determine the distance to the Project. This distance was used to create the VMT of that zip code by multiplying the distance by the number of employees, distance to Project and expansion factor of 15%. The zip codes and the corresponding data can be found in Table I below.

Table I: CUSD Employee and Zip Code Data

Zip Codes	# of Employees	Distance to Project (Miles)	Vehicle Miles Traveled (Miles)
93611	13	2.5	74.8
93612	1	3.7	8.5
93619	29	5.5	366.9
93625	1	20.8	47.8
93626	3	15.9	109.7
93636	2	22.2	102.1
93650	1	7.0	16.1
93705	1	12.7	29.2
93711	4	10.0	92.0
93720	9	6.0	124.2
93722	1	15.5	35.7
93727	3	11.8	81.4
93730	3	7.9	54.5
93740	1	6.0	13.8
95003	1	158.0	99.8

Furthermore, the VMT derived from these zip codes were used to determine percentage of internal and external employees, internal VMT per employee, external VMT per employee and average VMT per employee. It is assumed that the employee that resides in the zip code 95003 travels to the district to work at the beginning of the week, stays during the week and goes home at the end of the week. As can be seen in Table II below, the average employee VMT calculated from actual employee data is 17.2 VMT per employee. The calculated VMT based on data from CUSD can be found in Appendix B.

Table II: Employee VMT Data

Total Employees	73
Total VMT (Miles)	1556.5
Internal Employees	69
External Employees	4
Average Internal VMT per Employee (Miles)	13.9
Average External VMT per Employee (Miles)	3.3
Average VMT per Employee (Miles)	17.2

Conclusion

As can be seen in Table III below, the Project has a VMT per employee of 17.2. This VMT is within the City's threshold of 22.3 VMT per employee for office land uses. In conclusion, there is a less than significant impact to VMT associated with this Project pursuant to the City of Clovis VMT analysis guidelines.

Table III: VMT Results

Project Components	***CUSD Data VMT Results[1]***	***City of Clovis VMT Threshold[2]***	***Significant VMT Impact?***
Office	17.2	22.3	No

Note: 1 = VMT Results from Employee Data per CUSD.
2 = VMT Threshold per *CEQA Guidelines for Vehicle Miles Traveled Thresholds* for the City of Clovis.

- Based on zip code date, the VMT per employee based on zip codes of actual employees is 17.2.
- The City of Clovis VMT threshold for office land uses is 22.3 VMT per employee.
- As a result, there is a less than significant impact to VMT associated with this Project pursuant to the City of Clovis VMT analysis guidelines.

Study Participants

JLB Traffic Engineering, Inc. Personnel

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Adrian Benavides	Engineering Aide

Persons Consulted:

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Sean Smith, PE	City of Clovis
Mike Aronson, PE	Kittelson & Associates

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Appendix A: Fresno COG Activity Based Model VMT Output

Existing TAZ VMT Summary

TAZ ID/Zone	2856

Existing TAZ Demographics

Jurisdiction	Fresno County
Households	-
Population	-
Household Size	#DIV/0!
Total Employment	412

VMT per capita

IIVMT_CAP	0.00
IXVMT_CAP	0.00
VMT_CAP	0.00

VMT per employee

IIVMT_EMP	10.03
XIVMT_EMP	17.44
VMT_EMP	27.46

Notes: Input the TAZ ID in the orange cell to extract TAZ VMT

Appendix B: Calculated VMT based on CUSD Data

CUSD Zip Code Data

Zip Code	# of Employees in Zip Code	Distance (miles)	VMT
93611	13	2.5	74.8
93612	1	3.7	8.5
93619	29	5.5	366.9
93625	1	20.8	47.8
93626	3	15.9	109.7
93636	2	22.2	102.1
93650	1	7.0	16.1
93705	1	12.7	29.2
93711	4	10.0	92.0
93720	9	6.0	124.2
93722	1	15.5	35.7
93727	3	11.8	81.4
93730	3	7.9	54.5
93740	1	6.0	13.8
95003	1	158.0	99.8

Calculations	
Total Employees	73
Total VMT	1256.5
Internal Employees	69
External Employees	4
Internal VMT/ Employee	13.9
External VMT/Employee	3.3
VMT/Employee	17.2

Int VMT/Int Employee	14.75
Ext VMT/Ext Employee	59.63