

DRAFT

**INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

**4738 PROCTOR ROAD SUBDIVISION PROJECT
PLN2021-00216, TR-8628, 11-LOT SUBDIVISION
CASTRO VALLEY, CALIFORNIA**



Prepared for:

Alameda County Community Development Agency, Planning Department

224 W. Winton Avenue, Ste 111

Hayward, CA 94544

LSA

February 2023

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Prepared for:

Alameda County Community Development Agency
224 W. Winton Avenue, Rm 111
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February 2023

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LIST OF ABBREVIATIONS AND ACRONYMS

ug/m ³	micrograms per cubic meter
A	Agriculture
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda County Transit
ACFD	Alameda County Fire Department
ADT	average daily trips
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BMPs	Best Management Practices
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CALGreen Code	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act

CESA	California Endangered Species Act
CGP	Construction General Permit
CGS	California Geological Survey
CH ₄	methane
Chabot Park	Anthony Chabot Regional Park
City	City of Castro Valley
Clean Air Plan	BAAQMD's 2017 Clean Air Plan
CNDDDB	California Natural Diversity Data Base
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
County	County of Alameda
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSA	(Alameda County Extended Police Protection) County Service Area
CSU	Conditional Secondary Unit
CVSD	Castro Valley Sanitary District
CVUSD	Castro Valley Unified School District
dBA	A-weighted decibel(s)
DOSH	Division of Occupational Safety and Health
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EFZ	Earthquake Fault Zone
EOC	(Alameda County) Emergency Operations Center

EOP	(Alameda County) Emergency Operations Plan
ESA	Federal Endangered Species Act
EQ Zapp	California Earthquake Hazards Zone Application
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GWh	gigawatt-hours
GWP	global warming potential
HFCs	hydrofluorocarbons
HO	Hillside Overlay
I-580	Interstate 580
in/sec	Inches per second
IPaC	(USFWS) Information for Planning and Consultation
IS/MND	Initial Study/Mitigated Negative Declaration
ITE	Institute of Transportation Engineers
kWh	kilowatt hours
LAFCO	Alameda Local Agency Formation Commission
L _{eq}	equivalent continuous sound level
LID	Low Impact Development
L _{max}	maximum A-weighted sound level
MEI	maximally exposed individual
mgd	million gallons per day
MLD	Most Likely Descendant

MMI	Modified Mercalli Intensity
mpg	miles per gallon
MRP	San Francisco Bay Region Municipal Regional Stormwater NPDES Permit
MTC	Metropolitan Transportation Commission
NAHC	Native American Heritage Commission
N ₂ O	nitrous oxide
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	(USFWS) National Wetlands Inventory
NWIC	Northwest Information Center
OES	Alameda County Sheriff's Office of Emergency Services
OHP	(California) Office of Historic Preservation
OPR	(California) Governor's Office of Planning and Research)
OSHA	Occupational Health and Safety Administration
PCBs	polychlorinated biphenyls
Pb	lead
PFCs	perfluorocarbons
PG&E	Pacific Gas & Electric
PM ₁₀	particulate matter less than 10 microns in diameter
POTWs	publicly owned treatment works
PPV	peak particle velocity

PRC	California Public Resources Code
project	4738 Proctor Road Subdivision Project
R-1	Single-Family Residential
RCRA	(Federal) Resource Conservation and Recovery Act
RH	Hillside Residential
RM	resource management
RMS	root mean square
ROGs	reactive organic gases
RWQCB	Regional Water Quality Control Board
RV	Recreational Vehicle
SB	Senate Bill
SCP	Stormwater Control Plan
SF ₆	sulfur hexafluoride
SO ₂	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VHFHSZ	Very High Fire Hazard Severity Zone



VMT

vehicle miles traveled

WSMP

Water Supply Management Program

1.0 PROJECT INFORMATION

1. Project Title:

4738 Proctor Road Subdivision Project

2. Lead Agency Name and Address:

Alameda County Community Development Agency (County)
224 W. Winton Avenue, Rm. 111
Hayward, California 94544

3. Contact Person and Phone Number:

Damien Curry, Senior Planner
510-670-6684
Damien.Curry@acgov.org

4. Project Location:

The approximately 5.25-acre project site consists of one parcel located at 4738 Proctor Road in the unincorporated community of Castro Valley, Alameda County (Assessor's Parcel Number [APN] 84D-1402-05-03). The project site is located east of Lake Chabot in an area consisting primarily of residential uses and undeveloped open space associated with Lake Chabot Regional Park.

5. Project Sponsor's Name and Address:

Abraham Young Partnership
P.O. Box 2071
Castro Valley, CA 94546

6. General Plan Designation:

Hillside Residential (RH)

7. Zoning:

Single-Family Residential (R-1), B-E District,¹ Conditional Secondary Unit (CSU), Recreational Vehicle (RV) and Hillside Overlay (HO) combining districts.

8. Description of Project:

¹ The B districts are established to be combined with other districts in order to modify the site area and yard requirements, and thereby to vary the intensity of land use so as to give recognition to special conditions of topography, accessibility, water supply, or sewage disposal, and to provide for development pursuant to adopted plans. The minimum building site/yard requirements in the B-E district are specified in the amendment creating the district.

The proposed project would result in the subdivision of the existing land parcel into 11 residential parcels and the construction of 10 new single-family homes on the project site as described in more detail in Section 2.0, Project Description.

9. Surrounding Land Uses and Setting:

The project site is generally surrounded by residential uses with open space to the north. A more detailed description of the existing site and surrounding land uses is provided in Section 2.0, Project Description.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

See Section 2.3, Project Approvals.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In January 2023, Alameda County Community Development Agency provided formal notification to those California Native American tribes that are traditionally and culturally affiliated with the geographic area within which the proposed project is located pursuant to the consultation requirements of AB 52. Letters were sent to all tribal representatives identified by the Native American Heritage Commission. To date, the County has received no responses from the tribal representative; however, the tribal consultation is still ongoing.

2.0 PROJECT DESCRIPTION

The following describes the proposed 4738 Proctor Road Subdivision Project (project) that is the subject of this Initial Study/Mitigated Negative Declaration (IS/MND) prepared pursuant to the California Environmental Quality Act (CEQA). The proposed project would result in the subdivision of the existing land parcel and the construction of 10 new single-family homes on the project site as described in more detail below. The County of Alameda (County) is the lead agency for review of the proposed project under CEQA.

2.1 PROJECT SITE

The following section describes the project location, existing conditions, surrounding land uses, and regulatory setting.

2.1.1 Project Location

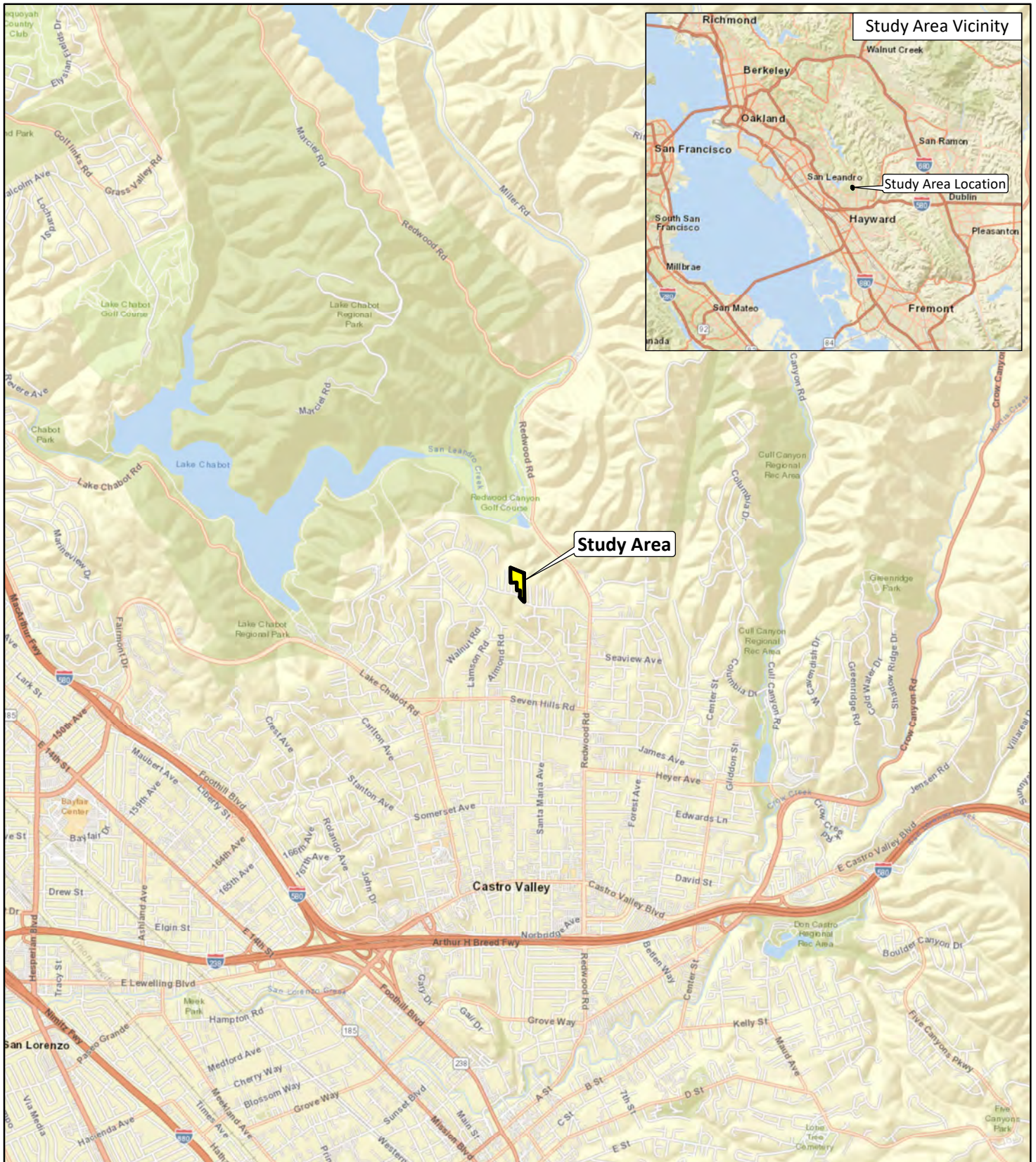
The approximately 5.25-acre project site consists of one land parcel located at 4738 Proctor Road in the unincorporated community of Castro Valley, Alameda County (Assessor's Parcel Number [APN] 84D-1402-05-03). The project site is located east of Lake Chabot in an area consisting primarily of residential uses and undeveloped open space. The project site is bounded by Proctor Road to the south, single-family residential development to the east and west, and undeveloped open space associated with Lake Chabot Regional Park to the north.

Regional vehicular access to the project site is provided by Interstate 580 (I-580), located approximately 1.85 miles south and 2.8 miles west of the project site. When approaching the project site from the east, the closest off-ramp to the project site is for Redwood Road, approximately 2.5 miles to the south, and the closest on-ramp is for Heyer Avenue, approximately 2.2 miles to the southeast. When approaching the project from the west, the closest off-ramp is for Strobridge Avenue, approximately 2.0 miles southwest of the project site, and the closest on-ramp is for Castro Valley Boulevard, approximately 2.0 miles southwest of the project site. Bus stops along Seven Hills Road and Redwood Road provide transit service to the project site. The Castro Valley Bay Area Rapid Transit (BART) Station is located approximately 1.9 miles south of the project site. Figure 2-1 shows the regional and local context of the project site. Figure 2-2 depicts an aerial photograph of the project site and surrounding land uses (see Section 2.1.3).

2.1.2 Existing Conditions

The project site has a gentle northward slope with site elevations ranging from approximately 460 feet above mean sea level at the northern end of the parcel to 545 feet above mean sea level at the southern end of the parcel along Proctor Road. The project site is primarily vacant grassland but is occupied by three buildings and four structures, including two single-story farmhouses, a barn with loft, four associated outbuildings and structures, and fences and gates. The house facing Proctor Road was built in 1955–1956. The second farmhouse at the far northwestern corner of the property was built in 1944 with two horse stalls and living space at one end and a garage at the other.

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LEGEND


 Study Area

FIGURE 1



0 2000 4000
FEET

SOURCE: Esri World Street Map (2022).

I:\A\2201\GIS\MXD\Cultural\Cultural Resources Study\Figure 1_Regional Location.mxd (6/6/2022)

4738 Proctor Road Subdivision Project
Regional Location

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LAKE CHABOT REGIONAL PARK

SINGLE-FAMILY RESIDENTIAL

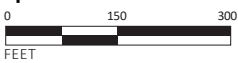
SINGLE-FAMILY RESIDENTIAL

SINGLE-FAMILY RESIDENTIAL

 Project Site Boundary

FIGURE 2

LSA



SOURCE: Google Earth, 8/5/2020; LSA, 2022

I:\AYP2201\G\Fig 2_ProjSite&SurroundingLU.ai (6/16/2022)

4738 Proctor Road Subdivision Project
Project Site Location and Surrounding Land Uses

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The horse stalls were removed and converted to living space in 1982. The property also contains a detached barn northwest of the main house facing Proctor Road. Four smaller detached sheds are located behind the main house and near the property's southwestern corner. These structures are used for equipment storage or feeding horses.

Vegetation primarily consists of annual grassland with trees and shrubs along the northern and eastern parcel boundaries and surrounding the residential structures and ancillary structures. There are 34 existing mature trees on the project site.

2.1.3 Surrounding Land Uses

As shown in Figure 2-2, the project site is generally surrounded by residential uses with open space to the north. The project is bordered immediately to the north by a segment of the Proctor and Ten Hills Loop Trail within Anthony Chabot Regional Park (Chabot Park), and open space zoned as agriculture (A) with a General Plan land use designation of resource management (RM). Further north is the Redwood Canyon Golf Course and Lake Chabot Regional Park, which is owned and maintained by the East Bay Regional Park District. The project is bordered immediately to the east and west by single-family residential neighborhoods with one- to two-story homes. Further west is Lake Chabot and Lake Chabot Regional Park. The project is bordered immediately to the south by Proctor Road. Further south is an additional single-family residential neighborhood with one- to two-story homes.

2.1.4 Circulation and Access

Existing access to the site includes two asphalt driveways off of Proctor Road. One driveway is horseshoe-shaped and provides access to the residential unit closest to Proctor Road. The other driveway extends approximately 700 feet north of Proctor Road to access the second residential unit on the northwest corner of the project site.

2.1.5 Regulatory Setting

The County of Alameda General Plan Land Use Map designates the project site as Hillside Residential (RH). This land use is intended to provide for single-family residential uses in neighborhoods on lot sizes ranging from 5,000 to 10,000 square feet. The allowable residential density is between 4 and 8 units per net acre. The County of Alameda Zoning Map identifies the project site as Single-Family Residential (R-1) zoning district, as well as the B-E District, Conditional Secondary Unit (CSU), Recreational Vehicle (RV) and Hillside Overlay (HO) combining districts. The R-1 zoning district is intended for single-family dwellings and also permits field crops, orchard, garden, and family day cares. The minimum allowable lot size is 5,000 square feet. The B combining districts are intended to be combined with other districts to modify the site area and yard requirements, and thereby vary the intensity of land uses to give recognition to special conditions of topography, accessibility, water supply, or sewage disposal. The CSU combining district allows for a secondary dwelling unit on a lot zoned for not more than one residence. The RV combining district allows for the parking and storage of personally owned recreational vehicles. The HO combining district is established in areas with steep slopes or near high fire hazards and has a variety of additional development restrictions including design standards, minimum lot size requirement based on average slope of the parcel, and other measures.

2.2 PROPOSED PROJECT

The proposed project involves the subdivision of the existing parcel into 11 lots and the construction of 10 new single-family residential units and associated improvements. Individual components of the proposed project are discussed below.

2.2.1 Residential Use

As previously discussed, the proposed project would result in the demolition of one of the existing farmhouses, barn and other existing ancillary structures, and subdivision of the project site to allow for the construction of 10 new single-family residential units. The existing residence facing Proctor Road would be retained. With approval of the Vesting Tentative Tract Map, the project site would be subdivided into 11 lots, approximately 10,000 square feet in size. All of the proposed lots would front to a new internal street within the project site. The proposed project would have an overall density of 2.75 dwelling units per acre. Future development of the subdivided parcels would be consistent with County standards, including required setbacks and a maximum height limit of 30 feet. It is anticipated that proposed houses would range from approximately 3,000 to 5,000 square feet in size. In addition to most of the existing structures on the site, approximately 23 trees would be removed, including 5 oak trees adjacent to Chabot Park.

Figure 2-3 shows the conceptual site plan for the proposed project.

2.2.2 Access, Circulation, and Parking

As shown in Figure 2-3, vehicular access to the project site would be provided at two entry points, one of which would be located along Proctor Road on the south side of the site, and one of which would be located along the existing private driveway that runs along the west side of the site. An interior roadway would provide vehicular access to each of the residential units. Streetlights would be provided along the interior roadway, consistent with County standards. Each residence would have driveway access from the proposed interior street with a two-car garage. In addition, approximately 19 on-street parking spaces would be provided along the east side of the interior roadway.

2.2.3 Utilities and Infrastructure

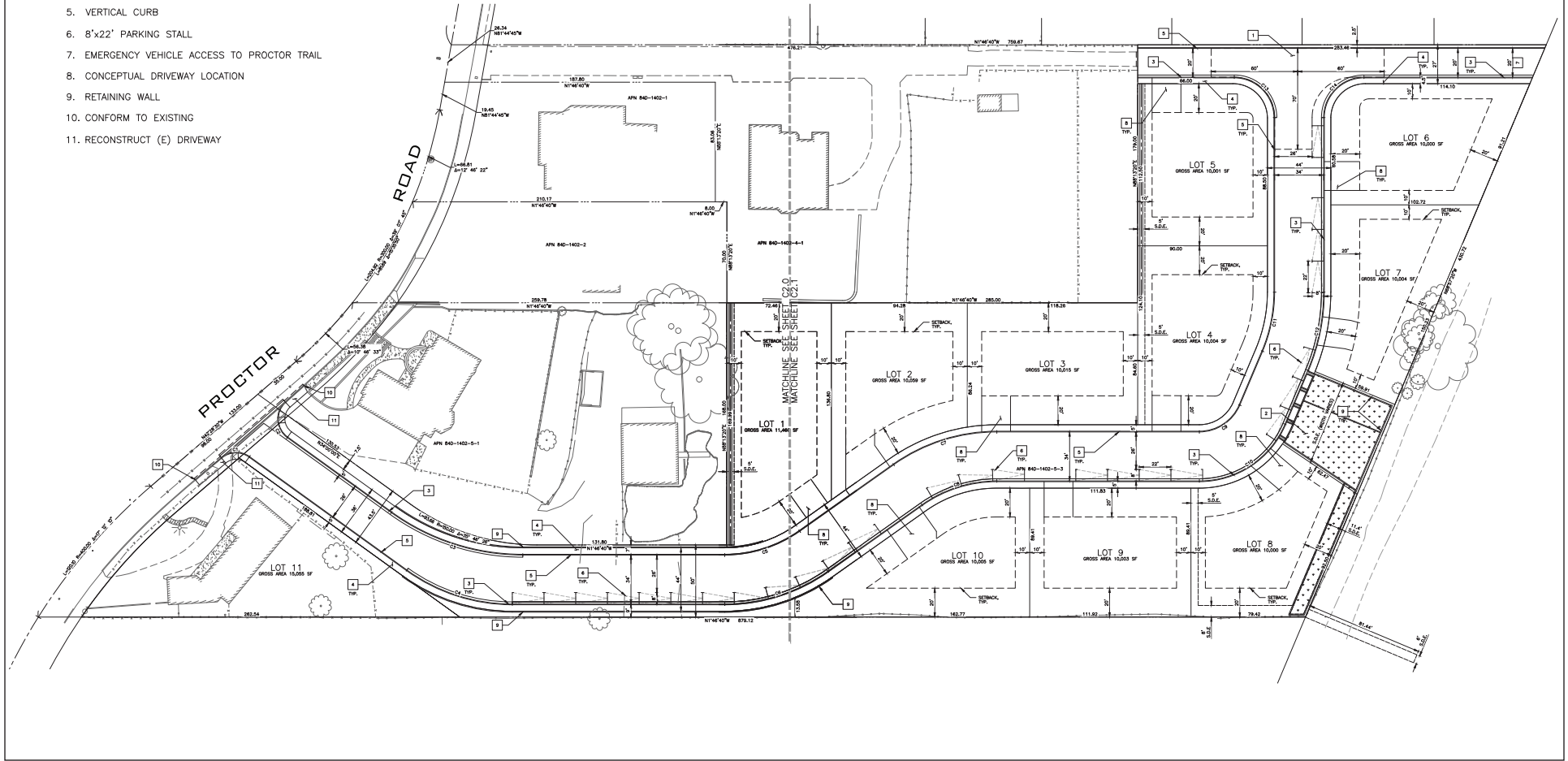
The project site is located in a developed area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed below.

2.2.3.1 Water

Water service is provided by East Bay Municipal Utility District (EBMUD). The proposed project would include the installation of a new water main within the interior roadway that would connect to the existing 12-inch main located within Proctor Road. An 8-inch line would likely be required but the final size would be determined prior to issuance of a grading permit and parcel map recordation. In addition, new water lines would be installed to serve each proposed lot.

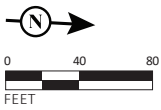
KEYNOTES #

1. FIRE TRUCK TURN AROUND
2. BIORETENTION/DETENTION AREA
3. CURB AND GUTTER
4. CONCRETE SIDEWALK
5. VERTICAL CURB
6. 8'x22' PARKING STALL
7. EMERGENCY VEHICLE ACCESS TO PROCTOR TRAIL
8. CONCEPTUAL DRIVEWAY LOCATION
9. RETAINING WALL
10. CONFORM TO EXISTING
11. RECONSTRUCT (E) DRIVEWAY



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FIGURE 3



4738 Proctor Road Subdivision Project
Preliminary Site Plan

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A 1.5-inch line would likely be required but the final size would be determined prior to issuance of a grading permit and parcel map recordation. The project site is located in an area with low water pressure; therefore, booster pump(s) may be required to serve individual residences.

2.2.3.2 Wastewater

Castro Valley Sanitary District maintains existing sanitary sewer lines within the vicinity of the site, including an 8-inch line within Proctor Road. New 4-inch laterals and 8-inch mains and associated manholes would be installed throughout the project site and would tie into the existing 8-inch line. The proposed project would also include installation of a pump station.

2.2.3.3 Stormwater

The existing residential structures, paving, concrete, and other impervious surfaces account for approximately 0.3 acre (5 percent) of the 5.25-acre site. The remaining 4.9 acres on the project site are covered by pervious surface consisting primarily of grassland. There is no existing stormwater infrastructure on the project site; however, surface flows on the project site, if any, would generally flow in a northward direction towards the undeveloped open space north of the project site.

With development of the 10 additional residential units, approximately 65 percent of the project site would be covered by impervious surfaces and approximately 35 percent would be covered by pervious surfaces, consisting of landscaped areas with lawns, shrubs, and trees. The proposed project would include approximately 4,042 square feet of bioretention space on the northeastern end of the project site that would be used for stormwater control and treatment. The proposed project would include the construction of storm drains with associated catch basins and manholes, throughout the project area that would drain to the bioretention area. An 18-inch storm drain would likely be required but the final size would be determined prior to issuance of a grading permit and parcel map recordation. Surface flows would also be directed northward and eastward towards the bioretention area. Any overflow would be conveyed north via an overflow drainpipe that discharges north and downslope of Proctor Trail via a new storm drain outlet. A riprap energy dissipator would be installed at the storm drain outlet to prevent erosion at the outfall.

2.2.3.4 Electricity and Gas

Electricity and gas service is provided to the project site by Pacific Gas & Electric Company (PG&E). The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site on Proctor Road.

2.2.4 Demolition and Construction

The proposed project would result in the demolition of the existing residential unit at the northwestern corner of the project site, four outbuildings, portions of the asphalt driveway on the northwestern corner of the project site, portions of the curb along Proctor Road, and existing wood and pipe fencing. Grading associated with site preparation (e.g., earthwork associated with internal roadways and stormwater detention) would require approximately 4,155 cubic yards of cut material and 1,566 cubic yards of fill, resulting in approximately 2,589 cubic yards of material that would be off hauled for disposal.

2.3 PROJECT APPROVALS

While the County is the CEQA lead agency for the proposed project, other agencies also have discretionary authority related to the project and approvals, or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided in Table 2.A.

Table 2.A: Potential Permits and Approvals

Lead Agency	Permits/Approvals
County of Alameda	<ul style="list-style-type: none"> ● Adoption of the IS/MND for the 4738 Proctor Road Subdivision Project ● Vesting Tentative Map Approval
Other Agencies	
County of Alameda Fire Department	<ul style="list-style-type: none"> ● Review/Approve fire truck access and site fire flow design
East Bay Municipal Utility District (EBMUD)	<ul style="list-style-type: none"> ● Connection to water system
Castro Valley Sanitary District (CVSD)	<ul style="list-style-type: none"> ● Connection to wastewater system
County of Alameda Building Division	<ul style="list-style-type: none"> ● Issuance of Building Permits for new home construction
County of Alameda Public Works Dept.	<ul style="list-style-type: none"> ● Issuance of Final Map
Pacific Gas & Electric (PG&E)	<ul style="list-style-type: none"> ● Reconnection of electricity/natural gas service

Source: LSA (2022).

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” or “Less Than Significant with Mitigation Incorporated” as indicated by the checklist in Chapter 3.0.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

3.1 DETERMINATION

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “Potentially Significant Impact” or “Potentially Significant Unless Mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

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4.0 CEQA ENVIRONMENTAL CHECKLIST

4.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project have a substantial effect on a scenic vista? (Less Than Significant Impact)*

The *Castro Valley General Plan* does not designate any official scenic vistas; however, northward views to the East Bay Regional Park District land, and northwestward views of the Chabot Park, Cull Canyon, and its lagoon can be considered scenic views in Castro Valley. Additionally, all of the land to the north and east of Castro Valley, up to Redwood Drive, is protected from urban or suburban development by an urban growth boundary established by County voters with the approval of Measure D in 2000. Castro Valley’s visual character is defined by its natural setting as well as by the style and pattern of the built environment including buildings, streets, trees, and other landscaping. Many residential areas of the community are located on rolling, thickly vegetated hills and canyons. The lack of curbs and gutters on the streets gives some neighborhoods a semi-rural character.²

Although the project site is located on a largely undeveloped parcel, the neighborhoods surrounding the project site to the east, south, and west are primarily built out and densely developed with residential uses. Additionally, under existing conditions, houses and trees line the entrance to the parcel from Proctor Road, blocking any public views of the East Bay Regional Park District land to the north. Therefore, the proposed project would not obscure any views of scenic vistas from surrounding public vantage points. In addition, the project site is not located in an area considered to be within view of a scenic vista. Therefore, the proposed project would not result in a substantial adverse effect on a scenic vista, and this impact would be less than significant.

² Alameda County Community Development Agency. 2007. *Castro Valley General Plan Draft Environmental Impact Report*. April.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (No Impact)

The closest officially designated Scenic Highway to the project site is a segment of Interstate 580 (I-580) approximately 3 miles northwest of the project site. A segment of I-580 that passes through Castro Valley approximately 2 miles south of the project site is identified as an eligible California Scenic Highway, although it has not been officially designated. The Scenic Highways Element of the Alameda County General Plan designates Crow Canyon, Cull Canyon, and Lake Chabot roads as scenic routes. All of the County-designated scenic routes in Castro Valley are over a mile away from the project site. Given this distance and intervening development and topography, the proposed project would not be visible from any of these roadways. Furthermore, the proposed project would not substantially damage trees, rock outcroppings, or historic buildings as they are not present on the project site. As such, the proposed project would have no impact on scenic resources located within view of a State Scenic Highway.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? (Less Than Significant Impact)

The project site is located within an urbanized area. As noted in Section 2.0, Project Description, the project site is located within the Single-Family Residential (R-1) zoning district, as well as the B-E District, Conditional Secondary Unit (CSU), Recreational Vehicle (RV) and Hillside Overlay (HO) combining districts. The B combining districts are intended to be combined with other districts to modify the site area and yard requirements, and thereby vary the intensity of land use to give recognition to special conditions of topography, accessibility, water supply or sewage disposal. The CSU combining district allows for a secondary dwelling unit on a lot zoned for not more than one residence. The RV combining district allows for the parking and storage of personally owned recreational vehicles. The HO combining district is established in areas with steep slopes or near high fire hazards and has a variety of additional development restrictions including design standards, minimum lot size requirements based on average slope of the parcel, and other measures. Single-family residential units are a permitted use within the R-1 district, which has a minimum allowable lot size of 5,000 square feet and a maximum height of 30 feet. The proposed project would result in the subdivision of the site into 11 lots, approximately 10,000 square feet in size with an overall density of 2.75 dwelling units per acre. Future development of the subdivided parcels would be consistent with County standards, including required setbacks and a maximum height limit of 30 feet.

The proposed project would also be subject to the *Residential Design Standards and Guidelines for the Unincorporated Communities of West Alameda County*³ (County Design Standards and Guidelines), which are a set of discretionary statements and threshold requirements used to guide land development. Compliance with the Design Standards and Guidelines would ensure that the proposed project would preserve and enhance the desired character of existing neighborhoods.

³ County of Alameda Planning Department. 2014. *Residential Design Standards and Guidelines for the Unincorporated Communities of West Alameda County*.

Additionally, the proposed project would be required to undergo Site Development Review which would provide for the review of the physical improvements to the project site, including the overall building scale, massing, and design to ensure compatibility and compliance with County requirements governing scenic quality.

Therefore, because the proposed project would be subject to the County Design Standards and Guidelines and would be required to undergo Site Development review, which would include site-specific review of the proposed buildings, the proposed project would not conflict with applicable zoning or other regulations governing scenic quality, and this impact would be less than significant.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Less Than Significant Impact)

The project site is located in an urban area with a variety of existing light sources including street lights, interior and exterior building lighting, and light associated with traffic on nearby roadways. Development of the proposed project would incrementally increase the amount of nighttime lighting in the surrounding area due to new interior and exterior lighting at the individual residential units and lighting associated with additional vehicular traffic to and from the project site.

As previously discussed, the proposed project would be subject to the County Design Standards and Guidelines and would be required to undergo Site Development Review, which would include a review of on-site lighting and glare as detailed in Alameda County Code Section 17.54.230.

Therefore, because the proposed project would be subject to the County Design Standards and Guidelines and would be required to undergo Site Development review, which would include site-specific review of the proposed buildings and associated lighting, the proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area, and this impact would be less than significant.

4.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (No Impact)

The project site consists primarily of vacant grassland but is occupied by two existing residential units, asphalt driveways, a barn, a corral, and several ancillary structures. No agricultural uses are located within or adjacent to the project site. Further, the project site is classified as “Urban and Built-Up Land” and “Other Land” by the State Department of Conservation.⁴ Therefore, the site is not classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance

⁴ California Department of Conservation (DOC). 2018. Division of Land Use Resource Protection. California Important Farmland Finder. Website: maps.conservation.ca.gov/dlrp/ciff (accessed July 14, 2022).

(collectively known as “Important Farmland”). As such, the proposed project would not result in the conversion of Important Farmland to another use, and no impact would occur.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? (No Impact)

The project site is designated as Hillside Residential (RH) on the County of Alameda General Plan Land Use Map and is within the Single-Family Residential (R-1) zoning district, as well as the B-E District, Conditional Secondary Unit (CSU), Recreational Vehicle (RV) and Hillside Overlay (HO) combining districts. The project site is not under a Williamson Act contract.⁵ Therefore, development of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impact would occur.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? (No Impact)

The project site consists primarily of vacant grassland but is occupied by two existing residential units, asphalt driveways, a barn, a corral, and several ancillary structures. The project site is zoned as Single-Family Residential (R-1) with B-E District, Conditional Secondary Unit (CSU), Recreational Vehicle (RV) and Hillside Overlay (HO) combining districts. No parcels adjacent to or near the project site are zoned for forest land, timberland, or timberland production. The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland, nor would it result in the loss of forest land or conversion of forest land to non-forest uses. As such, no impact to forest land or timberland would occur.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? (No Impact)

Please refer to Section 4.2.c. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? (No Impact)

Please refer to Sections 4.2.a. and 4.2.c. The project site is located in an urban environment and would not involve other changes in the existing environment which, due to their location or nature, could result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, no impact would occur.

⁵ Alameda County Community Development Agency. 2007. *Castro Valley General Plan Draft Environmental Impact Report*. April.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The project site is located within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In Alameda County, and the rest of the San Francisco Bay Area Air Basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM₁₀, PM_{2.5}), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal PM_{2.5} 24-hour standard.

a. *Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant Impact)*

The applicable air quality plan is the BAAQMD 2017 Clean Air Plan (Clean Air Plan),⁶ which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate.

⁶ Bay Area Air Quality Management District (BAAQMD). 2017b. *Clean Air Plan*. April 19.

Consistency with the Clean Air Plan can be determined if the project: (1) supports the goals of the Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Clean Air Plan Goals. The primary goals of the Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect the climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed below, implementation of the proposed project would result in less than significant operation-period emissions and, with implementation of Mitigation Measure AIR-1, the project would result in less than significant construction-period emissions. Therefore, the project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-Greenhouse Gas (GHG) Pollutants Measures.

Stationary Source Control Measures. The Stationary Source Measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by BAAQMD Permit and Inspection programs. Since the project would not include any stationary sources, the Stationary Source Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. The BAAQMD identifies Transportation Control Measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The proposed project involves the subdivision of the existing parcels into 11 lots and the construction of 10 new single-family residential units and associated improvements. The proposed project would not result in a significant increase in the generation of vehicle trips or vehicle miles traveled (VMT). In addition, the project site is located within walking or bicycling distance from the surrounding residential areas, and bus stops along Seven Hills Road and Redwood Road provide transit service to the project site; therefore, the project would support the ability of visitors to use alternative modes of transportation. As such, the project would not conflict with BAAQMD initiatives to reduce vehicle trips and VMT and would provide access to alternate means of transportation.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of

the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the Energy Control Measures of the Clean Air Plan are not applicable to the project.

Building Control Measures. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. The proposed project would be required to comply with the latest California Green Building Standards Code (CALGreen Code) standards. Therefore, the Building Control Measures of the Clean Air Plan are not applicable to the project.

Agriculture Control Measures. The Agriculture Control Measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the project.

Natural and Working Lands Control Measures. The Natural and Working Lands Control Measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to enact ordinances that promote urban-tree plantings. Since the project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the project.

Waste Management Control Measures. The Waste Management Measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The Water Control Measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the project.

Super-GHG Control Measures. The Super-GHG Control Measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the project.

Clean Air Plan Implementation. As discussed above, the proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan, and this impact would be less than significant.

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? (Less Than Significant with Mitigation Incorporated)

The BAAQMD is currently designated as a non-attainment area for State and national ozone standards and national particulate matter ambient air quality standards. The BAAQMD non-attainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. The following analysis assesses the potential construction- and operation-related air quality impacts and CO impacts of the proposed project.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, nitrogen oxide (NO_x), reactive organic gases (ROG), directly-emitted particulate matter (PM_{2.5} and PM₁₀), and TACs such as diesel exhaust particulate matter.

Site preparation and project construction would involve demolition, grading, paving, and other activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM₁₀). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, ROGs and some soot particulate (PM_{2.5}

and PM₁₀) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod) version 2020.4.0, consistent with BAAQMD recommendations. Construction activities would include the demolition of the existing residential unit, which was included in CalEEMod. In addition, the proposed project would include the export of 2,589 cubic yards of soil, which was included in CalEEMod. This analysis also assumes the use of Tier 2 construction equipment. Other construction details are not yet known; therefore, default assumptions (e.g., construction phasing and construction fleet activities) from CalEEMod were used. For purposes of this analysis, the construction schedule was assumed to be approximately 13 months. Construction-related emissions are presented in Table 4.A. CalEEMod output sheets are included in Appendix A.

Table 4.A: Project Construction Emissions (in Pounds Per Day)

Project Construction	ROG	NO _x	Exhaust PM ₁₀	Fugitive Dust PM ₁₀	Exhaust PM _{2.5}	Fugitive Dust PM _{2.5}
Average Daily Emissions	2.4	16.4	0.6	0.2	0.6	0.1
BAAQMD Thresholds	54.0	54.0	54.0	BMP	82.0	BMP
Exceed Threshold?	No	No	No	No	No	No

Source: LSA (August 2022).

BAAQMD = Bay Area Air Quality Management District

BMP = best management practices

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ROG = reactive organic gases

As shown in Table 4.A, construction emissions associated with the project would be less than significant for ROG, NO_x, PM_{2.5}, and PM₁₀ exhaust emissions. The BAAQMD requires the implementation of the BAAQMD Basic Construction Mitigation Measures (best management practices) to reduce construction fugitive dust impacts to a less than significant level as follows:

Mitigation Measure AIR-1

In order to meet the Bay Area Air Quality Management District (BAAQMD) fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title 13, Section 2485 of the California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly-visible sign shall be posted with the telephone number and person to contact at Alameda County regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

As shown in Table 4.A, construction emissions associated with the proposed project would be less than significant with implementation of Mitigation Measure AIR-1. Therefore, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard, and impacts would be less than significant with mitigation incorporated.

Operational Emissions. Long-term air pollutant emission impacts are those associated with mobile sources (e.g., vehicle trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment) related to the proposed project.

PM₁₀ emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM₁₀ occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles.

Energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source.

Typically, area source emissions consist of direct sources of air emissions located at the project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the project would include emissions from the use of landscaping equipment.

Emission estimates for operation of the project were calculated using CalEEMod. Model results are shown in Table 4.B. Trip generation rates for the project were based on the project’s trip generation estimate, as identified in Section 4.17, Transportation. Based on the trip generation estimates, the proposed project would generate approximately 85 net new average daily trips.

Table 4.B: Project Operational Emissions

	ROG	NO _x	PM ₁₀	PM _{2.5}
Pounds Per Day				
Area Source Emissions	1.3	0.1	<0.1	<0.1
Energy Source Emissions	<0.1	0.1	<0.1	<0.1
Mobile Source Emissions	0.2	0.3	0.4	0.1
Total Emissions	1.5	0.5	0.4	0.1
BAAQMD Thresholds	54.0	54.0	82.0	54.0
Exceed Threshold?	No	No	No	No
Tons Per Year				
Area Source Emissions	0.2	<0.1	<0.1	<0.1
Energy Source Emissions	<0.1	<0.1	<0.1	<0.1
Mobile Source Emissions	<0.1	<0.1	0.1	<0.1
Total Emissions	0.3	0.1	0.1	<0.1
BAAQMD Thresholds	10.0	10.0	15.0	10.0
Exceed Threshold?	No	No	No	No

Source: LSA (August 2022).

BAAQMD = Bay Area Air Quality Management District

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ROG = reactive organic gases

The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on release or, in the case of vehicle emissions associated with the project, emissions are released in other areas of the San Francisco Bay Area Air Basin. The daily and annual emissions associated with project operational trip generation, energy, and area sources are identified in Table 4.B for ROG, NO_x, PM₁₀, and PM_{2.5}.

The results shown in Table 4.B indicate the project would not exceed the significance criteria for daily or annual ROG, NO_x, PM₁₀ or PM_{2.5} emissions. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard. Impacts would be less than significant.

Localized CO Impacts. Emissions and ambient concentrations of CO have decreased dramatically in the Bay Area with the introduction of the catalytic converter in 1975. No exceedances of the State or federal CO standards have been recorded at Bay Area monitoring stations since 1991. The BAAQMD 2017 CEQA Guidelines⁷ include recommended methodologies for quantifying concentrations of localized CO levels for proposed transportation projects. A screening level analysis using guidance from the BAAQMD CEQA Guidelines was performed to determine the impacts of the project. The screening methodology provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD CEQA Guidelines, a proposed project would result in a less than significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the policies or programs of the Alameda County Transportation Commission. As identified in Section 4.17, Transportation, the proposed project would generate approximately 6 AM peak hour trips and 9 PM peak hour trips; therefore, the project's contribution to peak hour traffic volumes at intersections in the vicinity of the project site would be well below 44,000 vehicles per hour. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards, and impacts would be less than significant.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant with Mitigation Incorporated)

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one

⁷ Bay Area Air Quality Management District (BAAQMD). 2017a. California Environmental Quality Act Air Quality Guidelines. May.

million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient PM_{2.5} increase greater than 0.3 micrograms per cubic meter (µg/m³).

The proposed project site is located in an urban area in close proximity to existing residential uses that could be exposed to diesel emission exhaust during the construction period. Residential uses are located immediately adjacent to the northern and southern borders of the project site. To estimate the potential cancer risk from project construction equipment exhaust (including diesel particulate matter), a dispersion model was used to translate an emission rate from the source location to a concentration at the receptor location (i.e., a nearby residential land use). Dispersion modeling varies from a simpler, more conservative screening-level analysis to a more complex and refined detailed analysis. This refined assessment was conducted using the California Air Resources Board’s (CARB) exposure methodology, with the air dispersion modeling performed using the United States Environmental Protection Agency’s (USEPA) dispersion model AERMOD. The model provides a detailed estimate of exhaust concentrations based on site and source geometry, source emissions strength, distance from the source to the receptor, and site-specific meteorological data. Table 4.C, below, identifies the results of the analysis utilizing the standard Tier 2 construction equipment. Model snap shots of the sources are provided in Appendix B.

Table 4.C: Unmitigated Inhalation Health Risks from Project Construction to Off-Site Receptors

	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index	Acute Inhalation Hazard Index	Annual PM_{2.5} Concentration (µg/m³)
Maximally Exposed Individual	34.57	0.003	0.000	0.216
Threshold	10.0	1.0	1.0	0.30

Source: LSA (August 2022).

µg/m³ = micrograms per cubic meter

PM_{2.5} = particulate matter less than 2.5 microns in size

As shown in Table 4.C, the risk associated with project construction at the maximally exposed individual (MEI) would be 34.57 in one million, which would exceed the BAAQMD cancer risk of 10 in one million, and would result in a potentially significant impact without mitigation. The total chronic hazard index would be 0.003 which would not exceed the threshold of 1.0. In addition, the total acute hazard index would be nominal (0.000), which would also not exceed the threshold of 1.0. The results of the analysis indicate that the total PM_{2.5} concentration would be 0.216 µg/m³, which would not exceed the BAAQMD significance threshold of 0.30 µg/m³. As indicated above, the cancer risk of 34.57 in one million would exceed BAAQMD thresholds. Therefore, implementation of Mitigation Measure AIR-2 would be required to reduce substantial pollutant concentrations during project construction.

Mitigation Measure AIR-2

During construction of the proposed project, the project contractor shall ensure that all off-road diesel-powered construction equipment of 50 horsepower or more used for the project construction at a minimum meets the California Air

Resources Board Tier 2 emissions standards equipped with Level 3 diesel particulate filters or the equivalent.

Table 4.D identifies the results of the analysis with implementation of Mitigation Measure AIR-2.

Table 4.D: Mitigated Inhalation Health Risks from Project Construction to Off-Site Receptors

	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index	Acute Inhalation Hazard Index	Annual PM_{2.5} Concentration (µg/m³)
Maximally Exposed Individual	5.24	<0.001	0.000	0.011
Threshold	10.0	1.0	1.0	0.30

Source: LSA (August 2022).

µg/m³ = micrograms per cubic meter

PM_{2.5} = particulate matter less than 2.5 microns in size

As shown in Table 4.D, the mitigated cancer risk at the MEI would be 5.24 in one million, which would not exceed the BAAQMD cancer risk of 10 in one million. Therefore, with implementation of Mitigation Measure AIR-2, construction of the proposed project would not exceed BAAQMD thresholds and would not expose nearby sensitive receptors to substantial pollutant concentrations.

Once the proposed project is constructed, the proposed project would not be a source of substantial emissions. Therefore, implementation of the proposed project would not result in new sources of TACs. Therefore, the project would not expose sensitive receptors to substantial levels of TACs, and this impact would be less than significant with mitigation incorporated.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (Less Than Significant Impact)

During project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period. The proposed project would not include any activities or operations that would generate objectionable odors and once operational, the project would not be a source of odors. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. This impact would be less than significant.

4.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The following discussion of biological resources is based on a reconnaissance-level field survey conducted of the site and accessible adjacent areas, review of recent and historic aerial imagery using Google Earth Pro, and review of on-line biological resources databases, including the United States Fish and Wildlife Service’s (USFWS)⁸ and the California Department of Fish and Wildlife’s (CDFW) California Natural Diversity Database (CNDDDB).⁹ The reconnaissance-level survey was conducted on August 24, 2022. The survey was conducted to assess current habitat conditions and evaluate the site’s potential to support special-status plant and/or animal species, sensitive habitats, and to identify any indicators of potential wetlands or other waters of the State or United States.

Overview. The site is developed with residential housing, outbuildings, and pastures for grazing. There are several debris piles and pieces of old farm equipment on the site. The pastures were

⁸ United States Fish and Wildlife Service (USFWS). Information and Planning and Consultation (IPaC). Website: <https://ipac.ecosphere.fws.gov> (accessed September 2022)

⁹ California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database (CNDDDB) – Commercial version dated August 5, 2022. Website: <https://apps.wildlife.ca.gov/cnddb-subscriptions/downloads> (accessed September 2022).

either cut or grazed to a low height at the time of the survey and were dominated by non-native annual grasses. While some native species such as coyote brush (*Baccharis pilularis*) and coast live oak (*Quercus agrifolia*) were seen on the site, there is no intact native vegetation.

Ornamental landscaping is present around the residences. Shrubs and trees grow along the property boundary and internal fences. Several large mature coast live oak trees are present on the northern property boundary along the Ten Hills multi-use trail within Chabot Park.

A few common bird species were seen during the reconnaissance survey, and the pastures had small mammal burrows that were likely dug by meadow voles (*Microtus californicus*) and/or Botta's pocket gopher (*Thomomys bottae*). Small mammals present at the site attract avian predators including the white-tailed kite (*Elanus leucurus*) and red-tailed hawk (*Buteo jamaicensis*). No nests were observed in the large trees, but they provide potentially suitable nest locations for white-tailed kites, red-tailed hawks, owls, and other bird species. One older bird nest made by a smaller bird was observed in a vine under the eaves of the vacant structure at the northwest corner of the site. No California ground squirrels (*Otospermophilus beecheyi*) or any burrows potentially created by ground squirrels were seen on the site or surrounding area. Several western fence lizards (*Sceloporus occidentalis*) were observed on the site.

a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less Than Significant with Mitigation Incorporated)*

For the purposes of this analysis, special-status species are defined as follows:

1. Species that are listed, formally proposed, or designated as candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA);
2. Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);
3. Plant species that are on the California Rare Plant Rank (CRPR) Lists 1A, 1B, 2, 3, and 4;
4. Plant species that are locally rare in Alameda and Contra Costa Counties according to the Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties.¹⁰
5. Animal species that are designated as Species of Special Concern or Fully Protected by the CDFW; or
6. Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA Guidelines.

¹⁰ Lake, Dianne. 2010. *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties*. Published by the East Bay Chapter of the California Native Plant Society (EB-CNPS).

Special-Status Plants: The USFWS’s Information and Planning and Consultation (IPaC) list contained one federally listed plant species, Santa Cruz tarplant (*Holocarpha macradenia*). The CNDDDB query returned a list of 11 special-status plant species (including Santa Cruz tarplant) with occurrences within 5 miles of the site. The Santa Cruz tarplant CNDDDB occurrence is listed as “possibly extirpated.” It is based on a collection made in 1915, and the location was mapped as “best guess around Roberts Landing area.” The species is found in coastal prairies and requires a large seedbank to persist. There is no potential for this species to occur on the project site.

The other special-status plant species from the CNDDDB query are rare because they are only found in undeveloped areas with uncommon soils (e.g., alkaline, serpentine), habitats (e.g., salt marsh, vernal pools), or vegetation communities (e.g., chaparral) which are absent from the site. The extensive development, landscaping, and grazing of the site further precludes any of these special-status plant species from occurring on the project site. Therefore, impacts to special-status plant species would not occur.

Special-Status Animals: The IPaC list contained 10 federally listed animal species. The CNDDDB query returned a list of 10 special-status animal species with occurrences within 5 miles of the site. Three of these 10 species were also on the IPaC list. Therefore, a total of 17 wildlife species were on one or both lists. The site is not located within designated critical habitat for any federally listed species.¹¹

Most of the 17 species of animals from the CNDDDB and IPaC queries require either aquatic habitat and/or large tracts of intact undisturbed wild areas, which are absent from the site. Therefore, these animals have no potential to occur on the site. Based on a review of the 17 animal species’ habitat requirements, the existing habitats on the site, and connections or barriers to other populations in open space lands, it was determined that 16 of the 17 special-status animal species from the IPaC or CNDDDB lists are not expected to occur on the project site. One species—Alameda whipsnake (*Coluber constrictor lateralis*)—has a low potential to occasionally occur on the project site.

Additionally, one special-status bird species—white-tailed kite—that was not on either the IPaC or CNDDDB lists could nest and forage on or adjacent to the site. For bird species, the potential to occur only describes the potential to nest on or adjacent to the site. Several other special-status bird species may fly over the site. These two species are described further below.

Alameda whipsnake: Individual Alameda whipsnakes have a very low potential to occasionally occur on the site, but they cannot be ruled out completely. Alameda whipsnakes primarily occur in areas that support scrub plant communities, including mixed chaparral and coastal scrub. This species also occurs in annual grassland and oak woodlands that lie adjacent to scrub habitats. Within these plant communities, specific habitat features needed by the snake include, but are not limited to, small mammal burrows, rock outcrops, talus, and cover types that provide temperature regulation, shelter from predators, egg-laying sites, and winter hibernation refuges. Many of these same elements are important in maintaining preferred prey species (e.g., western fence lizard [*Sceloporus*

¹¹ United States Fish and Wildlife Service (USFWS). 2022. Critical Habitat for Threatened & Endangered Species Map. Website: <https://fws.maps.arcgis.com/home/webmap/viewer.html> (accessed September 2022).

occidentalis]). Alameda whipsnakes likely eat any small animals they can capture and swallow, including other species of lizards, small rodents, birds, and amphibians.

Alameda whipsnakes tend to avoid densely shaded wooded areas, which do not support prey species and do not allow them to bask in the sun to maintain their body temperature. They also avoid large areas with very short and sparse vegetation, which does not provide them cover or escape from potential predators such as raptors, bobcats, coyotes, and feral cats. However, they are often observed basking on roads and trails adjacent to scrub or chaparral.¹² Alameda whipsnakes are active during the daytime, and they maintain a high body temperature by basking in the sun. Radio telemetry data for six snakes tracked by Swaim¹³ indicated that their home ranges were centered on shrub or chaparral communities but that they also traveled into adjacent annual grasslands, oak savannahs, and oak-bay woodlands. The snakes' activities were also correlated to areas with significant rock outcroppings or talus. A review¹⁴ of 129 observations of Alameda whipsnakes found that 82 of the observations were made in scrub or chaparral vegetation. Alameda whipsnakes are most likely to be active aboveground in the spring and fall. There is less of a chance of encountering Alameda whipsnake during the hottest parts of summer or coldest parts of winter, when they are less likely to leave deep burrows, rock crevices, or other refuges that protect them from temperature extremes. The very short, sparse grass on the site provides little cover for Alameda whipsnakes, leaving them vulnerable to predators such as raptors.

The approximately 5.25-acre site is too small to sustain a breeding population of Alameda whipsnakes. A radio-tracking study of four male whipsnakes in high-quality habitat in Tilden Regional Park found that the snakes had a mean home range size of 13.6 acres.¹⁵ Because the site is adjacent to hundreds of acres of suitable, protected habitat to the north, an Alameda whipsnake could disperse into the site.

Construction of the proposed project could adversely impact the Alameda whipsnake. In the unlikely event an Alameda whipsnake moved onto the property, grading and other construction activities may crush or entomb individual Alameda whipsnakes, resulting in injury or mortality. Implementation of Mitigation Measures BIO-1a through BIO-1e would reduce impacts to Alameda whipsnake to a less than significant level.

Mitigation Measure BIO-1a A qualified biologist shall survey for Alameda whipsnake during all initial ground-disturbing activities on the site. If an Alameda whipsnake is found, work shall stop in the immediate area, and it shall be allowed to leave the site of its own volition.

¹² Miller, A., and J.A. Alvarez. 2016. Habitat Use and Management Considerations for the Threatened Alameda Whipsnake (*Masticophis lateralis euryxanthus*) in Central California.

¹³ Swaim, K.E. 1994. Aspects of the Ecology of the Alameda Whipsnake (*Masticophis lateralis euryxanthus*) Unpublished Master's Thesis. California State University, Hayward. 140 pp.

¹⁴ Alvarez, J.A., M.A. Shea, and A. Murphy. 2005. A compilation of observations of Alameda whipsnake outside of typical habitat. Transactions of the Western Section of the Wildlife Society 41:21–25.

¹⁵ Swaim, K.E. 1994. Aspects of the Ecology of the Alameda Whipsnake (*Masticophis lateralis euryxanthus*) Unpublished Master's Thesis. California State University, Hayward. 140 pp.

- Mitigation Measure BIO-1b** The project applicant shall install a wildlife exclusion fence on the north side of the site to deter Alameda whipsnake from entering the work site. The exclusion fence shall be installed prior to the initiation of any construction activities. Unless alternative (equivalent or more effective) specifications are recommended by the accredited biologist, the fence shall be constructed as follows: plywood sheets at least 3 feet in height, above ground. Alternatively, heavy-duty geotextile fabric or plastic materials designed for wildlife exclusion fencing such as Ertec or Animex may also be used for the snake exclusion fence. Standard silt fence material is not adequate and will not be used. Fence specifications include:
- Base buried 4 to 6 inches into the ground;
 - Soil backfilled against the fence to create a solid barrier at the ground;
 - Fence material maintained in an upright position with t-posts or stakes;
 - Ends of plywood sheets overlapped with no gaps to ensure a complete barrier;
 - Escape funnels installed in the fence every 100 linear feet;
 - The fence shall be installed and remain in place throughout the construction period. All construction activities and equipment/materials/debris storage shall take place on the project side of the fence.
- Mitigation Measure BIO-1c** To prevent the entanglement of Alameda whipsnake and other wildlife, no erosion control devices containing plastic monofilament netting shall be used or stored on the site. Any existing wattle on the site that is wrapped in monofilament netting should be removed. Acceptable alternatives include wattle that is wrapped in burlap or jute netting with large holes.
- Mitigation Measure BIO-1d** If an Alameda whipsnake is seen within the work area, all nearby work that could harm the snake shall stop until the project biologist has been contacted and the snake has left the site of its own volition. In no circumstances shall anyone handle or attempt to capture an Alameda whipsnake.
- Mitigation Measure BIO-1e** In the event an Alameda whipsnake is inadvertently killed or injured or is observed to be injured, dead, or entrapped, the construction crew will stop work and notify the project biologist who shall then

contact the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).

Implementation of Mitigation Measures BIO-1a through BIO-1e would reduce potential impacts to Alameda whipsnake to a less than significant level by ensuring that any Alameda whipsnake that may move onto the property during project construction is not adversely affected by construction activities.

White-tailed kite: The white-tailed kite is a raptor that hunts in grasslands and savannahs. It is known to nest in Alameda County. This species has a low potential to nest in trees on the site. It is Fully Protected but is not listed under the CESA. The white-tailed kite is not listed as threatened or endangered, but it is a Fully Protected species under the California Fish and Game Code. As such, it is considered a special-status species for the purposes of CEQA. Other common, non-special-status native bird species whose active nests are protected by the Migratory Bird Treaty Act and California Fish and Game Code could also nest in the vegetation or buildings on or adjacent to the site.

Construction of the proposed project could adversely impact the white-tailed kite (or other native migratory bird species). Tree removal, demolition, and construction activities may result in the removal of trees that could be used by nesting white-tailed kites. If conducted during the nesting season (February 1 to August 31), such activities could directly impact nesting birds. Construction-related disturbance (e.g., noise, vehicle traffic, personnel working adjacent to nesting habitat) could also indirectly impact nesting birds by causing adults to abandon nearby nests, resulting in nest failure and reduced reproductive potential. Implementation of Mitigation Measure BIO-2 would reduce impacts to white-tailed kite and other migratory birds to a less than significant level.

Mitigation Measure BIO-2

Initial site disturbance activities, including tree removal and demolition of buildings, shall be prohibited during the general avian nesting season (February 1 to August 31), if feasible. If nesting season avoidance is not feasible, the applicant shall retain a qualified biologist to conduct a preconstruction nesting bird survey to determine the presence/absence, location, and activity status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by the Migratory Bird Treaty Act and California Fish and Game Code, nesting bird surveys shall be performed not more than 7 days prior to scheduled vegetation and building removal. In the event that active nests are discovered, a suitable buffer (typically a minimum buffer of 50 feet for passerines and 250 feet for raptors) shall be established around such active nests, and no construction shall be allowed inside the buffer areas until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). No construction activities shall occur within this buffer until the qualified biologist

has confirmed that breeding/nesting is completed and the young have fledged the nest. Nesting bird surveys are not required for construction activities occurring between August 31 and January 31.

Implementation of Mitigation Measure BIO-2 would reduce potential impacts to white-tailed kite and other migratory birds to a less than significant level by identifying any active nests on or adjacent to the project site and ensuring that direct and indirect effects to nesting birds are avoided.

In addition to the species-specific mitigation measures identified above, the following mitigation measure, which requires that an environmental education program be conducted prior to project construction, would be implemented to reduce potential impacts to special-status species that could occur on the project site. Implementation of Mitigation Measure BIO-3 would reduce potential impacts to special-status species by alerting site workers to the potential presence of such species and the activities to be undertaken should any such species be identified during project construction.

Mitigation Measure BIO-3

A qualified biologist shall conduct an environmental education program for all persons employed or otherwise working on the project site before they perform any work. The program shall consist of a presentation from the biologist that includes a discussion of the biology and general behavior of special-status species on or near the site, including white-tailed kites and other protected migratory birds and Alameda striped racer; information about the distribution and habitat needs of the species; sensitivity of the species to human activities; the status of the species pursuant to the Federal Endangered Species Act, the California Endangered Species Act, and the California Fish and Game Code including legal protection; recovery efforts; penalties for violations; and any project-specific protective measures described in this document or any subsequent documents such as an Incidental Take Permit and/or Biological Opinion. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers before their performing work on the site. The biologist shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry on the site. Upon completion of the program, employees shall sign a form stating they attended the program and understand all the protection measures. Copies of the form shall be provided to the County.

Implementation of Mitigation Measures BIO-1 through BIO-3 would reduce potential impacts to special-status species to a less than significant level by ensuring that direct and indirect effects to special-status species are avoided.

- b. *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (No Impact)*

The CNDDDB lists only one sensitive natural community —Valley Needlegrass Grassland— within 5 miles of the site. The Valley Needlegrass Grassland community is not present on the site. Additionally, no streams or rivers are present on the site; therefore, no riparian habitat is present on the project site. As such, implementation of the proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, and no impact would occur.

- c. *Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (No Impact)*

The USFWS National Wetlands Inventory (NWI) Wetlands Mapper¹⁶ was reviewed for the presence of surface waters and wetlands on or adjacent to the site. The NWI Wetlands Mapper does not show any surface waters or wetlands on or adjacent to the site. There was no evidence of any wetlands on the site. Similarly, there was no evidence of surface flow such as scouring or sediment deposition that would indicate the presence of potential State or federally protected waters. As such, implementation of the proposed project, directly or indirectly, would not adversely affect any on-site State or federally protected wetlands, and no impact would occur.

- d. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (Less Than Significant with Mitigation Incorporated)*

The nearest known nursery site for any species is a great blue heron rookery in a eucalyptus grove on the side of Lake Chabot, approximately 2 miles northwest of the site.

The project would not affect any fish species. The project would affect the movement of common native resident wildlife species and a grazed open space area that is bordered on three sides by residential development. Existing paved roads, residential housing, and tall fences near the site already obstruct wildlife movement to some degree. Although the development would permanently block the movement of some non-special-status species such as deer, most are able to persist in altered suburban landscapes, and nearby Chabot Park and Lake Chabot Regional Park provide substantial habitat; therefore, the proposed project would not impact these species.

Several species of native birds are expected to nest in the trees, shrubs, and grasslands in and adjacent to the project site. Native birds may also nest in or on manmade structures on the property. One older bird nest was observed in a vine under the eaves of the vacant structure located

¹⁶ United States Fish and Wildlife Service (USFWS). National Wetlands Inventory (NWI) Wetlands Mapper. Website: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/> (accessed September 2022).

near the rear of the property. The nests of most native birds are protected under the federal Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code. If conducted during the nesting season (February 1 to August 31), proposed tree removal, demolition, and grading activities could directly impact nesting birds by removing vegetation or structures that support active nests. Implementation of Mitigation Measure BIO-2 would avoid or reduce impacts to nesting birds to a less than significant level.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Less Than Significant Impact)

Chapter 7 of the *Castro Valley General Plan* prioritizes areas for protection by the value of the biological resources. The priority scheme for habitats within Castro Valley is as follows:

- **High Priority** habitats include drainages, oak riparian woodland, General Plan-designated natural open space areas, coastal scrub on both side of the Castro Valley Creek Improved Channel reach, coastal scrub just east of Cull Canyon Drive, and coastal scrub between Jensen Road and Castro Valley Boulevard/Villareal Drive.
- **Moderate Priority** habitats include other coastal scrub areas and grasslands.
- **Low Priority** habitats include non-native dominant habitat.

Figures 7.1 and 7.2 in the *Castro Valley General Plan* show that the proposed project site is not within a sensitive habitat, or an area that would expect to have any special-status species other than Alameda whipsnake. Alameda whipsnake potential habitat covers the entire map area. Furthermore, the project site is not within a high, moderate, or low priority area, as defined above.

The *Castro Valley General Plan* does state that ornamental landscaping with large trees, shrubs and other vegetation may provide potential nesting habitat for raptors and other special-status bird species known to nest in urbanized areas. As described above, implementation of Mitigation Measure BIO-2 would reduce potential impacts to nesting birds to a less than significant level. Therefore, the proposed project would not conflict with the policies or goals of the *Castro Valley General Plan*.

Alameda County has a tree protection ordinance,¹⁷ but it only applies to trees in the County right-of-way. The project would not remove any trees from the County right-of-way, the proposed project would not conflict with the County's tree protection policy, and the project would not conflict with any local policies or ordinance protecting biological resources. This impact would be less than significant.

¹⁷ Alameda County. 2016b. Ordinance No. O-2016-66, amending Chapter 12.11 of Title 12 of the Alameda County General Ordinance Code. December 6.

- f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (No Impact)*

The project site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local/regional/State habitat conservation plan. Therefore, implementation of the proposed project would not conflict with habitat conservation plans as the project site is not subject to such plans. No impact would occur.

4.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? {Less Than Significant with Mitigation Incorporated}

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources [CRHR]), it generally must be 50 years or older. Under CEQA, historical resources can include precontact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts. To identify cultural resources at the project site, the following tasks were completed: (1) a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System; (2) a review of historical maps and aerial photographs to assess the potential for buried precontact and historic-period archaeological deposits; and (3) a field survey of the project site by a qualified archaeologist and an architectural historian. In addition, a Historic Resources Evaluation¹⁸ was prepared to evaluate the potential significance of the historic-period farm complex containing several buildings over 50 years old.

Records Search. A cultural resources records search was conducted on July 20, 2022, by staff at the NWIC of the California Historical Resources Information System to identify previous archaeological site records and cultural resource studies within the project site and vicinity. The NWIC, an affiliate of the Office of Historic Preservation (OHP), is the official State repository of cultural resources records and reports for Alameda County. The search encompassed the project site and a surrounding 0.5-mile radius.

Field Survey. A pedestrian field survey of the project site was conducted on September 1, 2022. Exposed soils were inspected for precontact (e.g., stone tools, debitage, groundstone, and shell beads), historic-period materials (e.g., metal, glass, ceramics), and soil discolorations that might indicate the presence of archaeological deposits. Accessible areas were traversed by walking in transects oriented magnetic east-west. The transects were spaced 3 meters apart and there was occasional meandering to inspect open rodent back dirt piles for indication of archaeological

¹⁸ LSA. 2022a. *Historical Resource Evaluation of 4738 Proctor Road, Castro Valley, unincorporated, Alameda County, California* (LSA Project No. SUF1901). June 20.

deposits and/or human remains. The field survey did not identify any cultural resources. No human remains were identified during the field survey.

In addition, an architectural historian conducted a review of the exterior of the buildings at 4739 Proctor Road on June 7, 2022. The purpose of the review was to characterize the architectural style and identify alterations not recorded on building permits.

Summary of Results. Seventeen (17) previous cultural resource studies overlapped the project site, and another three were conducted within a 0.5-mile radius. No archaeological or historical resources are recorded within the project boundaries or within 0.5 mile of the project site.

The project site contains a historic-period (over 50 years in age) farm complex consisting of two, single-story farmhouses, a barn with loft, four associated outbuildings and structures, and fences and gates. These buildings were evaluated for significance as a historical resource and were found to be not eligible, either individually or as a group, for inclusion on the CRHR or the National Register of Historic Places (NRHP).

As described above, the cluster of built environmental features at the project site does not appear eligible for listing on the CRHR or the NRHP due to a lack of historical integrity, nor does it otherwise constitute a historical resource for the purposes of CEQA. Although one of the existing farmhouses and several ancillary structures over 50 years in age would be demolished as part of the proposed project, this impact would be less than significant.

Project activities would primarily disturb areas that have been previously disturbed and the geomorphology of the site make it unlikely that intact subsurface archaeological deposits are present. Therefore, there is a minimal potential for project construction activities to encounter and disturb intact archaeological cultural resources.

Despite the negative results of the field survey, it cannot entirely be ruled out that archaeological cultural resources may be encountered during project construction at the project site. Should archaeological deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (*State CEQA Guidelines* Section 15064.5(b)(1)). To mitigate this potential impact, the project applicant would be required to implement Mitigation Measure CULT-1. With implementation of Mitigation Measure CULT-1, potential impacts to historical resources would be reduced to less than significant.

Mitigation Measure CULT-1 A qualified professional archaeologist shall monitor clearing and grubbing (such as vegetation removal) activities associated with future project site improvements. In the event that archaeological resources are identified during these project activities, work shall be halted immediately within 50 feet of the find until a qualified professional archaeologist can assess the nature and significance of the find and determine if any additional study or treatment of the find is warranted. The archaeologist shall then develop proper

mitigation measures required for the discovery per California Code of Regulations [CCR], Title 14, Chapter 3, Section 15064.5(f)). Additional studies could include, but would not be limited to, collection and documentation of artifacts, documentation of the cultural resources on State of California Department of Parks and Recreation Series 523 forms, or subsurface testing. Archaeological monitoring shall be conducted until grading and excavation are complete or until the monitoring archaeologist determines, based on field observations and in consultation with the qualified archaeologist, that there is little likelihood of encountering archaeological cultural resources. Archaeological monitoring may be reduced from full-time to part-time or spot-checking if determined appropriate by the qualified archaeologist based on monitoring results. Upon completion of monitoring activities, the archaeologist shall prepare a report to document the methods and results of monitoring activities. The final version of this report shall be submitted to the Northwest Information Center (NWIC) of the California Historical Resources Information System.

Implementation of Mitigation Measure CULT-1 would reduce the level of the potential impact through the identification of archaeological deposits during construction; the evaluation of unanticipated discoveries; and the recovery of significant archaeological data from those resources that warrant such investigation (i.e., historical or unique archaeological resources). This process would recover scientifically consequential information from at-risk resources, in consultation with tribal representatives, to offset their potential loss. Therefore, with implementation of Mitigation Measure CULT-1, this impact would be less than significant.

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? **{Less Than Significant with Mitigation Incorporated}***

According to the *State CEQA Guidelines*, “When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource” (*State CEQA Guidelines* Section 15064.5(c)(1)). Those archaeological sites that do not qualify as historical resources shall be assessed to determine if these qualify as “unique archaeological resources” (California Public Resources Code [PRC] Section 21083.2).

Archaeological deposits identified during project construction shall be treated by the project contractor—in consultation with a qualified archaeologist meeting the Secretary of the Interior’s Professional Qualifications Standards for Archeology—in accordance with Mitigation Measure CULT-1. With implementation of Mitigation Measure CULT-1, identified above, impacts to archaeological resources would be less than significant.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? {Less Than Significant Impact}

Based on previous archaeological investigation and analysis, there is a low potential for the disturbance of archaeological cultural resources or human remains. However, if human remains are encountered at the project areas, State Health and Safety Code Section 7050.5 and *State CEQA Guidelines* Section 15064.5(e)(1) state that no further disturbance shall occur to the area of the find until the County Coroner has made a determination of origin and disposition of the human bone pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately and shall make a determination within two working days of being notified. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC) by phone within 24 hours, and the NAHC shall then immediately determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment of the remains within 48 hours of being granted access to the site. The MLD's recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Compliance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98 regarding the treatment of human remains would ensure that potential impacts to human remains would be less than significant.

4.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? (Less Than Significant Impact)*

The proposed project would result in a small increase in the demand for electricity and gasoline. The discussion and analysis provided below is based on data included in the California Emissions Estimator Model (CalEEMod) output, which is included in Appendix A.

Construction-Period Energy Use. The proposed project would require demolition, grading, site preparation, building, paving, and architectural coating activities during construction. Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading activities, and construction of the proposed park improvements. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during project construction, the idling times for construction vehicles would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, as required by Mitigation Measure AIR-1. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State’s available energy sources. Therefore, construction energy impacts would be less than significant.

Operational Energy Use. Energy use consumed by the proposed project would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the project. Energy and natural gas consumption was estimated for the project using default energy intensities by building type in CalEEMod. In addition, the proposed buildings would be constructed to California Green Building Standards Code (CALGreen Code) standards, which was included in CalEEMod inputs. Electricity and natural gas usage estimates associated with the proposed project are shown in Table 4.E. In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed project would result in approximately 196,317 vehicle miles traveled (VMT) per year. The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about

14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2020.¹⁹ Therefore, using the United States Environmental Protection Agency’s (USEPA) fuel economy estimates for 2020, the proposed project would result in the consumption of approximately 8,572 gallons of gasoline per year. Table 4.E, below, shows the estimated potential increased electricity and natural gas demand associated with the proposed project.

Table 4.E: Estimated Annual Energy Use of Proposed Project

Electricity Use (kWh per year)	Natural Gas Use (therms per year)	Gasoline (gallons per year)
78,105	3,860	8,572

Source: LSA (August 2022).
kWh = kilowatt hours

As shown in Table 4.E, the estimated potential increased electricity demand associated with the proposed project is 78,105 kilowatt-hours (kWh) per year. In 2020, California consumed approximately 279,510 gigawatt-hours (GWh) or 279,510,007,246 kWh.²⁰ Of this total, Alameda County consumed 10,247 GWh or 10,247,410,444 kWh.²¹ Therefore, electricity demand associated with the proposed project would be less than 0.1 percent of Alameda County’s total electricity demand.

The estimated potential increased natural gas demand associated with the proposed project is 3,860 therms per year, as shown in Table 4.E. In 2020, California consumed approximately 12,331 million therms or 12,331,530,178 therms, while Alameda County consumed approximately 366 million therms or approximately 366,465,038 therms.²² Therefore, natural gas demand associated with the proposed project would be less than 0.1 percent of Alameda County’s total natural gas demand.

In addition, the proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. As shown above in Table 4.E, vehicle trips associated with the proposed project would consume approximately 8,572 gallons of fuel per year. In 2015, vehicles in California consumed approximately 15.1 billion gallons of gasoline.²³ Therefore, gasoline and diesel fuel demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California.

¹⁹ U.S. Department of Transportation (USDOT). 2017. “Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles.” <https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles> (accessed August 2022).
²⁰ California Energy Commission (CEC). 2021a. Energy Consumption Data Management Service. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed August 2022).
²¹ Ibid.
²² CEC. 2021b. Energy Consumption Data Management Service. Gas Consumption by County. Website: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed August 2022).
²³ CEC. 2017. California Gasoline Data, Facts, and Statistics. Website: www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics (accessed August 2022).

In addition, proposed new development would be constructed using energy efficient modern building materials and construction practices, and the proposed project also would use new modern appliances and equipment, in accordance with the Appliance Efficiency Regulations (Title 20, California Code of Regulations [CCR] Sections 1601 through 1608). The expected energy consumption during construction and operation of the proposed project would be consistent with typical usage rates for residential uses.

Pacific Gas & Electric (PG&E) is the private utility that would supply the proposed project's electricity and natural gas services. In 2021, a total of 50 percent of PG&E's delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy.²⁴ PG&E reached California's 2020 renewable energy goal in 2017, and is positioned to meet the State's 60 percent by 2030 renewable energy mandate set forth in Senate Bill (SB) 100. In addition, PG&E plans to continue to provide reliable service to their customers and upgrade their distribution systems as necessary to meet future demand.

Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment uses, and transportation. Construction and operation period impacts related to consumption of energy resources would be less than significant.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (Less Than Significant Impact)

In 2002, the State Legislature passed SB 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The most recently adopted CEC energy report is the 2022 Integrated Energy Policy Report Update.²⁵ The 2022 Integrated Energy Policy Report Update provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2020 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy

²⁴ Pacific Gas & Electric. (PG&E). 2021. *Exploring Clean Energy Solutions*. Website: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page?WT.mc_id=Vanity_cleanenergy (accessed August 2022).

²⁵ California Energy Commission (CEC). 2022. *2022 Integrated Energy Policy Report Update*. Website: <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update> (accessed September 2022).

resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources, and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the CEC 2022 Integrated Energy Policy Report. Therefore, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and this impact would be less than significant.

4.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
 - i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (No Impact)*

The San Francisco Bay Area is one of the most seismically active regions in the United States. The significant earthquakes that occur in the Bay Area are generally associated with crustal movement along well-defined active fault zones of the San Andreas Fault system, which regionally trend in a northwesterly direction. Fault rupture is generally expected to occur along active fault traces that have exhibited signs of recent geological movement (i.e., within the last 11,000 years).

The State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972, requiring the State Geologist to delineate Earthquake Fault Zones (EFZs) along known active faults that have high potential for fault rupture. Active faults are defined as a fault that has surface displacement within

the last 11,000 years.²⁶ State regulations prohibit habitable structures from being sited within 50 feet of an active fault. According to the California Earthquake Hazards Zone Application (“EQ Zapp”),²⁷ the project site is approximately 2 miles northeast of the Hayward Fault, which is the nearest Alquist-Priolo Fault Zone. Therefore, fault rupture through the site is not anticipated, and the proposed project would not directly or indirectly cause substantial adverse effects related to fault rupture. No impact would occur.

ii. Strong seismic ground shaking? (Less Than Significant Impact)

The project site is located in the San Francisco Bay Area, a region of intense seismic activity. Due to the location of the project site in a seismically active area, strong seismic ground shaking at the site is highly probable during the life of the project. The intensity of ground shaking would depend on the characteristics of the fault, distance from the fault, the earthquake magnitude and duration, and site-specific geologic conditions. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point. The Modified Mercalli Intensity (MMI) scale is the most commonly used scale to measure the subjective effects of earthquake intensity. It uses values ranging from I to XII.²⁸

Mapping has been compiled by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) for the likely shaking intensities in the Bay Area that would have a 10 percent chance of occurring in any 50-year period. A large earthquake (magnitude 6.7 or greater) on one of the major active faults in the region would generate severe (MMI 8) ground shaking at the project site.²⁹

The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements. The risk of ground shaking impacts is reduced through adherence to the design and materials standards set forth in building codes. Alameda County has adopted the 2019 California Building Code (CBC) (Title 24, Part 2 of the California Code of Regulations [CCR]), which provides for stringent construction requirements on projects in areas of high seismic risk. The design and construction for the proposed project would be required to conform with, or exceed, current best standards for earthquake resistant construction in accordance with the most recent CBC adopted by the County and with the generally accepted standards of geotechnical practice for seismic design in Northern California.

Adherence to the 2019 CBC requires a site-specific geotechnical investigation to be performed for the proposed project to evaluate soil stability, soil strength, position and adequacy of load-bearing

²⁶ California, State of. 2019. Department of Conservation. Alquist-Priolo Earthquake Fault Zones. Website: www.conservation.ca.gov/cgs/alquist-priolo (accessed August 2022).

²⁷ California Department of Conservation (DOC). *California Earthquake Hazards Zone Application (“EQ Zapp”)*. Website: <https://maps.conservation.ca.gov/cgs/EQZApp/app/> (accessed August 2022).

²⁸ United States Geological Survey (USGS). 2018. The Modified Mercalli Intensity Scale. Website: www.usgs.gov/natural-hazards/earthquake-hazards/science/modified-mercalli-intensity-scale?qt-science_center_objects=0#qt-science_center_objects, (accessed August 2022)

²⁹ Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2018. Probabilistic Earthquake Shaking Hazard Map. Website: mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8 (accessed August 2022).

soils, the effect of moisture variation on soil-bearing capacity, compressibility, liquefaction, and expansiveness; and that a geotechnical report be prepared to provide recommendations on foundation type and design criteria. With conformance with the CBC seismic design standards and completion of the required site-specific geotechnical investigation, potential impacts associated with strong seismic ground shaking would be reduced to a less than significant level.

iii. Seismic-related ground failure, including liquefaction? (Less Than Significant Impact)

Liquefaction is the transformation of loose, fine-grained sediment to a fluid-like state similar to quicksand. This phenomenon occurs due to strong seismic activity, and lessens the soil's ability to support a structural foundation. The primary factors affecting the possibility of liquefaction in soil are: (1) intensity and duration of earthquake shaking; (2) soil type and relative density; (3) overburden pressures; and (4) depth to groundwater. Soil most susceptible to liquefaction is clean, loose, fine-grained sands and non-plastic silts that are saturated.

The California Geological Survey (CGS) has mapped Seismic Hazard Zones that delineate areas susceptible to liquefaction and/or landslides that require proposed new developments in these areas to conduct additional investigation to determine the extent and magnitude of potential ground failure. According to CGS data,³⁰ the project site is not located in an area mapped as a liquefaction hazard zone. Therefore, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure. This impact would be less than significant.

iv. Landslides? (Less Than Significant Impact)

A landslide generally occurs on relatively steep slopes and/or on slopes underlain by weak materials. The project would be located on a gently sloped site with elevations ranging from 460 feet above mean sea level at the northern end of the parcel to 545 feet above mean sea level at the southern end of the parcel along Proctor Road. Review of the CGS survey data indicates that the proposed project is not located in an area prone to landslides.³¹ Therefore, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. This impact would be less than significant.

b. Would the project result in substantial soil erosion or the loss of topsoil? (Less Than Significant Impact)

Grading and earthmoving during project construction has the potential to result in erosion and loss of topsoil. The potential for soil erosion exists during the period of earthwork activities and between the time when earthwork is completed and new vegetation is established or hardscape is installed. Exposed soils could be entrained in stormwater runoff and transported off the project site. Because the proposed project would involve over 1 acre of land disturbance, it would be required to comply

³⁰ California, State of. 2019. Department of Conservation, op. cit.

³¹ Ibid.

with the Construction General Permit,³² which requires preparation and implementation of a Stormwater Pollution and Prevention Plan (SWPPP) prior to any ground disturbance activities. Although designed primarily to protect stormwater quality, the SWPPP would provide the details of the erosion control measures to be applied on the project site during the construction period, including Best Management Practices (BMPs) for erosion control that are recognized by the Regional Water Quality Control Board (RWQCB). Additional details regarding the SWPPP are provided in Section 4.10, Hydrology and Water Quality. Compliance with the requirements of the Construction General Permit would ensure that the proposed project would result in less than significant impacts related to soil erosion or the loss of topsoil.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (Less Than Significant Impact)

As discussed above in Section 4.7.a, the site would not be subject to landslides or liquefaction. The proposed project would be designed and constructed in accordance with standard engineering practices and the CBC. The project site is not anticipated to become unstable as a result of the proposed project, or potentially result in on- or off-site landslides, liquefaction, or lateral spreading. Further, preparation of a site-specific geotechnical evaluation as required by the CBC and implementation of proposed geotechnical recommendations, would ensure that the proposed project would not result in a geologic hazard from landslide, lateral spreading, subsidence, liquefaction or collapse. This impact would be less than significant.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? (Less Than Significant Impact)

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percentage of change in the soil volume. Soils underlying the project site are composed of Gaviota-Rock outcrop complex (15 to 50 percent slopes) and Los Osos-Millsholm complex (9 to 30 percent slopes) according to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey.³³

The Gaviota-Rock outcrop complex consists primarily of sandy loam and is considered well drained with a very high runoff class. Due to the lack of clay in Gaviota-Rock outcrop complex, it is not considered an expansive soil. The Los Osos-Millsholm complex soil consists primarily of silty clay

³² State Water Resources Control Board (SWRCB). 2009. Division of Water Quality. *Construction General Permit Fact Sheet*. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ. Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf (accessed August 2022).

³³ United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Web Soil Survey. Website: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed August 2022).

loam and is considered well drained with a high runoff class and a high shrink-swell potential.³⁴ This soil type is located primarily in the southern portion of the project site, along Proctor Road, where the existing residence would remain and minimal construction activities are proposed. As described above, the proposed project would be required to comply with the 2019 CBC and the geotechnical recommendations identified in the site-specific geotechnical investigation. Compliance with geotechnical recommendations and the 2019 CBC during design and construction would ensure that the potential impacts associated with expansive soils would be less than significant.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? (No Impact)

The proposed project would connect to the Castro Valley Sanitary District's wastewater conveyance system. On-site treatment and disposal of wastewater is not proposed for the project; therefore, the proposed project would have no impacts associated with soils incapable of supporting alternative wastewater disposal systems.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Less Than Significant Impact)

Although no paleontological resources or unique geological features are known to exist within or near the project site, the proposed project would require ground disturbance below ground surface. Therefore, the possibility of accidental discovery of paleontological resources during project construction cannot be discounted. Implementation of Mitigation Measure GEO-1, described below, would reduce potential impacts to paleontological resources to a less than significant level.

Mitigation Measure GEO-1

Should paleontological resources be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. For purposes of this mitigation, a "qualified paleontologist" shall be an individual with the following qualifications: (1) a graduate degree in paleontology or geology and/or a person with a demonstrated publication record in peer-reviewed paleontological journals; (2) at least two years of professional experience related to paleontology; (3) proficiency in recognizing fossils in the field and determining their significance; (4) expertise in local geology, stratigraphy, and biostratigraphy; and (5) experience collecting vertebrate fossils in the field. If the paleontological resources are found to be significant and project activities cannot avoid them, measures shall be implemented to ensure that the project does not cause a substantial adverse change in the

³⁴ United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Web Soil Survey. Website: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed August 2022).

significance of the paleontological resource. Measures may include monitoring, recording the fossil locality, data recovery and analysis, a final report, and accessioning the fossil material and technical report to a paleontological repository. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to the City for review. If paleontological materials are recovered, this report also shall be submitted to a paleontological repository such as the University of California Museum of Paleontology, along with significant paleontological materials. Public educational outreach may also be appropriate.

Implementation of Mitigation Measure GEO-1 would reduce the level of the potential impact through the identification of paleontological resources during construction; the evaluation of unanticipated discoveries; and the recovery of significant paleontological data from those resources that warrant such investigation. This process would recover scientifically consequential information from at-risk resources to offset their potential loss. Therefore, with implementation of Mitigation Measure GEO-1, this impact would be less than significant.

4.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrous oxide (N₂O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF₆).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO₂, methane, and N₂O, some gases, like HFCs, PFCs, and SF₆ are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e).

a. *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less Than Significant with Mitigation Incorporated)*

The Bay Area Air Quality Management District’s (BAAQMD) *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*³⁵ document identifies thresholds of significance for use in determining whether a proposed project would have a significant impact related to climate change. These thresholds evaluate a project based on its effect on California’s efforts to meet long-term climate goals. Applying this approach, the BAAQMD identifies and provides supporting documentation outlining the necessary requirements for new land use development projects to achieve California’s long-term climate goal of carbon neutrality by 2045. Based on the analysis, the BAAQMD found that new land use development projects must incorporate specified design elements to contribute the “fair share” towards implementation of the goal of carbon neutrality by 2045. If a project is designed and built to incorporate the identified design elements, then it would contribute its portion of what is necessary to achieve California’s long-term climate goals—its “fair share”—and an agency reviewing the project under CEQA can conclude that the project would not make a cumulatively considerable contribution to global climate change. The document concludes that if a project does not incorporate these design elements, then it should be found to result in a significant climate impact because it would hinder California’s efforts to address climate change.

According to BAAQMD’s 2022 *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*, a project would have a less than significant impact related to GHG emissions if it would:

- a. Include, at a minimum, the following project design elements:
 1. Buildings
 - a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
 - b. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
 2. Transportation
 - a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT

³⁵ Bay Area Air Quality Management District (BAAQMD). 2022. *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*. April.

target, reflecting the recommendations provided in the Governor's Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA*:

1. Residential projects: 15 percent below the existing VMT per capita
 2. Office projects: 15 percent below the existing VMT per employee
 3. Retail projects: no net increase in existing VMT
- b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
- b. Or be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

Alameda County's Climate Action Plan meets the BAAQMD requirements for a Qualified GHG Reduction Strategy and is designed to streamline environmental review of future development projects in the County consistent with *State CEQA Guidelines* Section 15183.5(b) and the BAAQMD CEQA Air Quality Guidelines. However, the County's Climate Action Plan identifies emission reduction goals to reduce GHG emissions in Alameda County by 15 percent below the 2020 business-as-usual emissions level, consistent with Assembly Bill (AB) 32. The proposed project would not be operational until post-2020; therefore, because the County's Climate Action Plan was prepared based on the 2020 GHG targets, which are now superseded by the 2030 GHG targets established in SB 32, the County's Climate Action Plan would not apply for streamlining. Therefore, this section evaluates the proposed project's consistency with the BAAQMD's project design element thresholds.

Natural Gas Usage. According to the BAAQMD, a less than significant GHG impact would occur if the project does not include natural gas appliances or natural gas plumbing. Electricity and gas service is currently provided to the project site by Pacific Gas & Electric Company (PG&E). It is not yet known whether the proposed project would include the use of natural gas; therefore, implementation of Mitigation Measure GHG-1 would be required to ensure the proposed project would not include natural gas. With implementation of Mitigation Measure GHG-1, the proposed project would be consistent with this design element.

Energy Usage. The project must not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under Section 21100(b)(3) and Section 15126.2(b) of the *State CEQA Guidelines*. Energy use consumed by the proposed project would be associated with electricity consumption and fuel used for vehicle trips associated with the project. Energy consumption was estimated for the project using default energy intensities by land use type in the California Emissions Estimator Model (CalEEMod) output, which is included in Appendix A.

As discussed in Section 4.6, Energy, the estimated potential increased electricity demand associated with the proposed project is 111,268 kilowatt hours (kWh) per year. In 2020, Alameda County consumed 10,247 gigawatt hours (GWh) or 10,247,410,444 kWh. Therefore, electricity demand

associated with the proposed project would be less than 0.1 percent of Alameda County's total electricity demand.

In addition, the proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. As discussed in Section 4.6, Energy, vehicle trips associated with the proposed project would consume approximately 8,572 gallons of fuel per year. In 2015, vehicles in California consumed approximately 15.1 billion gallons of gasoline. Therefore, gasoline and diesel fuel demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California.

As such, based on this analysis, as required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the *State CEQA Guidelines*, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy and energy efficiency measures into the building design, equipment use, and transportation. As such, the proposed project would be consistent with this design element.

Vehicle Miles Traveled. To meet the BAAQMD's VMT threshold, the project must achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan or meet a locally adopted SB 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA*. As discussed in Section 4.17, Transportation, the *Technical Advisory for Evaluating Transportation Impacts under CEQA* identifies a screening threshold for small projects generating or attracting fewer than 110 trips per day. Projects below this threshold may be assumed to cause a less than significant transportation impact. The proposed project would be expected to generate 85 net new trips; therefore, the proposed project would generate fewer than 110 trips per day. Therefore, the proposed project would have a less than significant VMT impact. As such, the proposed project would be consistent with this design element.

Electric Vehicle Requirements. This criterion requires that the project achieve compliance with off-street electric vehicle requirements in the most recently adopted version of the California Green Building Standards Code (CALGreen) Tier 2 measures. It is not yet known whether the proposed project would include electric vehicle charging; therefore, implementation of Mitigation Measure GHG-1 would be required to ensure the proposed project would provide electric vehicle charging. With implementation of Mitigation Measure GHG-1, the proposed project would be consistent with this design element.

Mitigation Measure GHG-1

In order to meet the Bay Area Air Quality Management District (BAAQMD) greenhouse gas (GHG) threshold requirements, the following design elements shall be implemented:

- The proposed project shall not include natural gas appliances or natural gas plumbing.
- Each residential unit shall provide electric vehicle charging capabilities as part of the final project designs.

With implementation of Mitigation Measure GHG-1, the proposed project would be consistent with the BAAQMD's project design elements related to natural gas, energy, and VMT. Therefore, the proposed project would be consistent with the BAAQMD's GHG emission thresholds. As such, the proposed project would not generate significant GHG emissions that would have a significant effect on the environment, and this impact would be less than significant with mitigation incorporated.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less Than Significant Impact)

As discussed above, Alameda County's Climate Action Plan identifies emission reduction goals to reduce GHG emissions in Alameda County by 15 percent below the 2020 business-as-usual emissions level, consistent with AB 32. The proposed project would not be operational until post-2020; therefore, because the County's Climate Action Plan was prepared based on the 2020 GHG targets, which are now superseded by the 2030 GHG targets established in SB 32, the County's Climate Action Plan would not apply for streamlining. However, the Climate Action Plan sets forth goals and measures to achieve emission reductions; therefore, a qualitative analysis of the proposed project's consistency with these policies and strategies is provided. These policies and other strategies include measures in transportation, land use, building energy, water, waste, and green infrastructure. Since the proposed project would develop a new park and would not include new buildings, many of the Climate Action Plan measures related to land use, building energy, and waste wouldn't apply to the proposed project. The following measures are applicable to the proposed project:

- T-1: Improve bicycle infrastructure near community activity areas.
- T-4: Enhance pedestrian infrastructure within easy walking distance from community activity centers.
- T-5: Expand the traffic calming program to improve pedestrian safety.
- T-6: Improve pedestrian connectivity and route choice in neighborhoods.
- E-10: Require new construction to use building materials containing recycled content.
- WT-2: Require new landscape projects to reduce outdoor potable water use by 40 percent.
- WS-1: Increase solid waste reduction and diversion to 90 percent by 2030.
- G-1: Expand the urban forest (e.g., street trees and trees on private lots) in order to sequester carbon and reduce building energy consumption.

The proposed project involves the subdivision of the existing parcel into 11 lots and the construction of 10 new single-family residential units and associated improvements. The proposed project is not expected to result in a significant increase in the generation of vehicle trips or VMT. In addition, the project site is located within walking or cycling distance from the surrounding residential area, and therefore would support the applicable Climate Action Plan transportation measures. The proposed

project would also be required to comply with the latest Title 24 standards, regarding energy conservation and green building standards and reduction of wastewater and water use. As such, the proposed project would be consistent with applicable Climate Action Plan measures. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. This impact would be less than significant.

4.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Less Than Significant Impact)

The proposed project involves the demolition of the existing residential unit at the northwestern corner of the project site and associated outbuildings and the construction of 10 new single-family residential units and associated improvements. Because the proposed project is for private residential use, it would generally not involve transport, use, or disposal of significant quantities of hazardous materials after the completion of construction; only small quantities of chemicals would be used for routine maintenance that would not pose a significant threat to human or environmental health.

Construction of the proposed project would involve the use and transport of hazardous materials. These materials could include fuels, oils, paints, and other chemicals used during construction activities. Handling and transportation of hazardous materials could result in accidental releases or spills and associated health risks to workers, the public, and the environment.

The removal of hazardous building materials prior to demolition of structures is governed by federal and State laws and regulations. Federal regulations require that lead-based paint be removed prior to demolition if the paint is loose and peeling. Loose and peeling paint must be disposed of as a State and/or federal hazardous waste, if the concentration of lead exceeds applicable waste thresholds. State and federal construction worker health and safety regulations require air monitoring and other protective measures during demolition activities where lead-based paint is present, and notification to the California Division of Occupational Safety and Health (DOSH) for abatement activities.

Workers who conduct hazardous materials abatement and demolition activities must be trained in accordance with Occupational Health and Safety Administration (OSHA) and California OSHA (Cal/OSHA) requirements. Hazardous building materials removed during construction must be transported in accordance with U.S. Department of Transportation (USDOT) regulations and disposed of in accordance with the federal Resource Conservation and Recovery Act (RCRA), the California Code of Regulations (CCR), and/or the California Universal Waste Rule at a facility permitted to accept the wastes. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. If asbestos is identified, the Bay Area Air Quality Management District (BAAQMD) Regulation 11-2-401.3 requires notification to be made to BAAQMD prior to demolition activities. Other hazardous building materials, such as electrical equipment and fluorescent light ballasts containing polychlorinated biphenyls (PCBs), and fluorescent tubes or thermostats containing mercury, must be removed from buildings prior to demolition and disposed of in accordance with the California Universal Waste Rule and other federal and State regulations. Compliance with these regulations would ensure that demolition and removal of existing structures on the project site would be less than significant.

Transport and use of hazardous materials would be subject to all applicable State and federal laws, such as the Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the California Hazardous Materials Management Act, the California Health and Safety Code, and the California Code of Regulations Title 8 and Title 22.

Therefore, compliance with existing regulations would ensure that the proposed project would not create a significant hazard to the public or the environment associated with the routine transport, use, or disposal of hazardous materials by ensuring these materials are properly handled during construction of the proposed project, and this impact would be less than significant.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Less Than Significant Impact)

There are two main ways that the public and/or the environment could be affected by the release of hazardous materials from the project site, including: (1) exposing workers and/or the public to potentially contaminated soil and groundwater during construction and/or operation of the project; or (2) exposing workers and/or the public to hazardous building materials (e.g., lead paint, asbestos) during demolition of existing structures.

As described above, small quantities of common hazardous materials would be used at the project site during construction and operation of the proposed project. Improper use, storage, or handling could result in a release of hazardous materials into the environment which could pose a risk to construction workers and the public. However, the project applicant would be required to comply with existing government regulations in its use and disposal of these materials, and such materials would not be used in sufficient strength or quantity to create a substantial risk to human or environmental health.

The portion of the project site proposed for construction is primarily vacant land that is surrounded by medium density residential use and open space. Therefore, it is unlikely that the soil and groundwater are contaminated with significant toxic or hazardous materials that would be released during construction. Additionally, compliance with the regulations described previously in Section 4.9.a would ensure that the proposed project would not create a significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment during the transport, use, or disposal of hazardous materials by ensuring that these materials are properly handled during construction of the proposed project. Therefore, this impact would be less than significant.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (No Impact)

There are no existing or proposed schools within 0.25 mile of the proposed project. The nearest school to the project site is Proctor Elementary School, which is located approximately 0.35 mile southeast of the project site. Additionally, as noted in Section 4.9.a, development of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and as noted in Section 4.9.b, construction activities would not create a hazard to the public and environment through reasonably foreseeable upset and accident conditions. Therefore, there would be no impact.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (No Impact)

The project site is not included on any list of hazardous materials site compiled pursuant to Government Code Section 65962.5,³⁶ and no impact would occur.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? (No Impact)

The project site is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The closest airports to the project site are the Oakland International Airport,

³⁶ California Environmental Protection Agency (Cal/EPA). 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist/ (accessed July 2022).

located approximately 6.5 miles west of the project site, and the Hayward Executive Airport, located approximately 4.5 miles southwest of the project site. The proposed project would not significantly increase the height at the project site such that it would create a hazard or obstruction and would not result in the addition of a characteristic that would create a hazard to air navigation. Therefore, the proposed project would not result in a safety hazard to people working or residing in the area due to the proximity of an airport.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)

The Alameda County Emergency Operations Center (EOC) is coordinated and maintained by the Alameda County Sheriff's Office of Emergency Services (OES). Alameda County OES coordinates county-wide emergency response efforts including the preparation and implementation of the Alameda County Emergency Operations Plan (EOP)³⁷ and the *Alameda County Local Hazard Mitigation Plan*.³⁸ However, the EOP does not indicate the specific emergency evacuation routes within Alameda County. The proposed project would be consistent with the policies outlined in the Alameda County General Plan Safety Element and the *Castro Valley General Plan* Natural Hazards and Public Safety Element. The proposed project would not alter or block adjacent roadways, and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. In addition, operation of the proposed project would not cause permanent alterations to vehicle circulation routes and patterns or impede public access or travel upon public rights-of-way. Prior to approval of final maps and improvement plans for any development project within Castro Valley, plan review and approval by the Alameda County Fire District is required. Internal roadways and ingress/egress for each site would be required to meet State and local standards regarding turning radius, road width, and emergency vehicle access. Therefore, potential impacts to an adopted emergency response plan or emergency evacuation plan would be less than significant.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? (Less Than Significant Impact)

The proposed project is located within a Very High Fire Hazard Severity Zone (VHFHSZ) within a local responsibility area. Current State law requires that all property within the Local Responsibility Area VHFHSZ must maintain 100 feet of defensible space. Additionally, the proposed project is located within the Hillside Overlay (HO) Zoning District and therefore must comply with County standards related to minimum lot size and setbacks to prevent potential wildland fire impacts. The proposed project would be subject to the County Design Standards and Guidelines and would undergo Site Development Review, to ensure that proposed structures conform with all applicable regulations.

Additionally, the project would be required to comply with the Uniform Fire Code (Section 6.04 of the County Ordinance Code) and the Building Code (Title 15) which call for the installation,

³⁷ Alameda County Sheriff's Office of Homeland Security and Emergency Services. 2012. Emergency Operation Plan. December. Website: <https://www.acgov.org/ready/documents/EmergencyOperationsPlan.pdf> (accessed September 2022).

³⁸ Alameda County. 2016a. *County of Alameda 2016 Local Hazard Mitigation Plan*. October.

maintenance, and ongoing inspection of fire protection systems under the direction of the local Fire Chief. In addition, the Fire Code authorizes the Fire Chief to specify water supply and road design standards. Under Section 16.20.020(G) of the Subdivision Ordinance (Title 16), the landowner or developer must install water mains, fire hydrants, and fire appurtenances to supply water for fire suppression in conformance with Fire District standards. Additionally, Chapter 6.44 of the County's General Ordinance prohibits vegetation that may increase fire hazards. Prior to approval of final maps and improvement plans for any development project within Castro Valley, plan review and approval by the Alameda County Fire District is required.

The proposed project would also be subject to requirements in Section 13000 et seq. of the California Health and Safety Code, the California Building Standards Code, and the California State Fire Code, which include regulations concerning the following: building standards for fire protection; fire protection and notification systems such as extinguishers and smoke alarms; safety for firefighters and emergency responders during emergency operations; minimum standards for hazardous vegetation and fuel management, defensible space, and building construction; and minimum standards for emergency access and water supply for fire response.

Consistent with Alameda County General Plan Policies P1-P12 of Section 3.3 of the Safety Element, the proposed project would be required to implement the following: fuel breaks and vegetation management programs; use of fire retardant building materials and landscaping; visible street signs; provision of adequate water supply and fire protection facilities and services; adherence with provisions of the Alameda County Fire Protection Master Plan and Fire Hazard Mitigation Plan; appropriate siting and design to minimize risks to life and property; and safe access for emergency response vehicles.

Compliance with these existing regulatory requirements would reduce impacts related to the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires to a less than significant level.

4.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? (Less Than Significant Impact)

Construction. The proposed project involves the subdivision of the existing 5.25-acre parcel into 11 lots and the construction of 10 new single-family residential units and associated improvements. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters.

Because construction of the proposed project would disturb greater than 1 acre of soil, the project is subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) permit Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by

Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). The Construction General Permit (CGP) requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) and implementation of construction Best Management Practices (BMPs) during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Adherence with the CGP would ensure construction impacts related to surface water quality standards, waste discharge requirements, and surface water quality would be less than significant.

Operation. Pollutants of concern from long-term operations include pathogens (bacteria/viruses), metals, nutrients, toxic organic compounds, pesticides/herbicides, sediments/total suspended solids, trash and debris, and oil and grease. However, the proposed project would be subject to the requirements of the California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP) (Order No. R2-2015-0049, NPDES Permit No. CAS612008). The MRP covers stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, and the Cities of Fairfield, Suisun City, and Vallejo. Provision C.3 of the MRP requires new development and redevelopment projects that would replace more than 10,000 square feet of existing impervious surfaces to include post-construction stormwater control in project designs. Under the Provision C.3 requirements, the preparation and submittal of a Stormwater Control Plan (SCP) would be required for the project site. The purpose of an SCP is to detail the design elements and implementation measures necessary to meet the post-construction stormwater control requirements of the MRP. In particular, SCPs must include Low Impact Development (LID) design measures, which reduce water quality impacts by preserving and recreating natural landscape features, minimizing impervious surfaces, and using stormwater as a resource, rather than a waste product. As outlined in Section 2.0, Project Description, the proposed project would include approximately 4,042 square feet of bioretention space on the northeastern end of the project site that would be used for stormwater control and treatment. The proposed project would also be required to prepare a Stormwater Facility Operation and Maintenance Plan to ensure that stormwater control measures are inspected, maintained, and funded for the life of the project. Compliance with the Provision C.3 requirements of the MRP would ensure that operation-period impacts to water quality would be less than significant.

Therefore, because the proposed project would be required to comply with an existing regulations including the CGP and the MRP, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Impacts would be less than significant.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (Less Than Significant Impact)

The project site is not located within a mapped Division of Water Rights groundwater basin boundary.³⁹ Impacts related to groundwater recharge are discussed below.**Construction.**

³⁹ State of California Department of Water Resources (DWR). DWR Mapping Tool. Website: <https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true> (accessed August 2022).

Dewatering from excavations is not anticipated to be required; however, it is possible that temporary dewatering from isolated areas of deeper excavation could be necessary during construction. Such dewatering would be localized and temporary and would not result in the lowering of surrounding groundwater levels. **Operation.** Water supply to the proposed project would be provided by the East Bay Municipal Utility District (EBMUD) water system, which is supplied from the Mokelumne River.⁴⁰ Because EBMUD does not use groundwater for municipal water supply, water use during operation of the proposed project would not affect groundwater.

Development of the proposed project would result in an increase in impervious surfaces on the project site from approximately 0.3 acre to approximately 2.4 acres. However, the proposed project would include approximately 4,042 square feet of bioretention space on the northeastern end of the project site that would be used for stormwater control, treatment, and infiltration. Any overflow would be conveyed north via an overflow drainpipe that discharges north and downslope of Proctor Trail via a new storm drain outlet. Therefore, due to the incorporation of bioretention space and the implementation of LID techniques as required by the MRP, the proposed project would not result in a significant decrease in groundwater recharge that would result in a net deficit in aquifer volume or a lowering of the local groundwater table level. Therefore, the proposed project would not interfere with groundwater recharge.

For the reasons listed above, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be less than significant.

- c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
- i. *Result in substantial erosion or siltation on- or off-site;*
 - ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*
 - iii. *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*
 - iv. *Impede or redirect flood flows? (Less Than Significant Impact)*

Erosion or Siltation. During construction activities, more than 1 acre of soil would be disturbed. Soil would be exposed and drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As discussed above in Section 4.10.a, the CGP requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts on water quality during construction, including those impacts associated with soil erosion and siltation. With compliance with the requirements in the CGP and implementation of

⁴⁰ East Bay Municipal Utility District (EBMUD). 2021b. Water Supply. Website: www.ebmud.com/water/about-your-water/water-supply (accessed August 2022)

construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

After the completion of project construction, the proposed project would increase impervious surface area on the project site from approximately 0.3 acre to approximately 2.4 acres; therefore, there would be less exposed soil on the project site that could be subject to erosion and siltation. Additionally, in compliance with the MRP, the proposed project would include approximately 4,042 square feet of bioretention space on the northeastern end of the project site that would be used for stormwater control, treatment, and infiltration. Any overflow would be conveyed north via an overflow drainpipe that discharges north and downslope of Proctor Trail via a new storm drain outlet. A riprap energy dissipator would be installed at the storm drain outlet to prevent erosion at the outfall. Therefore, due to the increase in impervious surfaces and the implementation of LID techniques as required by the MRP, operational impacts related to on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Flooding. Development of the proposed project would result in an increase in impervious surfaces on the project site from approximately 0.3 acre to approximately 2.4 acres that could have the potential to increase the volume and rate of stormwater runoff discharged from the project site. However, as previously discussed, in compliance with the MRP, the proposed project would include approximately 4,042 square feet of bioretention space on the northeastern end of the project site that would be used for stormwater control, treatment, and infiltration. Any overflow would be conveyed north via an overflow drainpipe that discharges north and downslope of Proctor Trail via a new storm drain outlet. A riprap energy dissipator would be installed at the storm drain outlet to prevent erosion at the outfall. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would also be appropriately sized so that on-site flooding would not occur. Therefore, due to the implementation of LID techniques as required by the MRP, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off site. Impacts would be less than significant, and no mitigation would be required.

Stormwater Drainage System Capacity. As previously discussed, there is no existing stormwater infrastructure on the project site. The proposed stormwater infrastructure associated with the proposed project includes approximately 4,042 square feet of bioretention space on the northeastern end of the project site that would be used for stormwater control, treatment, and infiltration. The proposed project would include the construction of storm drains with associated catch basins and manholes, throughout the project area that would drain to the bioretention area. Surface flows would also be directed northward and eastward towards the bioretention area. Any overflow would be conveyed north via an overflow drainpipe that discharges north and downslope of Proctor Trail via a new storm drain outlet. A riprap energy dissipator would be installed at the storm drain outlet to prevent erosion at the outfall. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would also be appropriately sized such that on-site drainage facility capacity would not be exceeded during a design storm. Therefore, the proposed project would not result in an exceedance of planned or existing stormwater drainage systems. Impacts would be less than significant, and no mitigation would be required.

Polluted Runoff. As discussed in Section 4.10.a, pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Drainage patterns would be temporarily altered during grading and other construction activities, and construction-related pollutants could be spilled, leaked, or transported via storm runoff into adjacent drainages and downstream receiving waters. However, as previously discussed, the proposed project would be required to comply with the requirements set forth by the CGP and SWPPP, which would specify BMPs to be implemented to control the discharge of pollutants in stormwater runoff as a result of construction activities. Construction-related impacts would be less than significant, and no mitigation would be required.

As discussed in Section 4.10.a, expected pollutants of concern from long--term operations include pathogens (bacteria/viruses), metals, nutrients, toxic organic compounds, pesticides/herbicides, sediments/total suspended solids, trash and debris, and oil and grease. As previously discussed, compliance with the MRP and the implementation of LID techniques, including the construction of approximately 4,042 square feet of bioretention space would ensure that no substantial sources of polluted runoff would be discharged from the project site. Operation-related impacts would be less than significant, and no mitigation would be required.

Flood Flows. The project site is not located within a Federal Emergency Management Agency (FEMA) designated 100-year or 500-year floodplain.⁴¹ As the proposed project would not place improvements and structures directly within a 100-year floodplain, the project would not impede or redirect flood flows, and there would be no impact.

⁴¹ Alameda County Community Development Agency. 2012. *Castro Valley General Plan*, Chapter 10, Natural Hazards and Public Safety. March.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? (No Impact)

The project site is not located within a FEMA designated 100-year or 500-year floodplain.⁴² The project site is not located in an area mapped by the California Emergency Management Agency as being potentially inundated by a tsunami.⁴³ Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. The nearest enclosed water bodies are a small pond, located at Redwood Canyon Golf Course approximately 0.25 mile north of the project site, and Lake Chabot, located approximately 1 mile west of the project site. Both of these water bodies are located at a lower elevation than the project site and would not inundate the project site in the event of a seiche. Therefore, there would be no impacts related to the release of pollutants in the event of inundation due to flood hazard, tsunamis, or seiches.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Less Than Significant Impact)

The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)⁴⁴ is the master policy document that establishes the water quality objectives and strategies needed to protect designated beneficial water uses in the San Francisco Bay region. The State Water Board and the Regional Water Board enforce compliance with the water quality objectives of the Basin Plan through the issuance of NPDES permits. The project's compliance with existing permit requirements as discussed in Section 4.10.a, including the CGP and MRP, would ensure that the proposed project would not conflict with the Basin Plan, and this impact would be less than significant.

The project site is not located within a mapped Division of Water Rights groundwater basin boundary and is not subject to a sustainable groundwater management plan. Nevertheless, the proposed project would not interfere with groundwater recharge in the vicinity of the project site. For these reasons, the proposed project would not conflict with or obstruct the implementation of a sustainable groundwater management plan, and this impact would be less than significant.

⁴² Alameda County Community Development Agency. 2012. *Castro Valley General Plan*, Chapter 10, Natural Hazards and Public Safety. March.

⁴³ California Department of Conservation (DOC). *Alameda County Tsunami Hazard Areas*. Website: <https://www.conservation.ca.gov/cgs/tsunami/maps/alameda> (accessed August 2022).

⁴⁴ California Regional Water Quality Control Board San Francisco Bay Region. 2017. *Water Quality Control Plan for the San Francisco Bay Basin*. May 4.

4.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project physically divide an established community? (Less Than Significant Impact)

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying area. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside the community.

The project site is located in an urban area of Castro Valley and is surrounded by residential and open space uses. The proposed project would include the development of the project site with residential uses. The proposed project would not require the construction of any new infrastructure that would divide an established community and would not remove any means of access. Therefore, the proposed project would not result in a physical division of an established community or adversely affect the continuity of land uses in the vicinity. This impact would be less than significant.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? (Less Than Significant Impact)

The project site is designated as Hillside Residential (RH) on the County of Alameda General Plan Land Use Map and is within the Single-Family Residential (R-1) zoning district, as well as the B-E District, Conditional Secondary Unit (CSU), Recreational Vehicle (RV) and Hillside Overlay (HO) combining districts. The R-1 zoning district is intended for single-family dwellings and also permits field crops, orchard, garden, and family day cares. The minimum allowable lot size is 5,000 square feet. The B combining districts are intended to be combined with other districts to modify the site area and yard requirements, and thereby vary the intensity of land use to give recognition to special conditions of topography, accessibility, water supply, or sewage disposal. The CSU combining district allows for a secondary dwelling unit on a lot zoned for not more than one residence. The RV combining district allows for the parking and storage of personally owned recreational vehicles. The HO combining district is established in areas with steep slopes or near high fire hazards and has a variety of additional development restrictions including design standards, minimum lot size requirement based on average slope of the parcel, and other measures. In addition, the proposed project would also require building permits, a planned development permit, and vesting tentative map approval.

It should be noted that according to CEQA, policy conflicts do not, in and of themselves, constitute a significant environmental impact. Policy conflicts are considered to be environmental impacts only when they would result in direct physical impacts or where those conflicts relate to avoiding or mitigating environmental impacts. As such, associated physical environmental impacts are discussed in this IS/MND under specific topical sections. The proposed project would not result in any direct physical impacts that cannot be mitigated to a less than significant level.

The proposed project would not conflict with any applicable land use plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be less than significant.

4.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (No Impact)

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil bearing rock, but excluding geothermal resources, natural gas and petroleum. Rock, sand, gravel and earth are also considered minerals by the Department of Conservation when extracted by surface mining operations. The project site is located within an urban area on a partially developed site, and there are no known mineral resources within the vicinity of the project site that would be of value to the region or to the State. According to the 2007 *Castro Valley General Plan Draft Environmental Impact Report*, there are no known mineral resources in the Castro Valley planning area.⁴⁵ As such, development of the proposed project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State, and there would be no impact related to the availability of mineral resources.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? (No Impact)

Please refer to Section 4.12.a. The proposed project would not result in the loss of availability of any known locally important mineral resource recovery site. Therefore, no impact related to the availability of a locally-important mineral resources recovery site would occur.

⁴⁵ Alameda County Community Development Agency. 2007. *Castro Valley General Plan Draft Environmental Impact Report*. April.

4.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The analysis in this section is based on the Noise and Vibration Impact Assessment⁴⁶ prepared by LSA. The Noise and Vibration Impact Assessment provides an overview of the characteristics of sound and the regulatory framework that applies to noise within the vicinity of the project site. This report is available in Appendix C.

a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less Than Significant with Mitigation Incorporated)*

Construction Noise Impacts. Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to an 84 A-weighted decibel maximum instantaneous sound level [dBA L_{max}]), the effect on longer-term ambient noise levels would be small when compared to existing daily traffic volumes of 2,339⁴⁷ on Proctor Road. Because construction-related vehicle trips would not approach existing daily traffic volumes, traffic noise would not increase by 3 dBA CNEL. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term, construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during construction, which includes demolition, site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is completed in discrete steps, each of which has its own

⁴⁶ LSA. 2022b. *Noise and Vibration Impact Assessment, 4738 Proctor Road Subdivision Project*. September.

⁴⁷ TJKM. 2010. *Traffic Impact Study for the Residential Development at 4695 Proctor Road*.

mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.F lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, taken from the Federal Highway Administration’s (FHWA) *Roadway Construction Noise Model*.⁴⁸

In addition to the reference maximum noise level, the usage factor provided in Table 4.F is used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10\log(U.F.) - 20\log\left(\frac{D}{50}\right)$$

where: $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period.

E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft.

U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time.

D = distance from the receiver to the piece of equipment.

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq (composite) = 10 * \log_{10} \left(\sum_{1}^n 10^{\frac{Ln}{10}} \right)$$

Using the equations from the methodology above, the reference information in Table 4.F, and the construction equipment list provided, the composite noise level of each construction phase was calculated. The project construction composite noise levels at a distance of 50 feet would range from 74 dBA equivalent continuous sound level (L_{eq}) to 88 dBA L_{eq} , with the highest noise levels occurring during the site preparation phase.

⁴⁸ Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model User’s Guide*. January. Washington, D.C. Website: www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf (accessed March 2022).

Table 4.F: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%) ¹	Maximum Noise Level (L _{max}) at 50 Feet ²
Auger Drill Rig	20	84
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Paver	50	77
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Trencher	50	80
Welder	40	73

Source: FHWA Roadway Construction Noise Model User's Guide, Table 1 (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

² Maximum noise levels were developed based on Specification 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

FHWA = Federal Highway Administration

L_{max} = maximum instantaneous sound level

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq \text{ (at distance } X) = Leq \text{ (at 50 feet)} - 20 * \log_{10} \left(\frac{X}{50} \right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA, while halving the distance would increase noise levels by 6 dBA.

Table 4.G shows the nearest sensitive uses to the project site, their distance from the center of construction activities, and composite noise levels expected during construction. These noise level projections do not consider intervening topography or barriers. Construction equipment calculations are provided in the Noise and Vibration Impact Assessment (Appendix C).

Table 4.G: Potential Construction Noise Impacts at Nearest Receptor During Site Preparation

Receptor (Location)	Composite Noise Level (dBA L _{eq}) at 50 feet ¹	Distance (feet)	Composite Noise Level (dBA L _{eq})
Residences (West)	88	170	77
Residences (East)		285	73
Residences (South)		440	69

Source: Compiled by LSA (2022).

¹ The composite construction noise level represents the site preparation phases, which are expected to result in the greatest noise levels as compared to other phases.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

While construction noise would vary, it is expected that composite noise levels during construction at the nearest off-site sensitive residential use to the west would reach an average noise level of 77 dBA L_{eq} during daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously and, therefore, are assumed to be rather conservative in nature. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed.

Construction activities are regulated by the County’s Noise Ordinance (Chapter 6.60 of the Alameda County General Ordinance Code).⁴⁹ The proposed project would comply with the construction hours specified in the County’s Noise Ordinance, which states that construction activities are allowed between the hours of 7:00 a.m. and 7:00 p.m. on weekdays or between 9:00 a.m. and 8:00 p.m. on weekends.

As it relates to off-site uses, construction-related noise levels would remain below the daytime 80 dBA L_{eq} 8-hour construction noise level criteria established by the Federal Transit Administration (FTA) for residential and similar sensitive uses and, therefore, would be considered less than significant. Implementation of Mitigation Measure NOI-1 would further minimize noise impacts to surrounding receptors.

Mitigation Measure NOI-1

In addition to compliance with the Alameda County Noise Ordinance, which allows construction to occur between the hours of 7:00 a.m. and 7:00 p.m. on weekdays or between 9:00 a.m. and 8:00 p.m. on weekends, the following recommendations would reduce construction noise to the extent feasible:

- The project construction contractor should equip all construction equipment, fixed or mobile, with properly operating and maintained noise mufflers, consistent with manufacturer’s standards.

⁴⁹ Alameda, County of. 2022. Alameda County General Ordinance Code, Chapter 6.60 Noise. August 17.

- The project construction contractor should locate staging areas away from off-site sensitive uses during the later phases of project development.
- The project construction contractor should place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site whenever feasible.

With implementation of Mitigation Measure NOI-1, which requires implementation of Best Management Practices (BMPs) for construction noise including equipment mufflers, and placement of noise equipment away from sensitive receptors, potential impacts associated with construction noise would be less than significant.

Long-Term Noise Impacts. Based on the results of the traffic analysis described in Section 4.17, Transportation, of this IS/MND, it was determined that a net additional 85 average daily trips (ADT) would be generated by the proposed project. The existing (2010) traffic volume on the adjacent segment of Proctor Road is 2,339.⁵⁰ Using 2,339 as the existing ADT is considered a conservative approach as the current ADT is likely higher. The following equation was used to determine the potential impacts of the project:

$$\text{Change in CNEL} = 10 \log_{10} [V_{e+p} / V_{existing}]$$

where: $V_{existing}$ = existing daily volumes
 V_{e+p} = existing daily volumes plus project
 Change in CNEL = increase in noise level due to the project

The results of the calculations show that a noise level increase of approximately 0.2 dBA CNEL is expected along the streets adjacent to the project site. A noise level increase of less than 1 dBA would not be perceptible to the human ear; therefore, the traffic noise increases in the vicinity of the project site resulting from the proposed project would be less than significant.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? (Less Than Significant Impact)

Construction Vibration Impacts. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in vibration velocity decibels (VdB) and assesses the potential for building damages using vibration levels in peak particle velocity (PPV) measured in inches per second (in/sec). This is because vibration levels calculated in root mean square (RMS)⁵¹ are best for characterizing human response to building vibration, while calculating vibration levels in PPV is best for characterizing the potential for damage.

⁵⁰ TJKM. 2010. *Traffic Impact Study for the Residential Development at 4695 Proctor Road.*

⁵¹ The root mean square (RMS) vibration is calculated by measuring the peak amplitude and multiplying by 0.707.

Table 4.H shows the PPV and VdB values at 25 feet from the construction vibration source. As shown in Table 4.H, bulldozers and other heavy-tracked construction equipment (expected to be used for this project) generate approximately 0.089 PPV in/sec or 87 VdB of ground-borne vibration when measured at 25 feet, based on the FTA’s 2018 *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual). The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would be used at or near the project setback line).

Table 4.H: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 ft	
	PPV (in/sec)	L _v (VdB) ¹
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer²	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks²	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ RMS vibration velocity in decibels (VdB) is 1 μin/sec.

² Equipment shown in **bold** is expected to be used on site.

μin/sec = microinches per second

ft = foot/feet

FTA = Federal Transit Administration

in/sec = inch/inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

The formulae for vibration transmission are provided below, and Tables 4.I and 4.J provide a summary of off-site construction vibration levels.

$$L_{v\text{dB}}(D) = L_{v\text{dB}}(25 \text{ ft}) - 30 \text{ Log}(D/25)$$

$$\text{PPV}_{\text{equip}} = \text{PPV}_{\text{ref}} \times (25/D)^{1.5}$$

The threshold at which vibration levels would result in annoyance would be 78 VdB for daytime residential uses. The FTA guidelines indicate that for a non-engineered timber and masonry building, the construction vibration damage criterion is 0.2 in/sec in PPV.

Table 4.I: Potential Construction Vibration Annoyance Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (VdB) at 25 ft ¹	Distance (ft) ²	Vibration Level (VdB)
Residences (West)	87	170	62
Residences (East)		285	55
Residences (South)		440	50

Source: Compiled by LSA (2022).

- ¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
- ² The reference distance is associated with the average condition, identified by the distance from the center of construction activities to surrounding uses.

ft = foot/feet

VdB = vibration velocity decibels

Table 4.J: Potential Construction Vibration Damage Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (PPV) at 25 ft ¹	Distance (ft) ²	Vibration Level (PPV)
Residences (West)	0.089	45	0.037
Residences (East)		20	0.124
Residences (South)		80	0.016

Source: Compiled by LSA (2022).

- ¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
- ² The reference distance is associated with the peak condition, identified by the distance from the perimeter of construction activities to surrounding structures.

ft = foot/feet

PPV = peak particle velocity

Based on the information provided in Table 4.I, vibration levels are expected to approach 62 VdB at the closest residential uses located immediately west of the project site, which is below the 78 VdB threshold for annoyance. Based on the information provided in Table 4.J, vibration levels are expected to approach 0.124 PPV in/sec at the nearest surrounding structures and would be below the 0.2 PPV in/sec damage threshold.

Because construction activities are regulated by the Alameda County Municipal Code, which states that temporary construction, maintenance, or demolition activities are allowed between the hours of 7:00 a.m. and 7:00 p.m. on weekdays or between 9:00 a.m. and 8:00 p.m. on weekends, vibration impacts would not occur during the more sensitive nighttime hours. Therefore, short-term vibration impacts associated with project construction would be less than significant.

Long-Term Vibration Impacts. The proposed project would not generate vibration levels related to on-site operations. In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension

systems of on-road vehicles provide vibration isolation. Vibration levels generated from project-related traffic on the adjacent roadways would be less than significant.

- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (No Impact)*

Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. The closest airport to the proposed project site is Oakland International Airport located approximately 6.5 miles west of the project site. Based on the Oakland International Airport Master Plan,⁵² the project is located well outside of the 60 dBA CNEL noise contour of the airport. Therefore, the project would not expose people residing or working in the project area to excessive noise levels. No impact would occur.

⁵² Port of Oakland. 2006. *Oakland International Master Plan*. March.

4.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (Less Than Significant Impact)

The proposed project would include the construction of 10 single-family residential units and the demolition of one existing residential unit, resulting in a net increase of 9 single-family residential units compared to existing conditions. Based on Castro Valley’s average household size of 2.86 persons per household,⁵³ the proposed project would increase the local population by approximately 26 persons. The population of Castro Valley was estimated to be approximately 66,441 persons as of April 1, 2020.⁵⁴ The anticipated population growth associated with the proposed project represents less than a 0.1 percent increase to Castro Valley’s current population. Therefore, the proposed project would not result in substantial unplanned population growth in the area, and this impact would be less than significant.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (Less Than Significant Impact)

The project site is primarily vacant grassland but is occupied by two existing residential units, two asphalt driveways, a barn, a corral, and several ancillary structures. Although the proposed project would result in the demolition of one existing residential structure, this would represent less than 0.01 percent of the 22,071 total households⁵⁵ within Castro Valley and therefore would not be considered a substantial number of housing units. Additionally, because the proposed project includes the construction of 10 single-family residential units, the proposed project would result in a net gain of 9 residential units. Therefore, the proposed project would not result in the displacement of people or housing and would not require the construction of replacement housing elsewhere. This impact would be less than significant.

⁵³ United States Census Bureau. *Quick Facts, Castro Valley CP, California*. Website: <https://www.census.gov/quickfacts/fact/table/castrovalleycdpcalifornia/PST045221> (accessed August 2022).

⁵⁴ Ibid.

⁵⁵ Ibid.

4.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- i. Fire protection?*
- ii. Police protection?*
- iii. Schools?*
- iv. Parks?*
- v. Other public facilities? (Less Than Significant Impact)*

Fire Protection. Fire suppression, emergency medical and rescue services, and other life safety services are provided to the project area and the site by the Alameda County Fire Department (ACFD). There are four fire stations within Castro Valley, with the closest to the project site being Fire Station 26 at 18770 Lake Chabot Road, approximately 0.85 mile southwest of the project site. Castro Valley has an average square mile coverage area per station of 7.6 square miles compared to the countywide median of 3.7 square miles per station. The ACFD responds to 81 percent of its calls for fire and medical emergencies in 3 minutes, or less, which is faster than the 4:53-minute median for all fire departments in the County and exceeds the National Fire Protection Association guideline of a 6-minute response at least 90 percent of the time.⁵⁶

As noted in Section 4.14, Population and Housing, the proposed project would result in an incremental increase in the population of Castro Valley and therefore incrementally increase the demand for emergency fire services and emergency medical services. However, the proposed

⁵⁶ Alameda County Community Development Agency. 2012. *Castro Valley General Plan*, Chapter 9, Public Services and Utilities. March.

project would be required to comply with all applicable codes for fire safety and emergency access. In addition, the Fire Department would review the site plans, fire truck access, and site fire flow design for the proposed project to ensure that adequate emergency access is provided prior to issuance of a building permit.

The Fire Department would continue providing services to the project site and would not likely require additional firefighters to serve the proposed project. The construction of a new or expanded fire station would also not be required. The potential increase in demand for service is not expected to adversely affect existing response times to the site or within the County. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, and this impact would be less than significant.

Police Protection. The Alameda County Sheriff's Office provides police protection to the project area and project site. Alameda County's Extended Police Protection County Service Area (CSA), administered by the County Sheriff's Office, was established by the Alameda Local Agency Formation Commission (LAFCO) in 1991 as a dependent special district to supplement funding for police services in the unincorporated area. The California Highway Patrol is responsible for enforcing the State Vehicle Code in Castro Valley, including traffic and parking, and operates a community patrol in Castro Valley. The Alameda County Sheriff's Office headquarters are located at 1401 Lakeside Drive in Oakland, approximately 11 miles northwest of the project site. The County Sheriff provides emergency dispatch services, receiving 911 calls and dispatching patrols from the Eden Township Substation located at 15001 Foothill Boulevard in San Leandro, approximately 2.5 miles southwest of the project site. The CSA serves an area of 428.3 square miles with a population of 183,149, about a third of who live in Castro Valley. Average response times for the Sheriff's Office are 11:48 minutes for calls requiring an immediate emergency response and 17:13 for nonemergency calls requiring an urgent response. This is substantially higher than the 4:25 median emergency response time for all Alameda County police service providers. On a per capita basis, the County Sheriff's Office staffing levels are lower than countywide with 1.4 sworn officers per 1,000 residents compared with 1.6 per 1,000 residents for all County police service providers.⁵⁷

As previously discussed, development of the proposed project would increase the population on the project site and incrementally increase demand for emergency police services to the project site. However, the Sheriff's Office would continue to provide service to the project site and would likely not require additional officers to serve the project site considering the negligible increase in population that would result from the proposed project. The construction of new or expanded police facilities would not be required. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable

⁵⁷ Alameda County Community Development Agency. 2012. *Castro Valley General Plan*, Chapter 9, Public Services and Utilities. March.

service ratios, response times, or other performance objectives for police protection, and this impact would be less than significant.

Schools. The project site is within the boundaries of the Castro Valley Unified School District (CVUSD). CVUSD serves approximately 9,000 students and operates 16 schools, including one preschool, nine elementary schools, two middle schools, one high school, one continuation high school, one virtual academy, and one adult school.⁵⁸

The estimated number of students the proposed project would generate is derived by multiplying the number of students per dwelling unit (the student yield factor) by the number of dwelling units in the proposed project (10 new units). The California State Allocation Board Office of Public School Construction reports that the statewide student yield factor of 0.7 students per dwelling unit is applicable for unified school districts.⁵⁹ Applying the statewide average student yield factor, the proposed project would generate 7 students.

Senate Bill (SB) 50, which revised the existing limitation on developer fees for school facilities, was enacted as urgency legislation that became effective on November 4, 1998, as a result of the California voters approving a bond measure (Proposition 1A). SB 50 established a 1998 base amount of allowable developer fees (Level One fee) for residential construction (subject to adjustment) and prohibits school districts, cities, and counties from imposing school impact mitigation fees or other requirements in excess or in addition to those provided in the statute.

The CVUSD requires payment of a school impact fee of \$4.79 per square foot of residential development.⁶⁰ The project sponsor would be required to pay this fee, prior to issuance of a certificate of occupancy. The CVUSD is responsible for implementing the specific methods for mitigating school impacts under the Government Code. These fees would be directed towards maintaining adequate service levels, which would ensure that any impact to schools that could result from the proposed project would be offset by development fees, and in effect, reduce potential impacts to a less than significant level.

Parks. Development of the proposed project could increase the use of parks within the vicinity of the project site, including Parsons Park, Castro Valley Community Park, Greenridge Park, and Adobe Park, and within the region, including Cull Canyon Regional Recreation Area, and Anthony Chabot and Lake Chabot Regional Parks. However, this increase in use is not expected to adversely affect the physical conditions of local and regional open space areas or recreational facilities or require the provision of new parks or facilities because the proposed project is anticipated to increase the County population by less than 1 percent. The proposed project would not result in a substantial increase in demand for park or recreation services in the vicinity, such that new facilities would be required to serve the project. In addition, in accordance with Alameda County regulations, the

⁵⁸ National Center for Education Statistics. *Castro Valley Unified District Directory Information*. Website: https://nces.ed.gov/ccd/districtsearch/district_detail.asp?Search=2&details=1&ID2=0607800&DistrictID=0607800 (accessed August 2022).

⁵⁹ Office of Public School Construction. 2019. *School Facility Program Handbook*. January.

⁶⁰ Castro Valley Unified School District (CVUSD). 2022. *Developer Fees*. Website: https://www.cv.k12.ca.us/apps/pages/index.jsp?uREC_ID=1375205&type=d&pREC_ID=1574355 (accessed August 2022).

project applicant would be required to pay park dedication fees of \$11,550/unit to be used toward park acquisition and development by the Hayward Area Recreation and Park District. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for recreation, and this impact would be less than significant.

Other Public Facilities. Development of the proposed project could also increase demand for other public services, including libraries, community centers, and public health care facilities. However, due to the minimal increase in population, the proposed project would not substantially increase the use of these facilities, such that new facilities would be needed to maintain service standards, as these facilities are not currently overused and have capacity to serve new demand. Therefore, impacts to other public facilities would be less than significant.

4.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Less Than Significant Impact)*

As discussed in Section 4.15, Public Services, residents of the proposed project would be expected to use local parks and community facilities within Castro Valley as well as regional recreational facilities. Although the proposed project would incrementally increase use of these facilities, this minor increase in use is not expected to result in substantial physical deterioration of local parks, trails, and community centers. The proposed project is anticipated to increase Castro Valley’s population by less than 1 percent, and these facilities are anticipated to have capacity to serve this minimal increase in demand. Therefore, the proposed project would have a less than significant impact on existing parks or other recreational facilities.

- b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (No Impact)*

The proposed project would develop the project site with residential uses. The proposed project does not include or require the construction or expansion of existing public recreational facilities, which might have an adverse physical effect on the environment. No impact would occur.

4.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? (Less Than Significant Impact)*

The proposed project would demolish one existing single-family detached dwelling unit and construct 10 new single-family detached dwelling units. Vehicular access to the project site would be provided at two entry points, one of which would be located along Proctor Road on the south side of the site, and one of which would be located along the existing private driveway that runs along the west side of the site. An interior roadway would provide vehicular access to each of the residential units. Streetlights would be provided along the interior roadway, consistent with County standards. Each residence would have driveway access from the proposed interior street with a two-car garage. In addition, approximately 19 on-street parking spaces would be provided along the east side of the interior roadway.

Roadway Analysis. Effective December 28, 2018, the *State CEQA Guidelines* were updated and require the evaluation of vehicle miles traveled (VMT) as the criteria for analyzing transportation impacts for land use projects. As noted in *State CEQA Guidelines* Section 15064.3(c), the provisions of *CEQA Guidelines* Section 15064.3 shall apply prospectively as described in *CEQA Guidelines* Section 15007. A lead agency could have elected to be governed by the provisions of *CEQA Guidelines* Section 15064.3 immediately; however, beginning on July 1, 2020, the provisions of this section were stated to apply statewide. The County of Alameda, as lead agency, has not yet formally adopted specific thresholds related to VMT metrics. However, simultaneous with clearance of the revised CEQA Guidelines, the Governor’s Office of Planning and Research (OPR) released the *Technical Advisory for Evaluating Transportation Impacts under CEQA*.⁶¹ This State document provides sufficient guidance to permit the evaluation of project transportation impacts for the

⁶¹ Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December. Website: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed September 2022).

purposes of compliance with CEQA. The discussion of the project’s consistency with Section 15064.3 is discussed under Section 4.17.b, below.

The Alameda County Transportation Commission’s *Congestion Management Program*⁶² establishes a 100 PM peak hour trip threshold for review of land use actions. A screening threshold of 100 peak hour trips is commonly used to determine whether a land use project has the potential to affect vehicle level of service and whether a detailed traffic analysis is required. Table 4.17.A shows the potential trip generation resulting from the proposed project. Trip rates are referenced from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (2021). As Table 4.17.A shows, the proposed project is anticipated to result in an additional 85 daily trips, 6 of which would occur in the AM peak hour and 9 of which would occur in the PM peak hour. The project trip generation is far below the established threshold for determining whether a land use project has the potential to affect vehicle level of service.

Table 4.17.A: Trip Generation

Land Use (Land Use Code)	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates¹									
Single Family Detached Housing (210)		DU	9.43	0.18	0.52	0.70	0.59	0.35	0.94
Trip Generation									
4738 Proctor Road Subdivision	10	DU	94	2	5	7	6	4	10
Existing Structure	(1)	DU	(9)	(0)	(1)	(1)	(1)	(0)	(1)
Net New Trips			85	2	4	6	5	4	9

Source: LSA (2022).

¹ Trip rates referenced from the ITE *Trip Generation Manual*, 11th Edition

ADT = average daily trips

DU = dwelling unit

ITE = Institute of Transportation Engineers

Pedestrian, Bicycle, and Transit Facilities. Pedestrian facilities are provided by intermittent sidewalks on Proctor Road near the project site. No bicycle facilities are provided on Proctor Road; the nearest bikeway is located on Redwood Road east of the project site.⁶³ Given the hilly topography and lack of pedestrian and bicycle facilities in proximity to the project site, it is not anticipated that project residents would frequently walk or bicycle to or from the neighborhood. Pedestrian facilities would be provided by the existing sidewalks within the project area. Cyclists would have access to the existing bikeway near the project site. No capacity deficiencies are anticipated for pedestrian and bicycle facilities. In addition, the proposed project would include sidewalks within the proposed subdivision along the internal roadway. All sidewalks and other such improvements would be constructed in compliance with adopted policies, plans, and programs.

No transit routes run along Proctor Road. Alameda County Transit (AC Transit) Route 28 travels along Redwood Road and provides connection to the Castro Valley Bay Area Rapid Transit District (BART) station. The closest stop to the project site is on Route 28 at Redwood Road and Seven Hills Road, south of the project site. Given the project site’s distance from the nearest transit route, it is

⁶² Alameda County Transportation Commission. 2019. *Congestion Management Program*. September.

⁶³ Alameda County Community Development Agency. 2012. *Castro Valley General Plan*. March.

not anticipated that project residents would frequently take transit. Therefore, the transit system would have sufficient capacity to accommodate this minimal additional transit demand. Further, the proposed project would not modify the public right-of-way. Therefore, the proposed project would have no impact on pedestrian, bicycle, or transit facilities.

Because the project would not affect pedestrian, bicycle, or transit facilities, and would have a less than significant impact on vehicle level of service, the potential conflict with a program plan, ordinance, or policy addressing the circulation system would be less than significant.

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? (Less Than Significant Impact)

The OPR's *Technical Advisory for Evaluating Transportation Impacts under CEQA* identifies a screening threshold for small projects generating or attracting fewer than 110 trips per day. Projects below this threshold may be assumed to result in a less than significant transportation impact. As shown in Table 4.17.A, the proposed project would be expected to generate 85 net new trips, fewer than 110 trips per day. Therefore, the proposed project would neither conflict with nor be inconsistent with *State CEQA Guidelines* Section 15064.3, and the impact would be less than significant.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (Less Than Significant Impact)

Existing access to the site includes two asphalt driveways off of Proctor Road. One driveway is horseshoe shaped and provides access to the residential unit closest to Proctor Road. The other driveway extends approximately 700 feet north of Proctor Road to access the second residential unit on the northwest corner of the project site.

With implementation of the proposed project, vehicular access would be provided at two entry points, one of which would be located along Proctor Road on the south side of the site, and one of which would be located along the existing private driveway that runs along the west side of the site. An interior roadway would provide vehicular access to each of the residential units. Each residence would have driveway access from the proposed interior street with a two-car garage. The design, construction, and maintenance of project access locations and on-site roads would be required to comply with the County's Municipal Code and relevant County standards. As shown previously in Figure 2-2, the project site is generally surrounded by residential uses with open space to the north. Therefore, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses. This impact would be less than significant.

d. Would the project result in inadequate emergency access? (Less Than Significant Impact)

Vehicular access would be provided at two entry points with an interior roadway providing vehicular access to each of the residential units. As shown previously in Figure 2-3, this access roadway would be 26 feet in width, which is sufficient for emergency vehicle access. A hammerhead turnaround at the terminus of the access roadway would permit emergency vehicles to turn around. The design,

construction, and maintenance of project access locations and on-site roads would be required to comply with County standards and would meet all emergency access standards. The Fire Department would also review the proposed site plan and would provide input on final design in relation to emergency access prior to issuance of a building permit. The proposed project would not alter or block adjacent roadways and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. Therefore, the proposed project would not result in inadequate emergency access. This impact would be less than significant.

4.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*
- i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or*
 - ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. (Less Than Significant Impact)*

Enacted in 2014, Assembly Bill (AB) 52 amended CEQA to require tribal cultural resources to be considered as potentially significant cultural resources under the CEQA environmental review process. The procedures under AB Bill 52 offer tribes an opportunity to take an active role in the CEQA process in order to protect tribal cultural resources. Pursuant to AB 52, if a Native American identifies tribal cultural resources within a project site, the Native American shall contact the local lead agency.

As discussed in Section 4.5, Cultural Resources, record searches were conducted on July 20, 2022, at the Northwest Information Center of the California Historical Resources Information System, which

identified no archaeological or historical resources within the boundary of the project site or within a 0.5-mile search radius. Field surveys conducted on June 7, 2022, and September 1, 2022, did not identify any archaeological artifacts or sites at the project site. The project site contains a historic-period farm complex consisting of two, single-story farmhouses, a barn with loft, four associated outbuildings and structures, and fences and gates. These buildings were evaluated for significance as a historical resource and were found to be not eligible, either individually or as a group, for inclusion on the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP).

As such, there are no known significant archaeological or tribal cultural resources within the project site and the proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource defined as a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the CRHR or in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k).

Additionally, there are no tribal cultural resources within the project site that have been determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource defined as a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k). With implementation of Mitigation Measure CULT-1, as detailed in Section 4.5, Cultural Resources, and compliance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, the potential construction-period discovery of previously unidentified human remains, which may be of tribal origin, would be reduced to a less than significant level.

4.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? (Less Than Significant Impact)

Wastewater. The Castro Valley Sanitary District maintains existing sanitary sewer lines within the vicinity of the site, including an 8-inch line within Proctor Road. New 4-inch laterals and 8-inch mains and associated manholes would be installed throughout the project site and would tie into the existing 8-inch line. The final size of these facilities would be determined prior to issuance of a grading permit and parcel map recordation. The new sanitary sewer line would be constructed in conformance with County standards, and its construction would not cause significant environmental effects.

Water. Water service is provided by East Bay Municipal Utility District (EBMUD). The proposed project would include the installation of a new 8-inch water main within the interior roadway that would connect to the existing 12-inch main located within Proctor Road. In addition, new 1.5-inch water lines would be installed to serve each proposed lot. As outlined in the Project Description, the project site is located in an area with low water pressure; therefore, booster pump(s) may be required to serve individual residences. The proposed project would connect directly to existing mains, which have sufficient capacity to accommodate the proposed project. The new water lines would be constructed in conformance with County standards, and its construction would not cause significant environmental effects.

EBMUD updated its Urban Water Management Plan (UWMP) in 2020, and it was adopted in 2021. According to the UWMP, the average daily water demand within the entire EBMUD service area is projected to be 245 million gallons per day (mgd) in 2025, and 297 mgd in 2050.⁶⁴ As discussed in Section 4.19.b, the proposed project would not substantially increase demand for water and would therefore not exceed the capacity of existing water treatment facilities. The proposed project would not require the construction of new water treatment facilities, or the expansion of existing facilities. Therefore, the impact of the proposed project on water infrastructure would be less than significant.

Stormwater. There is no existing stormwater infrastructure on the project site; however, surface flows on the project site, if any, would generally flow in a northward direction towards the undeveloped open space north of the project site. The proposed project would include the construction of 18-inch storm drains with associated catch basins and manholes, throughout the project area that would drain to a 4,042-square-foot bioretention area. Surface flows would also be directed northward and eastward towards the bioretention area. Any overflow would be conveyed north via an overflow drainpipe that discharges north and downslope of Proctor Trail via a new storm drain outlet. A riprap energy dissipator would be installed at the storm drain outlet to prevent erosion at the outfall. The proposed stormwater infrastructure would be limited to the project site and would be constructed in accordance with all County regulations and requirements and be designed consistent with the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (MRP) Program requirements for low impact development (LID). Therefore, the construction of the proposed stormwater infrastructure would not cause significant environmental effects.

Electricity and Gas. Electricity and gas service is provided to the project site by Pacific Gas & Electric (PG&E). The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site on Proctor Road. The proposed project would not require any new infrastructure, aside from project-specific tie-ins and lines to serve the proposed project.

Therefore, because the proposed project would connect to existing utility services within or adjacent to the project site, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects, and this impact would be less than significant.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? (Less Than Significant Impact)

Water service at both the project site and in the project area is provided by EBMUD. EBMUD obtains approximately 90 percent of its water from the Mokelumne River watershed and transports it through pipe aqueducts to temporary storage reservoirs in the East Bay hills. EBMUD has water rights and facilities to divert up to a daily maximum of 325 mgd from the Mokelumne River. Average

⁶⁴ East Bay Municipal Utility District (EBMUD). 2021a. *Urban Water Management Plan 2020*. June.

daily water demand within the entire EBMUD service area is projected to be 245 mgd in 2025, and 297 mgd in 2050.⁶⁵

The proposed project would increase water demands at the project site due to the construction of 10 new residential units resulting in an increase the local population by approximately 26 persons, as discussed in Section 4.14, Population and Housing. The current statewide median indoor residential water use is 48 gallons per capita per day⁶⁶; therefore, the proposed project would result in an increase in water demand by approximately 1,248 gallons per day. This accounts for less than 0.01 percent of EBMUD's projected service-wide daily water demand for 2025. Furthermore, EBMUD's projected water demand accounts for projected growth within the region as identified by the Association of Bay Area Governments. EBMUD would not require new or expanded water entitlements to serve the proposed project.

EBMUD completed development of a revised *Water Supply Management Program (WSMP) 2040* in April of 2012, which is the Utility District's plan for providing water to its customers for a span of 30 years.⁶⁷ According to the WSMP, EBMUD's water supplies are estimated to be sufficient during the planning period (2010–2040) in normal and single dry years. Therefore, EBMUD would have adequate water supply to provide water service to the proposed project, and the impacts related to sufficient water supplies would be less than significant.

The WSMP 2040 emphasizes maximum conservation and recycling strategies, with a total of 50 mgd of future supply to be provided from those two component categories. However, looking toward 2040, EBMUD's current supply is insufficient to meet customer needs during multi-year droughts despite EBMUD's aggressive water conservation and recycled water programs.⁶⁸ According to the WSMP, the combination of rationing, conservation, and raw and recycled water would satisfy increased customer demand through 2040.⁶⁹ Supplemental supply would also be needed to keep rationing at a lower level and to meet the need for water in drought years. EBMUD also imposes a system capacity charge on new developments to fund system maintenance and the development of new water sources. The project sponsor would be required to pay this fee and undertake water conservation measures to conserve water such as the installation of low-flow toilets. In extreme drought years, the new residential units associated with the proposed project would likely be subject to and participate in conservation measures. For these reasons, the impact related to sufficient water supplies during dry and multiple dry years would be less than significant, and no mitigation is required.

⁶⁵ East Bay Municipal Utility District (EBMUD). 2021, op. cit.

⁶⁶ California Department of Water Resources (DWR). 2021. *Results of the Indoor Residential Water Use Study*.

⁶⁷ EBMUD. 2012. *Water Supply Management Program 2040 Plan*. April.

⁶⁸ EBMUD. 2020. *Water Shortage Contingency Plan 2020*. June 22.

⁶⁹ EBMUD. 2012, op. cit.

- c. *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Less Than Significant Impact)*

Castro Valley Sanitary District (CVSD) provides and maintains the sewage collection system that serves Castro Valley, including the proposed project site. The sewage collection system in the Sanitary District is comprised of approximately 160 miles of wastewater sewer mains, eight wastewater pump stations, and five additional miles of outfall sewer outside the CVSD's boundaries.^{70,71} Sewage from the CVSD is treated under contract by the Oro Loma Sanitary District at the Oro Loma/Castro Valley Water Pollution Control Plant in San Lorenzo. CVSD own 25 percent of the plant. The plant discharges to San Francisco Bay through pipelines operated by the East Bay Dischargers Authority. CVSD is entitled to a nominal average dry-weather flow of 5.0 million gallons per day (mgd) through the Oro Loma plant, which has a total plant capacity of 20 mgd.⁷² CVSD transports, treats, and disposes approximately 3.5 million gallons of wastewater daily⁷³; therefore, approximately 70 percent of the allowable capacity is treated on a daily basis.

The proposed project would generate domestic wastewater, treated by the Oro Loma/Castro Valley Water Pollution Control Plant. Considering approximately 70 percent of the allowable capacity for CVSD is treated on a daily basis, the treatment plant would have sufficient capacity to serve the proposed project. Therefore, wastewater generated from the proposed project would not cause the Oro Loma/Castro Valley Water Pollution Control Plant to violate any wastewater treatment requirements, and this impact would be less than significant.

- d. *Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? (Less Than Significant Impact)*

The CVSD handles refuse collection and disposal for Castro Valley residents. The Sanitary District collects solid waste, hauls it to the Davis Street Transfer Station and then to the Altamont Landfill east of Livermore. The Davis Street Transfer Station has a maximum permitted throughput of 5,600 tons and a maximum permit capacity of 9,600 tons per day.⁷⁴ The Altamont Landfill has a capacity of

⁷⁰ Castro Valley Sanitary District (CVSD) . *Wastewater*. Website: <https://www.cvsan.org/wastewater/index.php> (accessed August 2022).

⁷¹ Alameda County Community Development Agency. 2007. *Castro Valley General Plan Draft Environmental Impact Report*. April.

⁷² Ibid.

⁷³ Castro Valley Sanitary District (CVSD), op. cit.

⁷⁴ California Department of Resources Recycling and Recovery (CalRecycle). *SWIS Facility/Site Activity Details, Davis Street Transfer Station (01-AA-0007)*. Website: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/5?siteID=5> (accessed August 2022).

124,400,000 cubic yards, a remaining capacity of 65,400,000 cubic yards, and can accept 11,150 tons per day.⁷⁵ The anticipated closure date of the Altamont Landfill is in 2070.⁷⁶

On average, single-family uses generate approximately 12 pounds per household per day. Based on these rates, the proposed project would generate approximately 120 pounds per day of solid waste. As noted above, the Altamont Landfill has adequate capacity to serve the proposed project. As such, the project would be served by a landfill with sufficient capacity to accommodate the project's waste disposal needs, and impacts associated with the disposition of solid waste would be less than significant.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (Less Than Significant Impact)

The proposed project would be required to comply with all federal, State, and local solid waste statutes and/or regulations related to solid waste and as noted above, the Altamont Landfill has adequate capacity to serve the proposed project. Therefore, the proposed project would result in a less than significant impact related to solid waste regulations.

⁷⁵ California Department of Resources Recycling and Recovery (CalRecycle). *SWIS Facility/Site Activity Details, Altamont Landfill & Resource Recovery (01-AA-0009)*. Website: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/7?siteID=7> (accessed August 2022).

⁷⁶ California Department of Resources Recycling and Recovery (CalRecycle). *SWIS Facility/Site Activity Details, Altamont Landfill & Resource Recovery (01-AA-0009)*. Website: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/7?siteID=7> (accessed August 2022).

4.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

The proposed project is located within a Very High Fire Hazard Severity Zone (VHFHSZ) within a local responsibility area. Current State law requires that all property within the Local Responsibility Area VHFHSZ must maintain 100 feet of defensible space. As previously discussed in Section 4.9.g, the proposed project would be consistent with the policies outlined in the Alameda County General Plan Safety Element and the *Castro Valley General Plan* Natural Hazards and Public Safety Element. The proposed project would not alter or block adjacent roadways, and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. In addition, operation of the proposed project would not cause permanent alterations to vehicle circulation routes and patterns, or impede public access or travel upon public rights-of-way. Prior to approval of final maps and improvement plans for any development project within Castro Valley, plan review and approval by the Alameda County Fire District is required. Internal roadways and ingress/egress for each site would be required to meet State and local standards regarding turning radius, road width, and emergency vehicle access. Therefore, potential impacts to an adopted emergency response plan or emergency evacuation plan would be less than significant.

b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Construction of the proposed project would involve the use of some flammable materials such as gasoline, diesel fuel, hydraulic oils, paints, solvents, or other wastes. During construction, there would be increased human activity and ignition sources, including equipment that could create spark, be a source of heat, or leak flammable materials on the project site. However, all construction

equipment is required to have fire suppression equipment (such as a fire extinguisher) on board or at the work site, secondary containment would be required for fuel-powered equipment, and a spill kit would be required to be kept on-site during construction for use in case of any leaks or spills of flammable materials. These existing requirements would reduce the potential exacerbation of wildfire risks related to construction activities.

The operation of the proposed project would be consistent with surrounding residential uses and allowable zoning for the project site. The proposed project is located within a VHFHSZ within a local responsibility area. Current state law requires that all property within the Local Responsibility Area VHFHSZ must maintain 100 feet of defensible space. Additionally, the proposed project is located within the Hillside Overlay (HO) Zoning District and therefore has additional standards related to minimum lot size and setbacks to prevent potential wildland fire impacts. The proposed project would be subject to the Residential Design Standards and Guidelines for the Unincorporated Communities of West Alameda County in addition to Site Development Review, in which the planning director would review site plans to ensure the proposed structures conform with all applicable regulations.

Additionally, the project would be required to comply with the Uniform Fire Code (Section 6.04 of the County Ordinance Code) and the Building Code (Title 15), which call for the installation, maintenance, and ongoing inspection of fire protection systems under the direction of the local Fire Chief. In addition, the Uniform Fire Code authorizes the Fire Chief to specify water supply and road design standards. Under Section 16.20.020(G) of the Subdivision Ordinance (Title 16), the landowner or developer must install water mains, fire hydrants, and fire appurtenances to supply water for fire suppression in conformance with district standards. Additionally, Chapter 6.44 of the County's General Ordinance prohibits vegetation that may increase fire hazards. Prior to approval of final maps and improvement plans for any development project within Castro Valley, plan review and approval by the Alameda County Fire District would be required.

The proposed project would also be subject to requirements in Section 13000 et seq. of the California Health and Safety Code, California Building Standards Code, and California State Fire Code, which include regulations concerning the following: building standards for fire protection; fire protection and notification systems such as extinguishers and smoke alarms; safety for firefighters and emergency responders during emergency operations; minimum standards for hazardous vegetation and fuel management, defensible space, and building construction; and minimum standards for emergency access and water supply for fire response.

Consistent with Alameda County General Plan Policies P1-P12 of Section 3.3 of the Safety Element, the proposed project would be required to implement the following: fuel breaks and vegetation management programs; use of fire retardant building materials and landscaping; visible street signs; provision of adequate water supply and fire protection facilities and services; adherence with provisions of the Alameda County Fire Protection Master Plan and Fire Hazard Mitigation Plan; appropriate siting and design to minimize risks to life and property; and safe access for emergency response vehicles.

Compliance with these existing regulatory requirements would ensure that the proposed project would not exacerbate wildfire risks, and thereby expose project occupants to pollutant

concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant, and no mitigation is required.

- c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

The proposed project involves the subdivision of the existing parcel into 11 lots and the construction of 10 new single-family residential units and associated improvements including an interior roadway and utility connections. Utility connections/lines would be constructed in conformance with County standards as detailed in Section 4.19, Utilities and Service Systems. The project does not propose the installation or maintenance of any other associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment, and impacts would be less than significant.

- d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

Construction of the proposed project would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction stormwater permit. As discussed in Section 4.10, Hydrology and Water Quality, the proposed project would implement a Stormwater Pollution and Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) and erosion control measures to be used during construction to manage runoff flows. Additionally, the proposed project would be required to implement Low Impact Development (LID) techniques as required by the Municipal Regional Stormwater NPDES Permit (MRP) and, as detailed in Section 4.10, would not significantly alter drainage patterns compared to existing conditions. Furthermore, the project site is not located within a flood zone or within an area identified as having potential for landslides. Therefore, the proposed project would not have the potential to expose people or structures to downslope or downstream flooding or landslides.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (Less Than Significant with Mitigation Incorporated)*

Implementation of the mitigation measures recommended in this IS/MND would ensure that the construction and operation of the proposed project would not substantially degrade the quality of the environment; reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory. Section 4.4, Biological Resources, includes mitigation measures to minimize impacts to special-status species, including nesting birds. Mitigation is provided in Section 4.5, Cultural Resources, in the event that unanticipated archaeological resources are identified in the project area during construction. With implementation of these mitigation measures, the proposed project would result in less than significant impacts to the quality of the environment.

b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? (Less Than Significant with Mitigation Incorporated)*

The *State CEQA Guidelines* require a discussion of significant environmental impacts that would result from project-related actions in combination with “closely related past, present, and probably

future projects: located in the immediate vicinity” (*State CEQA Guidelines* Section 15130[b][1][A]). Cumulative environmental impacts are those impacts that by themselves are not significant, but when considered with impacts occurring from other projects in the vicinity would result in a cumulative impact. Related projects considered to have the potential of creating cumulative impacts in association with the proposed project consist of projects that are reasonably foreseeable and that would be constructed or operated during the life of the proposed project.

The proposed project’s impacts would be individually limited and not cumulatively considerable. The potentially significant impacts that can be reduced to a less than significant level with implementation of recommended mitigation measures include the topics of air quality, biological resources, cultural resources, greenhouse gas emissions, and noise. These impacts would primarily be related to construction-period activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics. For the topic of air quality, potentially significant impacts to air quality standards associated with project construction would be reduced to less than significant levels with implementation of Mitigation Measure AIR-1. For the topic of biological resources, implementation of Mitigation Measures BIO-1a through BIO-3b would ensure that impacts to special-status species, including Alameda whipsnake, white-tailed kite, and nesting birds, are reduced to a less than significant level. For the topic of cultural resources, potentially significant impacts to archaeological and cultural resources would be reduced to less than significant levels with implementation of Mitigation Measure CULT-1. For the topic of greenhouse gas emissions, implementation of Mitigation Measure GHG-1 would ensure that impacts related to natural gas usage and electric vehicle charging are reduced to less than significant levels. For the topic of construction noise, implementation of Mitigation Measure NOI-1 would ensure that sensitive noise receptors are not impacted during project construction activities.

For the topics of aesthetics, agricultural and forestry resources, energy, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire, the project would have no impacts or less than significant impacts and, therefore, would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less than significant level through the implementation of the mitigation measures recommended in this document.

Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development. Therefore, this impact would be less than significant with mitigation incorporated.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (No Impact)

The proposed project would not result in environmental effects that would cause substantial direct or indirect adverse effects to human beings. No impacts would occur.

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APPENDIX A

CALEEMOD OUTPUT SHEETS



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4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

**4738 Proctor Road Subdivision Project
Alameda County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	10.00	Dwelling Unit	4.00	50,000.00	29

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - It is anticipated that proposed houses would range from approximately 3,000 to 5,000 square feet in size; therefore, this analysis assumes a total square footage of 50,000 to be conservative.

Construction Phase - Default construction schedule.

Grading - The proposed project would include the export of 2,589 cubic yards of soil.

Demolition - Construction activities would include the demolition of the existing residential unit.

Vehicle Trips - Based on the trip generation estimates, the proposed project would generate approximately 85 net new average daily trips.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and the use of Tier 2 construction equipment.

Area Mitigation - No woodburning hearths.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	MaterialExported	0.00	2,589.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LandUseSquareFeet	18,000.00	50,000.00
tblLandUse	LotAcreage	3.25	4.00
tblVehicleTrips	ST_TR	9.54	8.50
tblVehicleTrips	SU_TR	8.55	8.50
tblVehicleTrips	WD_TR	9.44	8.50

2.0 Emissions Summary

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2170	2.0159	2.1670	3.8300e-003	0.0874	0.0959	0.1833	0.0415	0.0900	0.1316	0.0000	332.0779	332.0779	0.0786	1.9700e-003	334.6274
2024	0.3642	0.1060	0.1546	2.5000e-004	1.5500e-003	5.0600e-003	6.6200e-003	4.1000e-004	4.7400e-003	5.1500e-003	0.0000	21.7321	21.7321	5.6200e-003	4.0000e-005	21.8832
Maximum	0.3642	2.0159	2.1670	3.8300e-003	0.0874	0.0959	0.1833	0.0415	0.0900	0.1316	0.0000	332.0779	332.0779	0.0786	1.9700e-003	334.6274

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1447	3.2173	2.4310	3.8300e-003	0.0443	0.1174	0.1617	0.0201	0.1174	0.1374	0.0000	332.0775	332.0775	0.0786	1.9700e-003	334.6270
2024	0.3619	0.2017	0.1692	2.5000e-004	1.5500e-003	7.2600e-003	8.8100e-003	4.1000e-004	7.2600e-003	7.6700e-003	0.0000	21.7321	21.7321	5.6200e-003	4.0000e-005	21.8831
Maximum	0.3619	3.2173	2.4310	3.8300e-003	0.0443	0.1174	0.1617	0.0201	0.1174	0.1374	0.0000	332.0775	332.0775	0.0786	1.9700e-003	334.6270

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	12.85	-61.13	-12.00	0.00	48.39	-23.46	10.19	51.23	-31.55	-6.14	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2023	4-1-2023	0.6628	0.9414
2	4-2-2023	7-1-2023	0.5206	0.8026
3	7-2-2023	10-1-2023	0.5263	0.8114
4	10-2-2023	1-1-2024	0.5261	0.8116
5	1-2-2024	4-1-2024	0.4438	0.5312
		Highest	0.6628	0.9414

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2916	2.1500e-003	0.1599	1.8000e-004		0.0128	0.0128		0.0128	0.0128	1.2711	0.4334	1.7045	2.5200e-003	7.0000e-005	1.7891
Energy	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	27.8203	27.8203	1.5600e-003	5.2000e-004	28.0141
Mobile	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964
Waste						0.0000	0.0000		0.0000	0.0000	2.4724	0.0000	2.4724	0.1461	0.0000	6.1253
Water						0.0000	0.0000		0.0000	0.0000	0.2067	0.4592	0.6659	0.0213	5.1000e-004	1.3506
Total	0.3283	0.0631	0.4885	9.8000e-004	0.0724	0.0147	0.0872	0.0194	0.0147	0.0340	3.9502	93.3132	97.2635	0.1756	4.4300e-003	102.9756

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2328	1.5900e-003	0.0745	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.9702	0.9702	1.3000e-004	2.0000e-005	0.9782
Energy	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	27.8203	27.8203	1.5600e-003	5.2000e-004	28.0141
Mobile	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964
Waste						0.0000	0.0000		0.0000	0.0000	2.4724	0.0000	2.4724	0.1461	0.0000	6.1253
Water						0.0000	0.0000		0.0000	0.0000	0.2067	0.4592	0.6659	0.0213	5.1000e-004	1.3506
Total	0.2695	0.0625	0.4031	8.1000e-004	0.0724	2.4300e-003	0.0749	0.0194	2.3900e-003	0.0217	2.6791	93.8500	96.5292	0.1732	4.3800e-003	102.1647

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	17.92	0.89	17.48	17.35	0.00	83.50	14.11	0.00	83.73	36.13	32.18	-0.58	0.75	1.36	1.13	0.79

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/28/2023	2/3/2023	5	5	
3	Grading	Grading	2/4/2023	2/15/2023	5	8	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	2/16/2023	1/3/2024	5	230
5	Paving	Paving	1/4/2024	1/29/2024	5	18
6	Architectural Coating	Architectural Coating	1/30/2024	2/22/2024	5	18

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	324.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	4.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.9000e-004	0.0000	5.9000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	0.0227	0.2148	0.1964	3.9000e-004	5.9000e-004	9.9800e-003	0.0106	9.0000e-005	9.2800e-003	9.3700e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.3000e-004	7.0000e-005	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1457	0.1457	0.0000	2.0000e-005	0.1526
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9350	0.9350	3.0000e-005	3.0000e-005	0.9435
Total	4.0000e-004	6.0000e-004	3.4100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	1.0807	1.0807	3.0000e-005	5.0000e-005	1.0961

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0126	0.3266	0.2467	3.9000e-004		9.1400e-003	9.1400e-003		9.1400e-003	9.1400e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	0.0126	0.3266	0.2467	3.9000e-004	2.7000e-004	9.1400e-003	9.4100e-003	4.0000e-005	9.1400e-003	9.1800e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.3000e-004	7.0000e-005	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1457	0.1457	0.0000	2.0000e-005	0.1526
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9350	0.9350	3.0000e-005	3.0000e-005	0.9435
Total	4.0000e-004	6.0000e-004	3.4100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	1.0807	1.0807	3.0000e-005	5.0000e-005	1.0961

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	6.6500e-003	0.0688	0.0456	1.0000e-004	0.0491	3.1700e-003	0.0523	0.0253	2.9100e-003	0.0282	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830
Total	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0200e-003	0.0843	0.0574	1.0000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	3.0200e-003	0.0843	0.0574	1.0000e-004	0.0221	2.3700e-003	0.0245	0.0114	2.3700e-003	0.0137	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830
Total	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0285	0.0000	0.0285	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085
Total	6.8400e-003	0.0717	0.0590	1.2000e-004	0.0285	3.1000e-003	0.0316	0.0137	2.8500e-003	0.0166	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0213	4.8300e-003	1.0000e-004	2.7500e-003	1.8000e-004	2.9300e-003	7.6000e-004	1.7000e-004	9.3000e-004	0.0000	9.4397	9.4397	2.0000e-004	1.4900e-003	9.8891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.3400e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3740	0.3740	1.0000e-005	1.0000e-005	0.3774
Total	4.9000e-004	0.0214	6.1700e-003	1.0000e-004	3.2200e-003	1.8000e-004	3.4100e-003	8.9000e-004	1.7000e-004	1.0600e-003	0.0000	9.8137	9.8137	2.1000e-004	1.5000e-003	10.2665

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3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0128	0.0000	0.0128	6.1700e-003	0.0000	6.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0400e-003	0.1051	0.0760	1.2000e-004		3.0900e-003	3.0900e-003		3.0900e-003	3.0900e-003	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085
Total	4.0400e-003	0.1051	0.0760	1.2000e-004	0.0128	3.0900e-003	0.0159	6.1700e-003	3.0900e-003	9.2600e-003	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0213	4.8300e-003	1.0000e-004	2.7500e-003	1.8000e-004	2.9300e-003	7.6000e-004	1.7000e-004	9.3000e-004	0.0000	9.4397	9.4397	2.0000e-004	1.4900e-003	9.8891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.3400e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3740	0.3740	1.0000e-005	1.0000e-005	0.3774
Total	4.9000e-004	0.0214	6.1700e-003	1.0000e-004	3.2200e-003	1.8000e-004	3.4100e-003	8.9000e-004	1.7000e-004	1.0600e-003	0.0000	9.8137	9.8137	2.1000e-004	1.5000e-003	10.2665

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6327	1.8437	3.0600e-003		0.0794	0.0794		0.0747	0.0747	0.0000	263.0984	263.0984	0.0626	0.0000	264.6631
Total	0.1785	1.6327	1.8437	3.0600e-003		0.0794	0.0794		0.0747	0.0747	0.0000	263.0984	263.0984	0.0626	0.0000	264.6631

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.9600e-003	1.5000e-003	2.0000e-005	7.5000e-004	3.0000e-005	7.8000e-004	2.2000e-004	3.0000e-005	2.4000e-004	0.0000	2.1956	2.1956	3.0000e-005	3.3000e-004	2.2943
Worker	1.1900e-003	8.1000e-004	0.0101	3.0000e-005	3.5900e-003	2.0000e-005	3.6100e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.8301	2.8301	8.0000e-005	8.0000e-005	2.8555
Total	1.3000e-003	5.7700e-003	0.0116	5.0000e-005	4.3400e-003	5.0000e-005	4.3900e-003	1.1700e-003	5.0000e-005	1.2100e-003	0.0000	5.0256	5.0256	1.1000e-004	4.1000e-004	5.1498

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1227	2.6734	2.0287	3.0600e-003		0.1026	0.1026		0.1026	0.1026	0.0000	263.0981	263.0981	0.0626	0.0000	264.6628
Total	0.1227	2.6734	2.0287	3.0600e-003		0.1026	0.1026		0.1026	0.1026	0.0000	263.0981	263.0981	0.0626	0.0000	264.6628

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.9600e-003	1.5000e-003	2.0000e-005	7.5000e-004	3.0000e-005	7.8000e-004	2.2000e-004	3.0000e-005	2.4000e-004	0.0000	2.1956	2.1956	3.0000e-005	3.3000e-004	2.2943
Worker	1.1900e-003	8.1000e-004	0.0101	3.0000e-005	3.5900e-003	2.0000e-005	3.6100e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.8301	2.8301	8.0000e-005	8.0000e-005	2.8555
Total	1.3000e-003	5.7700e-003	0.0116	5.0000e-005	4.3400e-003	5.0000e-005	4.3900e-003	1.1700e-003	5.0000e-005	1.2100e-003	0.0000	5.0256	5.0256	1.1000e-004	4.1000e-004	5.1498

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2100e-003	0.0202	0.0243	4.0000e-005		9.2000e-004	9.2000e-004		8.7000e-004	8.7000e-004	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983
Total	2.2100e-003	0.0202	0.0243	4.0000e-005		9.2000e-004	9.2000e-004		8.7000e-004	8.7000e-004	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0286	0.0286	0.0000	0.0000	0.0299
Worker	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0365	0.0365	0.0000	0.0000	0.0368
Total	1.0000e-005	8.0000e-005	1.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0651	0.0651	0.0000	0.0000	0.0666

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6200e-003	0.0353	0.0268	4.0000e-005		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983
Total	1.6200e-003	0.0353	0.0268	4.0000e-005		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0286	0.0286	0.0000	0.0000	0.0299
Worker	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0365	0.0365	0.0000	0.0000	0.0368
Total	1.0000e-005	8.0000e-005	1.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0651	0.0651	0.0000	0.0000	0.0666

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038
Total	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038

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3.6 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7700e-003	0.1448	0.1218	1.7000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.7700e-003	0.1448	0.1218	1.7000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038
Total	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038

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3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3520					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	0.3536	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552
Total	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3520					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0300e-003	0.0212	0.0165	3.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	0.3530	0.0212	0.0165	3.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552
Total	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964
Unmitigated	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	85.00	85.00	85.00	196,317	196,317
Total	85.00	85.00	85.00	196,317	196,317

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.569946	0.056495	0.180011	0.112201	0.020944	0.005169	0.013608	0.012941	0.000792	0.000570	0.024535	0.000337	0.002451

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.2266	7.2266	1.1700e-003	1.4000e-004	7.2981
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.2266	7.2266	1.1700e-003	1.4000e-004	7.2981
NaturalGas Mitigated	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161
NaturalGas Unmitigated	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	385911	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161
Total		2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	385911	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161
Total		2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	78105.2	7.2266	1.1700e-003	1.4000e-004	7.2981
Total		7.2266	1.1700e-003	1.4000e-004	7.2981

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	78105.2	7.2266	1.1700e-003	1.4000e-004	7.2981
Total		7.2266	1.1700e-003	1.4000e-004	7.2981

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2328	1.5900e-003	0.0745	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.9702	0.9702	1.3000e-004	2.0000e-005	0.9782
Unmitigated	0.2916	2.1500e-003	0.1599	1.8000e-004		0.0128	0.0128		0.0128	0.0128	1.2711	0.4334	1.7045	2.5200e-003	7.0000e-005	1.7891

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0589	1.2900e-003	0.0857	1.8000e-004		0.0124	0.0124		0.0124	0.0124	1.2711	0.3121	1.5832	2.4000e-003	7.0000e-005	1.6649
Landscaping	2.2300e-003	8.6000e-004	0.0742	0.0000		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	0.1213	0.1213	1.2000e-004	0.0000	0.1242
Total	0.2916	2.1500e-003	0.1599	1.8000e-004		0.0128	0.0128		0.0128	0.0128	1.2711	0.4334	1.7045	2.5200e-003	7.0000e-005	1.7891

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.0000e-005	7.3000e-004	3.1000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8489	0.8489	2.0000e-005	2.0000e-005	0.8540
Landscaping	2.2300e-003	8.6000e-004	0.0742	0.0000		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	0.1213	0.1213	1.2000e-004	0.0000	0.1242
Total	0.2328	1.5900e-003	0.0745	0.0000		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.9702	0.9702	1.4000e-004	2.0000e-005	0.9782

7.0 Water Detail

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6659	0.0213	5.1000e-004	1.3506
Unmitigated	0.6659	0.0213	5.1000e-004	1.3506

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.65154 / 0.410754	0.6659	0.0213	5.1000e-004	1.3506
Total		0.6659	0.0213	5.1000e-004	1.3506

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.65154 / 0.410754	0.6659	0.0213	5.1000e-004	1.3506
Total		0.6659	0.0213	5.1000e-004	1.3506

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.4724	0.1461	0.0000	6.1253
Unmitigated	2.4724	0.1461	0.0000	6.1253

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	12.18	2.4724	0.1461	0.0000	6.1253
Total		2.4724	0.1461	0.0000	6.1253

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	12.18	2.4724	0.1461	0.0000	6.1253
Total		2.4724	0.1461	0.0000	6.1253

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4738 Proctor Road Subdivision Project

Alameda County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	10.00	Dwelling Unit	4.00	50,000.00	29

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - It is anticipated that proposed houses would range from approximately 3,000 to 5,000 square feet in size; therefore, this analysis assumes a total square footage of 50,000 to be conservative.

Construction Phase - Default construction schedule.

Grading - The proposed project would include the export of 2,589 cubic yards of soil.

Demolition - Construction activities would include the demolition of the existing residential unit.

Vehicle Trips - Based on the trip generation estimates, the proposed project would generate approximately 85 net new average daily trips.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and the use of Tier 2 construction equipment.

Area Mitigation - No woodburning hearths.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	MaterialExported	0.00	2,589.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LandUseSquareFeet	18,000.00	50,000.00
tblLandUse	LotAcreage	3.25	4.00
tblVehicleTrips	ST_TR	9.54	8.50
tblVehicleTrips	SU_TR	8.55	8.50
tblVehicleTrips	WD_TR	9.44	8.50

2.0 Emissions Summary

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7095	27.5527	20.0111	0.0549	19.8049	1.2668	21.0716	10.1417	1.1654	11.3071	0.0000	5,583.1358	5,583.1358	1.1959	0.4134	5,731.0172
2024	39.2912	13.4918	16.2691	0.0274	0.1643	0.6137	0.6534	0.0436	0.5773	0.5880	0.0000	2,605.3576	2,605.3576	0.6053	3.7900e-003	2,621.6219
Maximum	39.2912	27.5527	20.0111	0.0549	19.8049	1.2668	21.0716	10.1417	1.1654	11.3071	0.0000	5,583.1358	5,583.1358	1.1959	0.4134	5,731.0172

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3039	33.7499	25.0416	0.0549	8.9935	0.9469	9.9404	4.5853	0.9469	5.5322	0.0000	5,583.1358	5,583.1358	1.1959	0.4134	5,731.0172
2024	39.2243	23.6024	17.9761	0.0274	0.1643	0.9040	0.9436	0.0436	0.9040	0.9146	0.0000	2,605.3576	2,605.3576	0.6053	3.7900e-003	2,621.6219
Maximum	39.2243	33.7499	25.0416	0.0549	8.9935	0.9469	9.9404	4.5853	0.9469	5.5322	0.0000	5,583.1358	5,583.1358	1.1959	0.4134	5,731.0172

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	3.51	-39.73	-18.57	0.00	54.14	1.57	49.90	54.55	-6.20	45.80	0.00	0.00	0.00	0.00	0.00	0.00

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.6508	0.2090	14.2276	0.0253		1.8998	1.8998		1.8998	1.8998	203.7834	63.2502	267.0336	0.2534	0.0144	277.6536
Energy	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Mobile	0.2129	0.2183	1.7515	3.9900e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		412.6954	412.6954	0.0230	0.0192	418.9946
Total	11.8752	0.5248	16.0206	0.0299	0.4134	1.9105	2.3239	0.1101	1.9104	2.0204	203.7834	600.3328	804.1162	0.2788	0.0359	821.7747

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3031	0.1411	0.8807	8.8000e-004		0.0152	0.0152		0.0152	0.0152	0.0000	169.4855	169.4855	4.6500e-003	3.0800e-003	170.5195
Energy	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Mobile	0.2129	0.2183	1.7515	3.9900e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		412.6954	412.6954	0.0230	0.0192	418.9946
Total	1.5274	0.4568	2.6737	5.4900e-003	0.4134	0.0259	0.4393	0.1101	0.0258	0.1358	0.0000	706.5681	706.5681	0.0301	0.0246	714.6405

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	87.14	12.95	83.31	81.63	0.00	98.64	81.10	0.00	98.65	93.28	100.00	-17.70	12.13	89.21	31.50	13.04

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/28/2023	2/3/2023	5	5	
3	Grading	Grading	2/4/2023	2/15/2023	5	8	
4	Building Construction	Building Construction	2/16/2023	1/3/2024	5	230	
5	Paving	Paving	1/4/2024	1/29/2024	5	18	
6	Architectural Coating	Architectural Coating	1/30/2024	2/22/2024	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	324.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	4.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0591	0.0000	0.0591	8.9400e-003	0.0000	8.9400e-003			0.0000			0.0000
Off-Road	2.2691	21.4844	19.6434	0.0388		0.9975	0.9975		0.9280	0.9280		3,746.9840	3,746.9840	1.0494		3,773.2183
Total	2.2691	21.4844	19.6434	0.0388	0.0591	0.9975	1.0566	8.9400e-003	0.9280	0.9369		3,746.9840	3,746.9840	1.0494		3,773.2183

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3000e-004	0.0316	7.4100e-003	1.5000e-004	4.3800e-003	2.8000e-004	4.6600e-003	1.2000e-003	2.7000e-004	1.4700e-003		16.0504	16.0504	3.4000e-004	2.5400e-003	16.8146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0417	0.0237	0.3603	1.0800e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		110.2833	110.2833	2.8300e-003	2.6300e-003	111.1377
Total	0.0423	0.0554	0.3677	1.2300e-003	0.1276	9.0000e-004	0.1285	0.0339	8.4000e-004	0.0347		126.3337	126.3337	3.1700e-003	5.1700e-003	127.9522

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0266	0.0000	0.0266	4.0200e-003	0.0000	4.0200e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183
Total	1.2617	32.6638	24.6739	0.0388	0.0266	0.9135	0.9401	4.0200e-003	0.9135	0.9176	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3000e-004	0.0316	7.4100e-003	1.5000e-004	4.3800e-003	2.8000e-004	4.6600e-003	1.2000e-003	2.7000e-004	1.4700e-003		16.0504	16.0504	3.4000e-004	2.5400e-003	16.8146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0417	0.0237	0.3603	1.0800e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		110.2833	110.2833	2.8300e-003	2.6300e-003	111.1377
Total	0.0423	0.0554	0.3677	1.2300e-003	0.1276	9.0000e-004	0.1285	0.0339	8.4000e-004	0.0347		126.3337	126.3337	3.1700e-003	5.1700e-003	127.9522

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	2.6595	27.5242	18.2443	0.0381	19.6570	1.2660	20.9230	10.1025	1.1647	11.2672		3,687.3081	3,687.3081	1.1926		3,717.1219

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0501	0.0285	0.4324	1.2900e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		132.3399	132.3399	3.3900e-003	3.1600e-003	133.3652
Total	0.0501	0.0285	0.4324	1.2900e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		132.3399	132.3399	3.3900e-003	3.1600e-003	133.3652

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0381		0.9462	0.9462		0.9462	0.9462	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	1.2097	33.7214	22.9600	0.0381	8.8457	0.9462	9.7918	4.5461	0.9462	5.4923	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0501	0.0285	0.4324	1.2900e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		132.3399	132.3399	3.3900e-003	3.1600e-003	133.3652
Total	0.0501	0.0285	0.4324	1.2900e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		132.3399	132.3399	3.3900e-003	3.1600e-003	133.3652

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1192	0.0000	7.1192	3.4303	0.0000	3.4303			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	1.7109	17.9359	14.7507	0.0297	7.1192	0.7749	7.8941	3.4303	0.7129	4.1432		2,872.6910	2,872.6910	0.9291		2,895.9182

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0859	5.1258	1.2004	0.0241	0.7094	0.0453	0.7547	0.1945	0.0434	0.2379		2,600.1615	2,600.1615	0.0553	0.4108	2,723.9614
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0417	0.0237	0.3603	1.0800e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		110.2833	110.2833	2.8300e-003	2.6300e-003	111.1377
Total	0.1277	5.1495	1.5607	0.0252	0.8326	0.0460	0.8786	0.2272	0.0439	0.2712		2,710.4448	2,710.4448	0.0581	0.4134	2,835.0990

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2036	0.0000	3.2036	1.5436	0.0000	1.5436			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0297		0.7725	0.7725		0.7725	0.7725	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	1.0093	26.2791	18.9906	0.0297	3.2036	0.7725	3.9761	1.5436	0.7725	2.3161	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0859	5.1258	1.2004	0.0241	0.7094	0.0453	0.7547	0.1945	0.0434	0.2379		2,600.1615	2,600.1615	0.0553	0.4108	2,723.9614
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0417	0.0237	0.3603	1.0800e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		110.2833	110.2833	2.8300e-003	2.6300e-003	111.1377
Total	0.1277	5.1495	1.5607	0.0252	0.8326	0.0460	0.8786	0.2272	0.0439	0.2712		2,710.4448	2,710.4448	0.0581	0.4134	2,835.0990

3.5 Building Construction - 2023

Unmitigated Construction On-Site

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

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0400e-003	0.0422	0.0130	2.0000e-004	6.7800e-003	2.6000e-004	7.0400e-003	1.9500e-003	2.5000e-004	2.2000e-003		21.3084	21.3084	2.9000e-004	3.1900e-003	22.2660
Worker	0.0111	6.3300e-003	0.0961	2.9000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		29.4089	29.4089	7.5000e-004	7.0000e-004	29.6367
Total	0.0122	0.0485	0.1091	4.9000e-004	0.0396	4.2000e-004	0.0401	0.0107	4.0000e-004	0.0111		50.7172	50.7172	1.0400e-003	3.8900e-003	51.9027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0400e-003	0.0422	0.0130	2.0000e-004	6.7800e-003	2.6000e-004	7.0400e-003	1.9500e-003	2.5000e-004	2.2000e-003		21.3084	21.3084	2.9000e-004	3.1900e-003	22.2660
Worker	0.0111	6.3300e-003	0.0961	2.9000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		29.4089	29.4089	7.5000e-004	7.0000e-004	29.6367
Total	0.0122	0.0485	0.1091	4.9000e-004	0.0396	4.2000e-004	0.0401	0.0107	4.0000e-004	0.0111		50.7172	50.7172	1.0400e-003	3.8900e-003	51.9027

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0100e-003	0.0423	0.0128	2.0000e-004	6.7800e-003	2.7000e-004	7.0400e-003	1.9500e-003	2.5000e-004	2.2100e-003		20.9795	20.9795	2.9000e-004	3.1400e-003	21.9230
Worker	0.0104	5.6500e-003	0.0895	2.8000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.4000e-004	8.8600e-003		28.6792	28.6792	6.8000e-004	6.5000e-004	28.8912
Total	0.0114	0.0480	0.1023	4.8000e-004	0.0396	4.3000e-004	0.0401	0.0107	3.9000e-004	0.0111		49.6587	49.6587	9.7000e-004	3.7900e-003	50.8142

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.0809	23.5544	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0100e-003	0.0423	0.0128	2.0000e-004	6.7800e-003	2.7000e-004	7.0400e-003	1.9500e-003	2.5000e-004	2.2100e-003		20.9795	20.9795	2.9000e-004	3.1400e-003	21.9230
Worker	0.0104	5.6500e-003	0.0895	2.8000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.4000e-004	8.8600e-003		28.6792	28.6792	6.8000e-004	6.5000e-004	28.8912
Total	0.0114	0.0480	0.1023	4.8000e-004	0.0396	4.3000e-004	0.0401	0.0107	3.9000e-004	0.0111		49.6587	49.6587	9.7000e-004	3.7900e-003	50.8142

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0519	0.0283	0.4476	1.3900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		143.3962	143.3962	3.4100e-003	3.2700e-003	144.4560
Total	0.0519	0.0283	0.4476	1.3900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		143.3962	143.3962	3.4100e-003	3.2700e-003	144.4560

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0519	0.0283	0.4476	1.3900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		143.3962	143.3962	3.4100e-003	3.2700e-003	144.4560
Total	0.0519	0.0283	0.4476	1.3900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		143.3962	143.3962	3.4100e-003	3.2700e-003	144.4560

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1078					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	39.2886	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5900e-003	1.4100e-003	0.0224	7.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.1698	7.1698	1.7000e-004	1.6000e-004	7.2228
Total	2.5900e-003	1.4100e-003	0.0224	7.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.1698	7.1698	1.7000e-004	1.6000e-004	7.2228

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1078					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443
Total	39.2217	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5900e-003	1.4100e-003	0.0224	7.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.1698	7.1698	1.7000e-004	1.6000e-004	7.2228
Total	2.5900e-003	1.4100e-003	0.0224	7.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		7.1698	7.1698	1.7000e-004	1.6000e-004	7.2228

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2129	0.2183	1.7515	3.9900e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		412.6954	412.6954	0.0230	0.0192	418.9946
Unmitigated	0.2129	0.2183	1.7515	3.9900e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		412.6954	412.6954	0.0230	0.0192	418.9946

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	85.00	85.00	85.00	196,317	196,317
Total	85.00	85.00	85.00	196,317	196,317

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.569946	0.056495	0.180011	0.112201	0.020944	0.005169	0.013608	0.012941	0.000792	0.000570	0.024535	0.000337	0.002451

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
NaturalGas Unmitigated	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1057.29	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Total		0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1.05729	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Total		0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3031	0.1411	0.8807	8.8000e-004		0.0152	0.0152		0.0152	0.0152	0.0000	169.4855	169.4855	4.6500e-003	3.0800e-003	170.5195
Unmitigated	11.6508	0.2090	14.2276	0.0253		1.8998	1.8998		1.8998	1.8998	203.7834	63.2502	267.0336	0.2534	0.0144	277.6536

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1929					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.3632	0.1995	13.4029	0.0252		1.8952	1.8952		1.8952	1.8952	203.7834	61.7647	265.5481	0.2520	0.0144	276.1325
Landscaping	0.0248	9.5000e-003	0.8247	4.0000e-005		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003		1.4855	1.4855	1.4300e-003		1.5212
Total	11.6508	0.2090	14.2276	0.0253		1.8998	1.8998		1.8998	1.8998	203.7834	63.2502	267.0336	0.2534	0.0144	277.6536

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1929					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0154	0.1316	0.0560	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	168.0000	168.0000	3.2200e-003	3.0800e-003	168.9983
Landscaping	0.0248	9.5000e-003	0.8247	4.0000e-005		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003		1.4855	1.4855	1.4300e-003		1.5212
Total	1.3031	0.1411	0.8807	8.8000e-004		0.0152	0.0152		0.0152	0.0152	0.0000	169.4855	169.4855	4.6500e-003	3.0800e-003	170.5195

7.0 Water Detail

7.1 Mitigation Measures Water

4738 Proctor Road Subdivision Project - Alameda County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
----------------	--------

11.0 Vegetation

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4738 Proctor Road Subdivision Project

Alameda County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	10.00	Dwelling Unit	4.00	50,000.00	29

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - It is anticipated that proposed houses would range from approximately 3,000 to 5,000 square feet in size; therefore, this analysis assumes a total square footage of 50,000 to be conservative.

Construction Phase - Default construction schedule.

Grading - The proposed project would include the export of 2,589 cubic yards of soil.

Demolition - Construction activities would include the demolition of the existing residential unit.

Vehicle Trips - Based on the trip generation estimates, the proposed project would generate approximately 85 net new average daily trips.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and the use of Tier 2 construction equipment.

Area Mitigation - No woodburning hearths.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	MaterialExported	0.00	2,589.00

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LandUseSquareFeet	18,000.00	50,000.00
tblLandUse	LotAcreage	3.25	4.00
tblVehicleTrips	ST_TR	9.54	8.50
tblVehicleTrips	SU_TR	8.55	8.50
tblVehicleTrips	WD_TR	9.44	8.50

2.0 Emissions Summary

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7103	27.5595	19.9971	0.0548	19.8049	1.2668	21.0716	10.1417	1.1654	11.3071	0.0000	5,578.082 3	5,578.082 3	1.1964	0.4143	5,726.227 5
2024	39.2912	13.4956	16.2664	0.0274	0.1643	0.6137	0.6534	0.0436	0.5773	0.5880	0.0000	2,603.341 2	2,603.341 2	0.6054	3.9100e-003	2,619.640 6
Maximum	39.2912	27.5595	19.9971	0.0548	19.8049	1.2668	21.0716	10.1417	1.1654	11.3071	0.0000	5,578.082 3	5,578.082 3	1.1964	0.4143	5,726.227 5

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3046	33.7568	25.0276	0.0548	8.9935	0.9469	9.9404	4.5853	0.9469	5.5322	0.0000	5,578.082 3	5,578.082 3	1.1964	0.4143	5,726.227 5
2024	39.2244	23.6063	17.9733	0.0274	0.1643	0.9040	0.9436	0.0436	0.9040	0.9146	0.0000	2,603.341 2	2,603.341 2	0.6054	3.9100e-003	2,619.640 6
Maximum	39.2244	33.7568	25.0276	0.0548	8.9935	0.9469	9.9404	4.5853	0.9469	5.5322	0.0000	5,578.082 3	5,578.082 3	1.1964	0.4143	5,726.227 5

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	3.51	-39.72	-18.58	0.00	54.14	1.57	49.90	54.55	-6.20	45.80	0.00	0.00	0.00	0.00	0.00	0.00

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.6508	0.2090	14.2276	0.0253		1.8998	1.8998		1.8998	1.8998	203.7834	63.2502	267.0336	0.2534	0.0144	277.6536
Energy	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Mobile	0.1901	0.2503	1.8850	3.7700e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		389.8904	389.8904	0.0263	0.0210	396.7927
Total	11.8524	0.5567	16.1540	0.0297	0.4134	1.9105	2.3239	0.1101	1.9104	2.0204	203.7834	577.5278	781.3112	0.2821	0.0376	799.5728

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3031	0.1411	0.8807	8.8000e-004		0.0152	0.0152		0.0152	0.0152	0.0000	169.4855	169.4855	4.6500e-003	3.0800e-003	170.5195
Energy	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Mobile	0.1901	0.2503	1.8850	3.7700e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		389.8904	389.8904	0.0263	0.0210	396.7927
Total	1.5046	0.4888	2.8071	5.2700e-003	0.4134	0.0259	0.4393	0.1101	0.0258	0.1358	0.0000	683.7631	683.7631	0.0334	0.0263	692.4387

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	87.31	12.20	82.62	82.24	0.00	98.64	81.10	0.00	98.65	93.28	100.00	-18.39	12.49	88.18	30.05	13.40

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/28/2023	2/3/2023	5	5	
3	Grading	Grading	2/4/2023	2/15/2023	5	8	
4	Building Construction	Building Construction	2/16/2023	1/3/2024	5	230	
5	Paving	Paving	1/4/2024	1/29/2024	5	18	
6	Architectural Coating	Architectural Coating	1/30/2024	2/22/2024	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	324.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	4.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					0.0591	0.0000	0.0591	8.9400e-003	0.0000	8.9400e-003			0.0000				0.0000
Off-Road	2.2691	21.4844	19.6434	0.0388		0.9975	0.9975		0.9280	0.9280		3,746.9840	3,746.9840	1.0494			3,773.2183
Total	2.2691	21.4844	19.6434	0.0388	0.0591	0.9975	1.0566	8.9400e-003	0.9280	0.9369		3,746.9840	3,746.9840	1.0494			3,773.2183

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.0000e-004	0.0335	7.5200e-003	1.5000e-004	4.3800e-003	2.8000e-004	4.6600e-003	1.2000e-003	2.7000e-004	1.4700e-003		16.0680	16.0680	3.4000e-004	2.5400e-003	16.8330
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0424	0.0295	0.3462	1.0000e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3751	102.3751	3.2300e-003	3.0400e-003	103.3621
Total	0.0429	0.0630	0.3537	1.1500e-003	0.1276	9.0000e-004	0.1285	0.0339	8.4000e-004	0.0347		118.4431	118.4431	3.5700e-003	5.5800e-003	120.1951

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0266	0.0000	0.0266	4.0200e-003	0.0000	4.0200e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183
Total	1.2617	32.6638	24.6739	0.0388	0.0266	0.9135	0.9401	4.0200e-003	0.9135	0.9176	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.0000e-004	0.0335	7.5200e-003	1.5000e-004	4.3800e-003	2.8000e-004	4.6600e-003	1.2000e-003	2.7000e-004	1.4700e-003		16.0680	16.0680	3.4000e-004	2.5400e-003	16.8330
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0424	0.0295	0.3462	1.0000e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3751	102.3751	3.2300e-003	3.0400e-003	103.3621
Total	0.0429	0.0630	0.3537	1.1500e-003	0.1276	9.0000e-004	0.1285	0.0339	8.4000e-004	0.0347		118.4431	118.4431	3.5700e-003	5.5800e-003	120.1951

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	2.6595	27.5242	18.2443	0.0381	19.6570	1.2660	20.9230	10.1025	1.1647	11.2672		3,687.3081	3,687.3081	1.1926		3,717.1219

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0509	0.0354	0.4155	1.2000e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		122.8501	122.8501	3.8800e-003	3.6500e-003	124.0345
Total	0.0509	0.0354	0.4155	1.2000e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		122.8501	122.8501	3.8800e-003	3.6500e-003	124.0345

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0381		0.9462	0.9462		0.9462	0.9462	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	1.2097	33.7214	22.9600	0.0381	8.8457	0.9462	9.7918	4.5461	0.9462	5.4923	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0509	0.0354	0.4155	1.2000e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		122.8501	122.8501	3.8800e-003	3.6500e-003	124.0345
Total	0.0509	0.0354	0.4155	1.2000e-003	0.1479	7.4000e-004	0.1486	0.0392	6.8000e-004	0.0399		122.8501	122.8501	3.8800e-003	3.6500e-003	124.0345

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1192	0.0000	7.1192	3.4303	0.0000	3.4303			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	1.7109	17.9359	14.7507	0.0297	7.1192	0.7749	7.8941	3.4303	0.7129	4.1432		2,872.6910	2,872.6910	0.9291		2,895.9182

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0803	5.4273	1.2180	0.0241	0.7094	0.0454	0.7548	0.1945	0.0434	0.2380		2,603.016 2	2,603.016 2	0.0550	0.4113	2,726.947 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0424	0.0295	0.3462	1.0000e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3751	102.3751	3.2300e-003	3.0400e-003	103.3621
Total	0.1227	5.4568	1.5642	0.0251	0.8326	0.0460	0.8786	0.2272	0.0440	0.2712		2,705.391 3	2,705.391 3	0.0582	0.4143	2,830.309 4

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2036	0.0000	3.2036	1.5436	0.0000	1.5436			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0297		0.7725	0.7725		0.7725	0.7725	0.0000	2,872.691 0	2,872.691 0	0.9291		2,895.918 2
Total	1.0093	26.2791	18.9906	0.0297	3.2036	0.7725	3.9761	1.5436	0.7725	2.3161	0.0000	2,872.691 0	2,872.691 0	0.9291		2,895.918 2

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0803	5.4273	1.2180	0.0241	0.7094	0.0454	0.7548	0.1945	0.0434	0.2380		2,603.016 2	2,603.016 2	0.0550	0.4113	2,726.947 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0424	0.0295	0.3462	1.0000e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3751	102.3751	3.2300e-003	3.0400e-003	103.3621
Total	0.1227	5.4568	1.5642	0.0251	0.8326	0.0460	0.8786	0.2272	0.0440	0.2712		2,705.391 3	2,705.391 3	0.0582	0.4143	2,830.309 4

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.209 9	2,555.209 9	0.6079		2,570.406 1

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9000e-004	0.0447	0.0135	2.0000e-004	6.7800e-003	2.6000e-004	7.0400e-003	1.9500e-003	2.5000e-004	2.2000e-003		21.3442	21.3442	2.9000e-004	3.2000e-003	22.3042
Worker	0.0113	7.8600e-003	0.0923	2.7000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		27.3000	27.3000	8.6000e-004	8.1000e-004	27.5632
Total	0.0123	0.0525	0.1058	4.7000e-004	0.0396	4.2000e-004	0.0401	0.0107	4.0000e-004	0.0111		48.6442	48.6442	1.1500e-003	4.0100e-003	49.8674

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9000e-004	0.0447	0.0135	2.0000e-004	6.7800e-003	2.6000e-004	7.0400e-003	1.9500e-003	2.5000e-004	2.2000e-003		21.3442	21.3442	2.9000e-004	3.2000e-003	22.3042
Worker	0.0113	7.8600e-003	0.0923	2.7000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.5000e-004	8.8700e-003		27.3000	27.3000	8.6000e-004	8.1000e-004	27.5632
Total	0.0123	0.0525	0.1058	4.7000e-004	0.0396	4.2000e-004	0.0401	0.0107	4.0000e-004	0.0111		48.6442	48.6442	1.1500e-003	4.0100e-003	49.8674

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.6000e-004	0.0449	0.0132	2.0000e-004	6.7800e-003	2.7000e-004	7.0400e-003	1.9500e-003	2.6000e-004	2.2100e-003		21.0152	21.0152	2.9000e-004	3.1500e-003	21.9610
Worker	0.0106	7.0200e-003	0.0863	2.6000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.4000e-004	8.8600e-003		26.6271	26.6271	7.8000e-004	7.6000e-004	26.8720
Total	0.0115	0.0519	0.0996	4.6000e-004	0.0396	4.3000e-004	0.0401	0.0107	4.0000e-004	0.0111		47.6423	47.6423	1.0700e-003	3.9100e-003	48.8330

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.0809	23.5544	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.6000e-004	0.0449	0.0132	2.0000e-004	6.7800e-003	2.7000e-004	7.0400e-003	1.9500e-003	2.6000e-004	2.2100e-003		21.0152	21.0152	2.9000e-004	3.1500e-003	21.9610
Worker	0.0106	7.0200e-003	0.0863	2.6000e-004	0.0329	1.6000e-004	0.0330	8.7200e-003	1.4000e-004	8.8600e-003		26.6271	26.6271	7.8000e-004	7.6000e-004	26.8720
Total	0.0115	0.0519	0.0996	4.6000e-004	0.0396	4.3000e-004	0.0401	0.0107	4.0000e-004	0.0111		47.6423	47.6423	1.0700e-003	3.9100e-003	48.8330

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0529	0.0351	0.4317	1.2900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		133.1356	133.1356	3.9100e-003	3.7800e-003	134.3599
Total	0.0529	0.0351	0.4317	1.2900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		133.1356	133.1356	3.9100e-003	3.7800e-003	134.3599

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0529	0.0351	0.4317	1.2900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		133.1356	133.1356	3.9100e-003	3.7800e-003	134.3599
Total	0.0529	0.0351	0.4317	1.2900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		133.1356	133.1356	3.9100e-003	3.7800e-003	134.3599

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1078					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	39.2886	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6500e-003	1.7500e-003	0.0216	6.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.6568	6.6568	2.0000e-004	1.9000e-004	6.7180
Total	2.6500e-003	1.7500e-003	0.0216	6.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.6568	6.6568	2.0000e-004	1.9000e-004	6.7180

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1078					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443
Total	39.2217	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6500e-003	1.7500e-003	0.0216	6.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.6568	6.6568	2.0000e-004	1.9000e-004	6.7180
Total	2.6500e-003	1.7500e-003	0.0216	6.0000e-005	8.2100e-003	4.0000e-005	8.2500e-003	2.1800e-003	4.0000e-005	2.2200e-003		6.6568	6.6568	2.0000e-004	1.9000e-004	6.7180

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1901	0.2503	1.8850	3.7700e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		389.8904	389.8904	0.0263	0.0210	396.7927
Unmitigated	0.1901	0.2503	1.8850	3.7700e-003	0.4134	2.8500e-003	0.4162	0.1101	2.6600e-003	0.1127		389.8904	389.8904	0.0263	0.0210	396.7927

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	85.00	85.00	85.00	196,317	196,317
Total	85.00	85.00	85.00	196,317	196,317

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.569946	0.056495	0.180011	0.112201	0.020944	0.005169	0.013608	0.012941	0.000792	0.000570	0.024535	0.000337	0.002451

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
NaturalGas Unmitigated	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1057.29	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Total		0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1.05729	0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264
Total		0.0114	0.0974	0.0415	6.2000e-004		7.8800e-003	7.8800e-003		7.8800e-003	7.8800e-003		124.3872	124.3872	2.3800e-003	2.2800e-003	125.1264

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3031	0.1411	0.8807	8.8000e-004		0.0152	0.0152		0.0152	0.0152	0.0000	169.4855	169.4855	4.6500e-003	3.0800e-003	170.5195
Unmitigated	11.6508	0.2090	14.2276	0.0253		1.8998	1.8998		1.8998	1.8998	203.7834	63.2502	267.0336	0.2534	0.0144	277.6536

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1929					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.3632	0.1995	13.4029	0.0252		1.8952	1.8952		1.8952	1.8952	203.7834	61.7647	265.5481	0.2520	0.0144	276.1325
Landscaping	0.0248	9.5000e-003	0.8247	4.0000e-005		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003		1.4855	1.4855	1.4300e-003		1.5212
Total	11.6508	0.2090	14.2276	0.0253		1.8998	1.8998		1.8998	1.8998	203.7834	63.2502	267.0336	0.2534	0.0144	277.6536

4738 Proctor Road Subdivision Project - Alameda County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1929					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0154	0.1316	0.0560	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	168.0000	168.0000	3.2200e-003	3.0800e-003	168.9983
Landscaping	0.0248	9.5000e-003	0.8247	4.0000e-005		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003		1.4855	1.4855	1.4300e-003		1.5212
Total	1.3031	0.1411	0.8807	8.8000e-004		0.0152	0.0152		0.0152	0.0152	0.0000	169.4855	169.4855	4.6500e-003	3.0800e-003	170.5195

7.0 Water Detail

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

Boilers

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

Equipment Type	Number
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11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

**4738 Proctor Road Subdivision Project
Alameda County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	10.00	Dwelling Unit	4.00	50,000.00	29

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - It is anticipated that proposed houses would range from approximately 3,000 to 5,000 square feet in size; therefore, this analysis assumes a total square footage of 50,000 to be conservative.

Construction Phase - Default construction schedule.

Demolition - Construction activities would include the demolition of the existing residential unit.

Grading - The proposed project would include the export of 2,589 cubic yards of soil.

Vehicle Trips - Based on the trip generation estimates, the proposed project would generate approximately 85 net new average daily trips.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and the use of Tier 2 construction equipment with level 3 diesel particulate filters.

Area Mitigation - No woodburning hearths.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	MaterialExported	0.00	2,589.00
tblLandUse	LandUseSquareFeet	18,000.00	50,000.00
tblLandUse	LotAcreage	3.25	4.00
tblVehicleTrips	ST_TR	9.54	8.50
tblVehicleTrips	SU_TR	8.55	8.50
tblVehicleTrips	WD_TR	9.44	8.50

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2170	2.0159	2.1670	3.8300e-003	0.0874	0.0959	0.1833	0.0415	0.0900	0.1316	0.0000	332.0779	332.0779	0.0786	1.9700e-003	334.6274
2024	0.3642	0.1060	0.1546	2.5000e-004	1.5500e-003	5.0600e-003	6.6200e-003	4.1000e-004	4.7400e-003	5.1500e-003	0.0000	21.7321	21.7321	5.6200e-003	4.0000e-005	21.8832
Maximum	0.3642	2.0159	2.1670	3.8300e-003	0.0874	0.0959	0.1833	0.0415	0.0900	0.1316	0.0000	332.0779	332.0779	0.0786	1.9700e-003	334.6274

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1447	3.2173	2.4310	3.8300e-003	0.0443	0.0178	0.0622	0.0201	0.0178	0.0379	0.0000	332.0775	332.0775	0.0786	1.9700e-003	334.6270
2024	0.3619	0.2017	0.1692	2.5000e-004	1.5500e-003	1.1000e-003	2.6500e-003	4.1000e-004	1.1000e-003	1.5100e-003	0.0000	21.7321	21.7321	5.6200e-003	4.0000e-005	21.8831
Maximum	0.3619	3.2173	2.4310	3.8300e-003	0.0443	0.0178	0.0622	0.0201	0.0178	0.0379	0.0000	332.0775	332.0775	0.0786	1.9700e-003	334.6270

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	12.85	-61.13	-12.00	0.00	48.39	81.27	65.87	51.23	80.05	71.20	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2023	4-1-2023	0.6628	0.9414
2	4-2-2023	7-1-2023	0.5206	0.8026
3	7-2-2023	10-1-2023	0.5263	0.8114
4	10-2-2023	1-1-2024	0.5261	0.8116
5	1-2-2024	4-1-2024	0.4438	0.5312
		Highest	0.6628	0.9414

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2916	2.1500e-003	0.1599	1.8000e-004		0.0128	0.0128		0.0128	0.0128	1.2711	0.4334	1.7045	2.5200e-003	7.0000e-005	1.7891
Energy	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	27.8203	27.8203	1.5600e-003	5.2000e-004	28.0141
Mobile	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964
Waste						0.0000	0.0000		0.0000	0.0000	2.4724	0.0000	2.4724	0.1461	0.0000	6.1253
Water						0.0000	0.0000		0.0000	0.0000	0.2067	0.4592	0.6659	0.0213	5.1000e-004	1.3506
Total	0.3283	0.0631	0.4885	9.8000e-004	0.0724	0.0147	0.0872	0.0194	0.0147	0.0340	3.9502	93.3132	97.2635	0.1756	4.4300e-003	102.9756

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2328	1.5900e-003	0.0745	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.9702	0.9702	1.3000e-004	2.0000e-005	0.9782
Energy	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	27.8203	27.8203	1.5600e-003	5.2000e-004	28.0141
Mobile	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964
Waste						0.0000	0.0000		0.0000	0.0000	2.4724	0.0000	2.4724	0.1461	0.0000	6.1253
Water						0.0000	0.0000		0.0000	0.0000	0.2067	0.4592	0.6659	0.0213	5.1000e-004	1.3506
Total	0.2695	0.0625	0.4031	8.1000e-004	0.0724	2.4300e-003	0.0749	0.0194	2.3900e-003	0.0217	2.6791	93.8500	96.5292	0.1732	4.3800e-003	102.1647

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	17.92	0.89	17.48	17.35	0.00	83.50	14.11	0.00	83.73	36.13	32.18	-0.58	0.75	1.36	1.13	0.79

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/28/2023	2/3/2023	5	5	
3	Grading	Grading	2/4/2023	2/15/2023	5	8	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	2/16/2023	1/3/2024	5	230
5	Paving	Paving	1/4/2024	1/29/2024	5	18
6	Architectural Coating	Architectural Coating	1/30/2024	2/22/2024	5	18

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	324.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	4.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.9000e-004	0.0000	5.9000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	0.0227	0.2148	0.1964	3.9000e-004	5.9000e-004	9.9800e-003	0.0106	9.0000e-005	9.2800e-003	9.3700e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.3000e-004	7.0000e-005	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1457	0.1457	0.0000	2.0000e-005	0.1526
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9350	0.9350	3.0000e-005	3.0000e-005	0.9435
Total	4.0000e-004	6.0000e-004	3.4100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	1.0807	1.0807	3.0000e-005	5.0000e-005	1.0961

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0126	0.3266	0.2467	3.9000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	0.0126	0.3266	0.2467	3.9000e-004	2.7000e-004	1.3700e-003	1.6400e-003	4.0000e-005	1.3700e-003	1.4100e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	3.3000e-004	7.0000e-005	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1457	0.1457	0.0000	2.0000e-005	0.1526
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9350	0.9350	3.0000e-005	3.0000e-005	0.9435
Total	4.0000e-004	6.0000e-004	3.4100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	1.0807	1.0807	3.0000e-005	5.0000e-005	1.0961

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	6.6500e-003	0.0688	0.0456	1.0000e-004	0.0491	3.1700e-003	0.0523	0.0253	2.9100e-003	0.0282	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830
Total	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830

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3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0200e-003	0.0843	0.0574	1.0000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	3.0200e-003	0.0843	0.0574	1.0000e-004	0.0221	3.5000e-004	0.0225	0.0114	3.5000e-004	0.0117	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830
Total	1.2000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2805	0.2805	1.0000e-005	1.0000e-005	0.2830

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3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0285	0.0000	0.0285	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085
Total	6.8400e-003	0.0717	0.0590	1.2000e-004	0.0285	3.1000e-003	0.0316	0.0137	2.8500e-003	0.0166	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0213	4.8300e-003	1.0000e-004	2.7500e-003	1.8000e-004	2.9300e-003	7.6000e-004	1.7000e-004	9.3000e-004	0.0000	9.4397	9.4397	2.0000e-004	1.4900e-003	9.8891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.3400e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3740	0.3740	1.0000e-005	1.0000e-005	0.3774
Total	4.9000e-004	0.0214	6.1700e-003	1.0000e-004	3.2200e-003	1.8000e-004	3.4100e-003	8.9000e-004	1.7000e-004	1.0600e-003	0.0000	9.8137	9.8137	2.1000e-004	1.5000e-003	10.2665

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3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0128	0.0000	0.0128	6.1700e-003	0.0000	6.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0400e-003	0.1051	0.0760	1.2000e-004		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085
Total	4.0400e-003	0.1051	0.0760	1.2000e-004	0.0128	4.6000e-004	0.0133	6.1700e-003	4.6000e-004	6.6300e-003	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.3000e-004	0.0213	4.8300e-003	1.0000e-004	2.7500e-003	1.8000e-004	2.9300e-003	7.6000e-004	1.7000e-004	9.3000e-004	0.0000	9.4397	9.4397	2.0000e-004	1.4900e-003	9.8891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.3400e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3740	0.3740	1.0000e-005	1.0000e-005	0.3774
Total	4.9000e-004	0.0214	6.1700e-003	1.0000e-004	3.2200e-003	1.8000e-004	3.4100e-003	8.9000e-004	1.7000e-004	1.0600e-003	0.0000	9.8137	9.8137	2.1000e-004	1.5000e-003	10.2665

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3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6327	1.8437	3.0600e-003		0.0794	0.0794		0.0747	0.0747	0.0000	263.0984	263.0984	0.0626	0.0000	264.6631
Total	0.1785	1.6327	1.8437	3.0600e-003		0.0794	0.0794		0.0747	0.0747	0.0000	263.0984	263.0984	0.0626	0.0000	264.6631

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.9600e-003	1.5000e-003	2.0000e-005	7.5000e-004	3.0000e-005	7.8000e-004	2.2000e-004	3.0000e-005	2.4000e-004	0.0000	2.1956	2.1956	3.0000e-005	3.3000e-004	2.2943
Worker	1.1900e-003	8.1000e-004	0.0101	3.0000e-005	3.5900e-003	2.0000e-005	3.6100e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.8301	2.8301	8.0000e-005	8.0000e-005	2.8555
Total	1.3000e-003	5.7700e-003	0.0116	5.0000e-005	4.3400e-003	5.0000e-005	4.3900e-003	1.1700e-003	5.0000e-005	1.2100e-003	0.0000	5.0256	5.0256	1.1000e-004	4.1000e-004	5.1498

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3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1227	2.6734	2.0287	3.0600e-003		0.0154	0.0154		0.0154	0.0154	0.0000	263.0981	263.0981	0.0626	0.0000	264.6628
Total	0.1227	2.6734	2.0287	3.0600e-003		0.0154	0.0154		0.0154	0.0154	0.0000	263.0981	263.0981	0.0626	0.0000	264.6628

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.9600e-003	1.5000e-003	2.0000e-005	7.5000e-004	3.0000e-005	7.8000e-004	2.2000e-004	3.0000e-005	2.4000e-004	0.0000	2.1956	2.1956	3.0000e-005	3.3000e-004	2.2943
Worker	1.1900e-003	8.1000e-004	0.0101	3.0000e-005	3.5900e-003	2.0000e-005	3.6100e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.8301	2.8301	8.0000e-005	8.0000e-005	2.8555
Total	1.3000e-003	5.7700e-003	0.0116	5.0000e-005	4.3400e-003	5.0000e-005	4.3900e-003	1.1700e-003	5.0000e-005	1.2100e-003	0.0000	5.0256	5.0256	1.1000e-004	4.1000e-004	5.1498

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3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2100e-003	0.0202	0.0243	4.0000e-005		9.2000e-004	9.2000e-004		8.7000e-004	8.7000e-004	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983
Total	2.2100e-003	0.0202	0.0243	4.0000e-005		9.2000e-004	9.2000e-004		8.7000e-004	8.7000e-004	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0286	0.0286	0.0000	0.0000	0.0299
Worker	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0365	0.0365	0.0000	0.0000	0.0368
Total	1.0000e-005	8.0000e-005	1.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0651	0.0651	0.0000	0.0000	0.0666

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3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6200e-003	0.0353	0.0268	4.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983
Total	1.6200e-003	0.0353	0.0268	4.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	3.4777	3.4777	8.2000e-004	0.0000	3.4983

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0286	0.0286	0.0000	0.0000	0.0299
Worker	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0365	0.0365	0.0000	0.0000	0.0368
Total	1.0000e-005	8.0000e-005	1.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0651	0.0651	0.0000	0.0000	0.0666

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038
Total	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7700e-003	0.1448	0.1218	1.7000e-004		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.7700e-003	0.1448	0.1218	1.7000e-004		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038
Total	4.4000e-004	2.9000e-004	3.7500e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0944	1.0944	3.0000e-005	3.0000e-005	1.1038

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3520					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	0.3536	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552
Total	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3520					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0300e-003	0.0212	0.0165	3.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	0.3530	0.0212	0.0165	3.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552
Total	2.0000e-005	1.0000e-005	1.9000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0547	0.0547	0.0000	0.0000	0.0552

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964
Unmitigated	0.0346	0.0431	0.3210	6.9000e-004	0.0724	5.2000e-004	0.0730	0.0194	4.8000e-004	0.0198	0.0000	64.6003	64.6003	4.0900e-003	3.3300e-003	65.6964

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	85.00	85.00	85.00	196,317	196,317
Total	85.00	85.00	85.00	196,317	196,317

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.569946	0.056495	0.180011	0.112201	0.020944	0.005169	0.013608	0.012941	0.000792	0.000570	0.024535	0.000337	0.002451

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.2266	7.2266	1.1700e-003	1.4000e-004	7.2981
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.2266	7.2266	1.1700e-003	1.4000e-004	7.2981
NaturalGas Mitigated	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161
NaturalGas Unmitigated	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	385911	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161
Total		2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	385911	2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161
Total		2.0800e-003	0.0178	7.5700e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5937	20.5937	3.9000e-004	3.8000e-004	20.7161

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	78105.2	7.2266	1.1700e-003	1.4000e-004	7.2981
Total		7.2266	1.1700e-003	1.4000e-004	7.2981

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	78105.2	7.2266	1.1700e-003	1.4000e-004	7.2981
Total		7.2266	1.1700e-003	1.4000e-004	7.2981

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2328	1.5900e-003	0.0745	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.9702	0.9702	1.3000e-004	2.0000e-005	0.9782
Unmitigated	0.2916	2.1500e-003	0.1599	1.8000e-004		0.0128	0.0128		0.0128	0.0128	1.2711	0.4334	1.7045	2.5200e-003	7.0000e-005	1.7891

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0589	1.2900e-003	0.0857	1.8000e-004		0.0124	0.0124		0.0124	0.0124	1.2711	0.3121	1.5832	2.4000e-003	7.0000e-005	1.6649
Landscaping	2.2300e-003	8.6000e-004	0.0742	0.0000		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	0.1213	0.1213	1.2000e-004	0.0000	0.1242
Total	0.2916	2.1500e-003	0.1599	1.8000e-004		0.0128	0.0128		0.0128	0.0128	1.2711	0.4334	1.7045	2.5200e-003	7.0000e-005	1.7891

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.0000e-005	7.3000e-004	3.1000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8489	0.8489	2.0000e-005	2.0000e-005	0.8540
Landscaping	2.2300e-003	8.6000e-004	0.0742	0.0000		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	0.1213	0.1213	1.2000e-004	0.0000	0.1242
Total	0.2328	1.5900e-003	0.0745	0.0000		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	0.9702	0.9702	1.4000e-004	2.0000e-005	0.9782

7.0 Water Detail

7.1 Mitigation Measures Water

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6659	0.0213	5.1000e-004	1.3506
Unmitigated	0.6659	0.0213	5.1000e-004	1.3506

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.65154 / 0.410754	0.6659	0.0213	5.1000e-004	1.3506
Total		0.6659	0.0213	5.1000e-004	1.3506

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.65154 / 0.410754	0.6659	0.0213	5.1000e-004	1.3506
Total		0.6659	0.0213	5.1000e-004	1.3506

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.4724	0.1461	0.0000	6.1253
Unmitigated	2.4724	0.1461	0.0000	6.1253

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	12.18	2.4724	0.1461	0.0000	6.1253
Total		2.4724	0.1461	0.0000	6.1253

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	12.18	2.4724	0.1461	0.0000	6.1253
Total		2.4724	0.1461	0.0000	6.1253

9.0 Operational Offroad

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

4738 Proctor Road Subdivision Project - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

APPENDIX B

MODEL SNAP SHOTS OF THE SOURCES

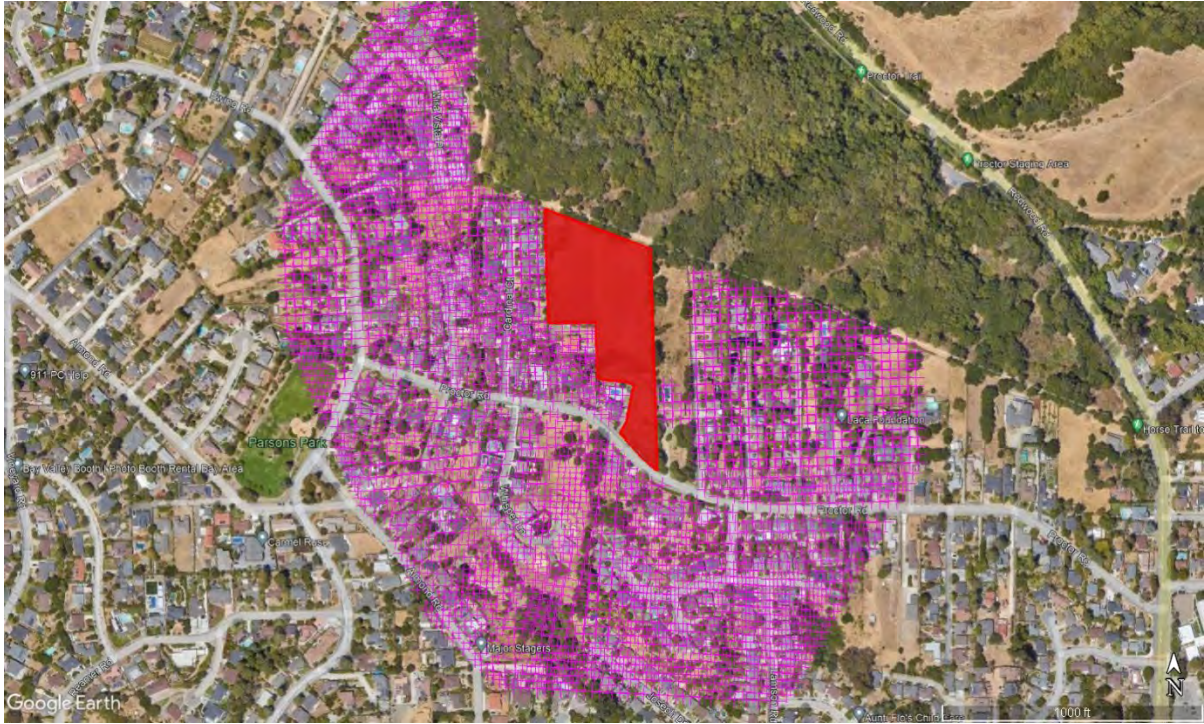


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Site Location



Receptor Grid



Unmitigated Cancer Risk



Mitigated Cancer Risk



Mitigated Chronic Hazard Index



Mitigated PM_{2.5} Concentrations



APPENDIX C

NOISE AND VIBRATION IMPACT ASSESSMENT



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NOISE AND VIBRATION IMPACT ANALYSIS

**4738 PROCTOR ROAD SUBDIVISION PROJECT
CASTRO VALLEY, ALAMEDA COUNTY, CALIFORNIA**

LSA

October 2022

NOISE AND VIBRATION IMPACT ANALYSIS

4738 PROCTOR ROAD SUBDIVISION PROJECT CASTRO VALLEY, ALAMEDA COUNTY, CALIFORNIA

Submitted to:

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LIST OF ABBREVIATIONS AND ACRONYMS

ADT	average daily trips
ALUC	Airport Land Use Compatibility
CEQA	California Environmental Quality Act
County	County of Alameda
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibel(s)
FHWA	Federal Highway Administration
ft	foot/feet
FTA	Federal Transit Administration
FTA Manual	<i>FTA Transit Noise and Vibration Impact Assessment Manual</i>
in/sec	inch/inches per second
L_{dn}	day-night average noise level
L_{eq}	equivalent continuous sound level
L_{max}	maximum instantaneous sound level
mi	mile/miles
Noise Element	County of Alameda General Plan Noise Element
PPV	peak particle velocity
project	4738 Proctor Road Subdivision Project
OAK	Oakland International Airport
RMS	root-mean-square
STC	Sound Transmission Class
Town	Town of Castro Valley
VdB	vibration velocity decibels

INTRODUCTION

This noise and vibration impact analysis has been prepared to evaluate the potential noise and vibration impacts and reduction measures associated with the proposed 4738 Proctor Road Subdivision Project (project) in the Town of Castro Valley (Town), Alameda County (County), California. As the County is the lead agency for review under CEQA, this report is intended to satisfy the County's requirements for a project-specific noise impact analysis by examining the impacts of the project site and evaluating noise reduction measures that the project may require.

PROJECT LOCATION AND DESCRIPTION

The proposed project is located in unincorporated Alameda County in Castro Valley, east of Lake Chabot in an area consisting primarily of residential uses and undeveloped open space. The project site is bounded by Proctor Road to the south, single-family residential development to the east and west, and undeveloped open space to the north.

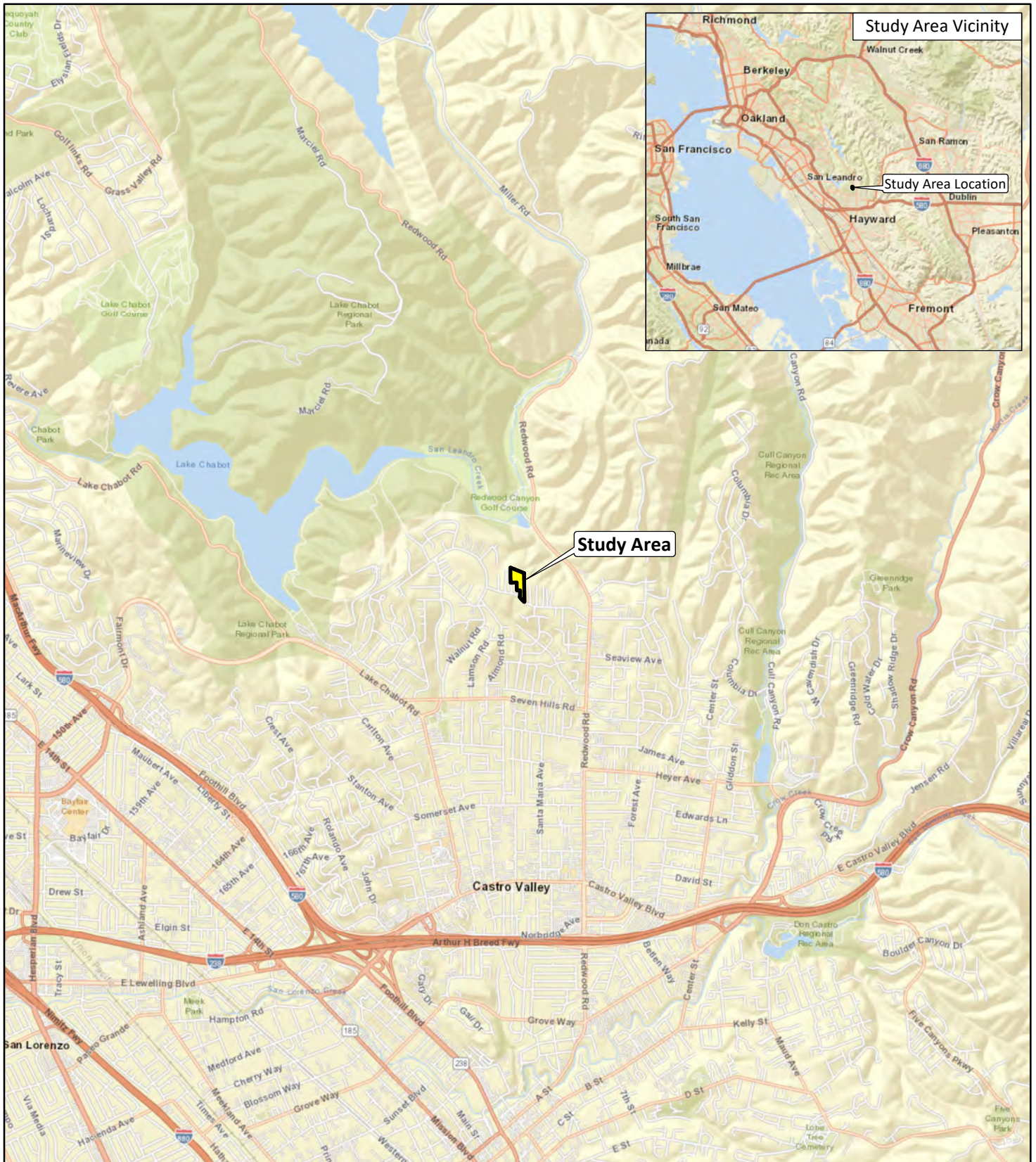
The proposed project would result in the subdivision of the existing parcel into 11 residential parcels and the construction of 10 new single-family homes on the approximately 5.25-acre project site.

Regional vehicular access to the project site is provided by Interstate 580 (I-580), located approximately 1.85 miles south and 2.8 miles west of the project site. Bus stops along Seven Hills Road and Redwood Road provide transit service to the project site. The Castro Valley Bay Area Rapid Transit (BART) Station is located approximately 1.9 miles south of the project site. Figures 1 and 2 show the project location and site plan, respectively.

EXISTING LAND USES IN THE PROJECT AREA

The project site is surrounded primarily by residential uses and vacant parcels. The areas adjacent to the project site include the following uses:

- **North:** Existing open space;
- **East:** Existing single-family residences;
- **South:** Existing single-family residences opposite Proctor Road; and
- **West:** Existing single-family residences.



LSA

LEGEND


 Study Area

FIGURE 1



0 2000 4000
FEET

SOURCE: Esri World Street Map (2022).

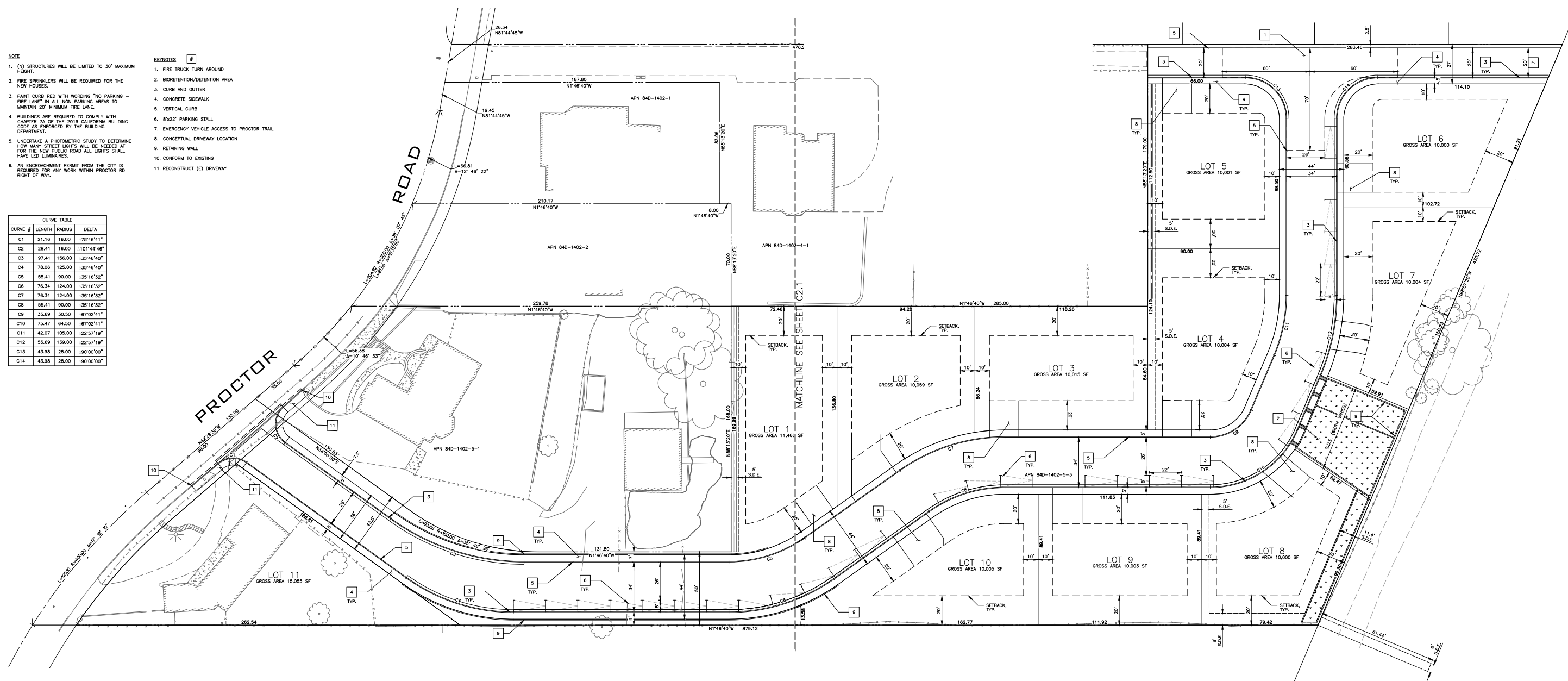
I:\A\2201\GIS\MXD\Cultural\Cultural Resources Study\Figure 1_Regional Location.mxd (6/6/2022)

4738 Proctor Road Subdivision Project
Regional Location

- NOTE**
- (N) STRUCTURES WILL BE LIMITED TO 30' MAXIMUM HEIGHT.
 - FIRE SPRINKLERS WILL BE REQUIRED FOR THE NEW HOUSES.
 - PAIN CURB RED WITH WORDING "NO PARKING - FIRE LANE" IN ALL NON PARKING AREAS TO MAINTAIN 20' MINIMUM FIRE LANE.
 - BUILDINGS ARE REQUIRED TO COMPLY WITH CHAPTER 7A OF THE 2019 CALIFORNIA BUILDING CODE AS ENFORCED BY THE BUILDING DEPARTMENT.
 - UNDERTAKE A PHOTOMETRIC STUDY TO DETERMINE HOW MANY STREET LIGHTS WILL BE NEEDED AT FOR THE NEW PUBLIC ROAD. ALL LIGHTS SHALL HAVE LED LUMINAIRES.
 - AN ENCROACHMENT PERMIT FROM THE CITY IS REQUIRED FOR ANY WORK WITHIN PROCTOR RD RIGHT OF WAY.

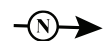
- KEYNOTES**
- FIRE TRUCK TURN AROUND
 - BIORETENTION/DETENTION AREA
 - CURB AND GUTTER
 - CONCRETE SIDEWALK
 - VERTICAL CURB
 - 8'x22' PARKING STALL
 - EMERGENCY VEHICLE ACCESS TO PROCTOR TRAIL
 - CONCEPTUAL DRIVEWAY LOCATION
 - RETAINING WALL
 - CONFORM TO EXISTING
 - RECONSTRUCT (E) DRIVEWAY

CURVE TABLE			
CURVE #	LENGTH	RADIUS	DELTA
C1	21.16	16.00	75°46'41"
C2	28.41	16.00	101°44'46"
C3	97.41	156.00	35°46'40"
C4	78.06	125.00	35°46'40"
C5	55.41	90.00	35°16'32"
C6	76.34	124.00	35°16'32"
C7	76.34	124.00	35°16'32"
C8	55.41	90.00	35°16'32"
C9	35.69	30.50	67°02'41"
C10	75.47	64.50	67°02'41"
C11	42.07	105.00	22°57'19"
C12	55.69	139.00	22°57'19"
C13	43.98	28.00	90°00'00"
C14	43.98	28.00	90°00'00"



LSA

FIGURE 2



0 40 80
FEET

SOURCE: Greenwood & Moore, Inc.

4738 Proctor Subdivision
Site Plan

NOISE AND VIBRATION FUNDAMENTALS

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a sound wave, which results in the tone's range from high to low. Loudness is the strength of a sound, and it describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity is the average rate of sound energy transmitted through a unit area perpendicular to the direction in which the sound waves are traveling. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

MEASUREMENT OF SOUND

Sound intensity is measured with the A-weighted decibel (dBA) scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound, similar to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike the linear scale (e.g., inches or pounds), are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the sound's loudness. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound levels dissipate exponentially with distance from their noise sources. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations), the sound decreases 3 dB for each doubling of distance in a hard site environment. Line-source sound levels decrease 4.5 dB for each doubling of distance in a relatively flat environment with absorptive vegetation.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels. CNEL is the time-weighted average noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The County uses the CNEL noise scale for long-term traffic noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max} , which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category includes audible impacts, which are increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to sound levels higher than 85 dBA. Exposure to high sound levels affects the entire system, with prolonged sound exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of sound exposure above 90 dBA would result in permanent cell damage. When the sound level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of sound is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by a feeling of pain in the ear (i.e., the threshold of pain). A sound level of 160–165 dBA will result in dizziness or a

loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed areas.

Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of sound measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted unless reported otherwise.)
L ₀₁ , L ₁₀ , L ₅₀ , L ₉₀	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period, respectively.
Equivalent Continuous Noise Level, L _{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L _{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L _{max} , L _{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time. Usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris 1991).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	Reference level
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA (2022).

FUNDAMENTALS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile-driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet (ft) from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft . When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne

vibration from street traffic will not exceed the impact criteria; however, construction of the project could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise.

Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile-driving to cause vibration of sufficient amplitudes to damage nearby buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where “ L_v ” is the vibration velocity in decibels (VdB), “ V ” is the RMS velocity amplitude, and “ V_{ref} ” is the reference velocity amplitude, or 1×10^{-6} inches/second (in/sec) used in the United States.

REGULATORY SETTING

APPLICABLE NOISE STANDARDS

The applicable noise standards governing the project site include the criteria in the California Code of Regulations, the Noise Element of the Alameda County's General Plan (Noise Element), and the Code of Ordinances.

California Code of Regulations

Interior noise levels for residential habitable rooms are regulated by Title 24 of the California Code of Regulations California Noise Insulation Standards. Title 24, Chapter 12, Section 1206.4, of the 2019 California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room. A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (Title 24 California Code of Regulations, Chapter 12, Section 1206.4).

Alameda County

Noise Element of the General Plan

The Alameda County Noise Element contains goals, objectives, and implementation programs for the entire County to provide its residents with an environment that is free from excessive noise and promotes compatibility of land uses with respect to noise. The Countywide Noise Element does not explicitly state what the acceptable outdoor noise level is for the backyards of single-family homes or common outdoor spaces of multi-family housing projects, but it recognizes the Federal Environmental Protection Agency (EPA) noise level standards for residential land uses. These standards are an exterior L_{dn} of 55 dBA and an interior L_{dn} of 45dBA. (The L_{dn} measurement, which also includes a 10 dBA weighting for night-time sound, is approximately equal to the CNEL for most environmental settings.) The Noise Element also references noise and land use compatibility standards developed by an Association of Bay Area Governments (ABAG), which identified a CNEL of 65 dBA or less as a basis for finding little noise impact on residential land uses, 65 to 70 dBA as a moderate impact, and any level above 70 dBA as a significant impact.

Code of Ordinances

Alameda County's Noise Ordinance (County General Code, Chapter 6.60) allows higher noise levels for commercial properties than for residential uses, schools, hospitals, churches, or libraries. These standards augment the State-mandated requirements of the Alameda County Building Code, which establishes standards for interior noise levels consistent with the noise insulation standards in the California State Building Code. Table C shows the number of cumulative minutes that a particular external noise level is permitted for receiving sensitive land uses such as single- or multi- family residential, school, hospital, church or public library properties.

The County Noise Ordinance also restricts the operation and use of electric and gas-powered tools in residential areas and authorizes the imposition of more stringent noise limits on activities subject

to a conditional use permit. The Noise Ordinance does not apply to noise associated with construction if such activities take place between 7 a.m. and 7 p.m. on weekdays or between 9 a.m. and 8 p.m. on weekends.

Table C: Exterior Noise Level Standards - Sensitive Land Uses

Category	Cumulative Number of Minutes in any one-hour time period	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

Source: Section 6.60.040 of the County of Alameda Code of Ordinance.

¹ Daytime means 7:00 a.m. to 10:00 p.m.

² Nighttime means 10:01 p.m. to 6:59 a.m.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

Federal Transit Administration

Although the City does not have daytime construction noise level limits for activities that occur within the specified hours in Section 11.80.030(D)(7) to determine potential California Environmental Quality Act (CEQA) noise impacts, construction noise was assessed using criteria from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) (FTA Manual). Table D shows the Federal Transit Administration’s (FTA) Detailed Assessment Construction Noise Criteria based on the composite noise levels per construction phase.

Table D: Detailed Assessment Daytime Construction Noise Criteria

Land Use	Daytime 8-hour L _{eq} (dBA)
Residential	80
Commercial	85
Industrial	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

APPLICABLE VIBRATION STANDARDS

Federal Transit Administration

Because the County does not have vibration standards, vibration standards included in the FTA Manual are used in this analysis for ground-borne vibration impacts on human annoyance. The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table E provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building while Table F lists the potential vibration building damage criteria associated with construction activities.

Table E: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L _v (VdB) ¹	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20×).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100×) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ As measured in 1/3-octave bands of frequency over a frequency range of 8 to 80 Hertz.

FTA = Federal Transit Administration

Max = maximum

L_v = velocity in decibels

VdB = vibration velocity decibels

Table F: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

FTA = Federal Transit Administration

PPV = peak particle velocity

in/sec = inch/inches per second

OVERVIEW OF THE EXISTING NOISE ENVIRONMENT

The primary existing noise sources in the project area are transportation facilities. Traffic on Proctor Road is a steady source of background ambient noise.

AMBIENT NOISE MEASUREMENTS

Long-Term Noise Measurements

Long-term (24-hour) noise level measurements were conducted on September 6 and 7, 2022, using two Larson Davis Spark 706RC Dosimeters. Table G provides a summary of the measured hourly noise levels from the long-term noise level measurements. Hourly noise levels at surrounding sensitive uses are as low as 39.9 dBA L_{eq} during nighttime hours and 37.8 dBA L_{eq} during daytime hours. Long-term noise monitoring data results are provided in Appendix A. Figure 3 shows the long-term monitoring locations.

Table G: Long-Term Ambient Noise Level Measurements

Location		Daytime Noise Levels ¹ (dBA L_{eq})	Nighttime Noise Levels ² (dBA L_{eq})	Day-Night Average Noise Level (dBA L_{dn})
LT-1	Along the eastern property line of the project site, approximately 390 feet north of Proctor Road.	39.7 – 48.3	39.9 – 45.9	49.8
LT-2	On the northwest portion of the project site, approximately 65 feet west of 17320 and 17360 Cardinal Court shared property line.	37.8 – 49.4	44.0 – 48.5	52.2

Source: Compiled by LSA (2022).

Note: Noise measurements were conducted from September 6 to September 7, 2022, starting at 3:00 p.m.

¹ Daytime Noise Levels = Noise levels during the hours from 7:00 a.m. to 10:00 p.m.

² Nighttime Noise Levels = Noise levels during the hours from 10:00 p.m. to 7:00 a.m.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

EXISTING AIRCRAFT NOISE

Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. The closest airport to the proposed project site is Oakland International Airport (OAK) located approximately 7 miles (mi) west of the project site. Based on the Oakland International Airport Master Plan, the project is located well outside of the 60 dBA CNEL noise contour of the airport.

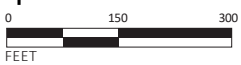


FIGURE 3

LSA

LEGEND

- Project Site Boundary
- LT-1 Long-term Noise Monitoring Location



SOURCE: Google Earth, 8/5/2020; LSA, 2022

I:\AYP2201\G\Noise_Monitor_Locsa (9/20/2022)

4738 Proctor Subdivision
Noise Monitoring Locations

Figure 3: Noise Monitoring Locations

PROJECT IMPACT ANALYSIS

SHORT-TERM CONSTRUCTION NOISE IMPACTS

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to 84 dBA L_{max}), the effect on longer-term ambient noise levels would be small when compared to existing daily traffic volumes of 2,339 (TJKM 2010) on Proctor Road. Because construction-related vehicle trips would not approach existing daily traffic volumes, traffic noise would not increase by 3 dBA CNEL. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term, construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during construction, which includes demolition, site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table H lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor, taken from the Federal Highway Administration (FHWA) *Roadway Construction Noise Model* (FHWA 2006).

In addition to the reference maximum noise level, the usage factor provided in Table H is used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10 \log(U.F.) - 20 \log\left(\frac{D}{50}\right)$$

where: $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period.

E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft.

U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time.

D = distance from the receiver to the piece of equipment.

Table H: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%) ¹	Maximum Noise Level (L _{max}) at 50 Feet ²
Auger Drill Rig	20	84
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Paver	50	77
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Trencher	50	80
Welder	40	73

Source: FHWA Roadway Construction Noise Model User's Guide, Table 1 (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

² Maximum noise levels were developed based on Specification 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

FHWA = Federal Highway Administration

L_{max} = maximum instantaneous sound level

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq (composite) = 10 * \log_{10} \left(\sum_{1}^n 10^{\frac{Ln}{10}} \right)$$

Using the equations from the methodology above, the reference information in Table H, and the construction equipment list provided, the composite noise level of each construction phase was calculated. The project construction composite noise levels at a distance of 50 feet would range from 74 dBA L_{eq} to 88 dBA L_{eq}, with the highest noise levels occurring during the site preparation phase.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq \text{ (at distance } X) = Leq \text{ (at 50 feet)} - 20 * \log_{10} \left(\frac{X}{50} \right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA, while halving the distance would increase noise levels by 6 dBA.

Table I shows the nearest sensitive uses to the project site, their distance from the center of construction activities, and composite noise levels expected during construction. These noise level projections do not consider intervening topography or barriers. Construction equipment calculations are provided in Appendix B.

Table I: Potential Construction Noise Impacts at Nearest Receptor During Site Preparation

Receptor (Location)	Composite Noise Level (dBA L_{eq}) at 50 feet ¹	Distance (feet)	Composite Noise Level (dBA L_{eq})
Residences (West)	88	170	77
Residences (East)		285	73
Residences (South)		440	69

Source: Compiled by LSA (2022).

¹ The composite construction noise level represents the site preparation phases, which are expected to result in the greatest noise level as compared to other phases.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

While construction noise will vary, it is expected that composite noise levels during construction at the nearest off-site sensitive residential use to the west would reach an average noise level of 77 dBA L_{eq} during daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously and, therefore, are assumed to be rather conservative in nature. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed.

As stated above, construction activities are regulated by the County’s Noise Ordinance. The proposed project would comply with the construction hours specified in the County’s Noise Ordinance, which states that construction activities are allowed between the hours of 7 a.m. and 7 p.m. on weekdays or between 9 a.m. and 8 p.m. on weekends.

As it relates to off-site uses, construction-related noise levels would remain below the daytime 80 dBA L_{eq} 8-hour construction noise level criteria established by the FTA for residential and similar sensitive uses and, therefore, would be considered less than significant. Best construction practices presented at the end of this analysis shall be implemented to minimize noise impacts to surrounding receptors.

SHORT-TERM CONSTRUCTION VIBRATION IMPACTS

This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and assesses the potential for building damages using vibration levels in PPV (in/sec). This is because vibration levels calculated in RMS are best for characterizing human response to building vibration, while calculating vibration levels in PPV is best for characterizing the potential for damage.

Table J shows the PPV and VdB values at 25 ft from the construction vibration source. As shown in Table J, bulldozers and other heavy-tracked construction equipment (expected to be used for this project) generate approximately 0.089 PPV in/sec or 87 VdB of ground-borne vibration when measured at 25 ft, based on the FTA Manual. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would be used at or near the project setback line).

Table J: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 ft	
	PPV (in/sec)	L _v (VdB) ¹
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer²	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks²	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ RMS vibration velocity in decibels (VdB) is 1 μin/sec.

² Equipment shown in **bold** is expected to be used on site.

μin/sec = microinches per second

ft = foot/feet

FTA = Federal Transit Administration

in/sec = inch/inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

The formulae for vibration transmission are provided below, and Tables K and L provide a summary of off-site construction vibration levels.

$$L_{v\text{dB}}(D) = L_{v\text{dB}}(25 \text{ ft}) - 30 \text{ Log}(D/25)$$

$$\text{PPV}_{\text{equip}} = \text{PPV}_{\text{ref}} \times (25/D)^{1.5}$$

As shown in Table E, above, the threshold at which vibration levels would result in annoyance would be 78 VdB for daytime residential uses. As shown in Table F, the FTA guidelines indicate that for a non-engineered timber and masonry building, the construction vibration damage criterion is 0.2 in/sec in PPV.

Table K: Potential Construction Vibration Annoyance Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (VdB) at 25 ft ¹	Distance (ft) ²	Vibration Level (VdB)
Residences (West)	87	170	62
Residences (East)		285	55
Residences (South)		440	50

Source: Compiled by LSA (2022).

- ¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
- ² The reference distance is associated with the average condition, identified by the distance from the center of construction activities to surrounding uses.

ft = foot/feet

VdB = vibration velocity decibels

Table L: Potential Construction Vibration Damage Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (PPV) at 25 ft ¹	Distance (ft) ²	Vibration Level (PPV)
Residences (West)	0.089	45	0.037
Residences (East)		20	0.124
Residences (South)		80	0.016

Source: Compiled by LSA (2022).

- ¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
- ² The reference distance is associated with the peak condition, identified by the distance from the perimeter of construction activities to surrounding structures.

ft = foot/feet

PPV = peak particle velocity

Based on the information provided in Table K, vibration levels are expected to approach 62 VdB at the closest residential uses located immediately west of the project site, which is below the 78 VdB threshold for annoyance. Based on the information provided in Table L, vibration levels are expected to approach 0.124 PPV in/sec at the nearest surrounding structures and would be below the 0.2 PPV in/sec damage threshold.

Because construction activities are regulated by the County’s Code of Ordinance, which states that temporary construction, maintenance, or demolition activities are allowed between the hours of 7 a.m. and 7 p.m. on weekdays or between 9 a.m. and 8 p.m. on weekends, vibration impacts would not occur during the more sensitive nighttime hours.

LONG-TERM OFF-SITE TRAFFIC NOISE IMPACTS

In order to assess the potential traffic impacts related to the proposed project, LSA prepared the *Traffic Analysis for 4738 Proctor Road Subdivision Project in Castro Valley, California*. Based on the analysis results, it was determined that a net additional 85 average daily trips (ADT) would be generated by the proposed project. The existing (2010) traffic volume on the adjacent segment of Proctor Road is 2,339 (TJKM 2010). Using 2,339 as the existing ADT is considered a conservative approach as the current ADT is likely higher. The following equation was used to determine the potential impacts of the project:

$$\text{Change in CNEL} = 10 \log_{10} [V_{e+p} / V_{\text{existing}}]$$

where: V_{existing} = existing daily volumes
 V_{e+p} = existing daily volumes plus project
Change in CNEL = increase in noise level due to the project

The results of the calculations show that an increase of approximately 0.2 dBA CNEL is expected along the streets adjacent to the project site. A noise level increase of less than 1 dBA would not be perceptible to the human ear; therefore, the traffic noise increases in the vicinity of the project site resulting from the proposed project would be less than significant. No mitigation is required.

LONG-TERM TRAFFIC-RELATED VIBRATION IMPACTS

The proposed project would not generate vibration levels related to on-site operations. In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Vibration levels generated from project-related traffic on the adjacent roadways would be less than significant, and no mitigation measures are required.

BEST CONSTRUCTION PRACTICES

In addition to compliance with the County's code of ordinance allowed hours of construction allowed between the hours of 7 a.m. and 7 p.m. on weekdays or between 9 a.m. and 8 p.m. on weekends, the following recommendations would reduce construction noise to the extent feasible:

- The project construction contractor should equip all construction equipment, fixed or mobile, with properly operating and maintained noise mufflers, consistent with manufacturer's standards.
- The project construction contractor should locate staging areas away from off-site sensitive uses during the later phases of project development.
- The project construction contractor should place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site whenever feasible.

LAND USE COMPATIBILITY

The dominant source of noise in the project vicinity is traffic noise from roadways in the vicinity of the project.

EXTERIOR NOISE ASSESSMENT

As shown in Table G, the existing measured noise levels at the project site range from approximately 49.8 dBA L_{dn} to 52.2 dBA L_{dn} . As compared to the information in the County's Noise Element section of this report, an exterior noise level of up to 55 dBA L_{dn} would be considered the standard for community noise exposure.

Based on the project site plan, the rear yards are considered as an exterior sensitive use, with estimated noise levels approaching 53 dBA L_{dn} without accounting for shielding provided by existing or proposed buildings. This level is below the County's 55 dBA L_{dn} exterior noise level standard. Therefore, noise reduction measures would not be required.

INTERIOR NOISE ASSESSMENT

As discussed above, per the California Code of Regulations and the County's interior noise level standard, an interior noise level standard of 45 dBA CNEL or less is required for all noise-sensitive rooms. Based on the expected future exterior noise levels at the residences closest to Proctor Road approaching 53 dBA CNEL, a minimum noise reduction of 8 dBA would be required.

The interior noise levels were calculated from the exterior noise levels and based on the United States Environmental Protection Agency's (EPA) Protective Noise Levels, with a combination of exterior walls, doors, and windows. Standard construction in California residential buildings would provide an exterior-to-interior noise reduction of 12 dBA or more with windows open (the national average is 15 dBA with windows open). Therefore, with standard building construction, interior noise levels would meet the County's noise standard.

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APPENDIX A

NOISE MONITORING DATA

Noise Measurement Survey – 24 HR

Project Number: AYP2201

Test Personnel: J.T. Stephens

Project Name: 4738 Proctor Subdivision

Equipment: Spark 706RC (SN:18903)

Site Number: LT-1 Date: 9/6-9/7/22

Time: From 3:00 p.m. To 3:00 p.m.

Site Location: Along the eastern property line of the project site, approximately 390 feet north of Proctor Road

Primary Noise Sources: General ambient, distant construction

Comments: Very quiet

Photo:



Noise Measurement Survey – 24 HR

Project Number: AYP2201

Test Personnel: J.T. Stephens

Project Name: 4738 Proctor Subdivision

Equipment: Spark 706RC (SN:18904)

Site Number: LT-2 Date: 9/6-9/7/22

Time: From 3:00 p.m. To 3:00 p.m.

Site Location: On the northwest portion of the project site, approximately 65 feet west of the 17320 and 17360 Cardinal Court shared property line.

Primary Noise Sources: General ambient, distant construction

Comments: Very quiet

Photo:



APPENDIX B

CONSTRUCTION NOISE CALCULATIONS

Construction Calculations

Phase: Demolition

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Concrete Saw	1	90	20	50	0.5	90	83
Excavator	3	81	40	50	0.5	81	82
Dozer	2	82	40	50	0.5	82	81
Combined at 50 feet						91	87

Phase: Site Preparation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Dozer	3	82	40	50	0.5	82	83
Tractor	4	84	40	50	0.5	84	86
Combined at 50 feet						86	88
Combined at Receptor 170 feet						75	77
Combined at Receptor 285 feet						71	73
Combined at Receptor 440 feet						67	69

Phase: Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	1	81	40	50	0.5	81	77
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Tractor	3	84	40	50	0.5	84	85
Combined at 50 feet						89	87

Phase: Building Construction

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	3	75	20	50	0.5	75	73
Generator	1	81	50	50	0.5	81	78
Tractor	3	84	40	50	0.5	84	85
Welder / Torch	1	74	40	50	0.5	74	70
Combined at 50 feet						87	86

Phase: Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Paver	1	77	50	50	0.5	77	74
All Other Equipment > 5 HP	2	85	50	50	0.5	85	85
Roller	2	80	20	50	0.5	80	76
Drum Mixer	2	80	50	50	0.5	80	80
Tractor	1	84	40	50	0.5	84	80
Combined at 50 feet						89	88

Phase: Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Compressor (air)	1	78	40	50	0.5	78	74
Combined at 50 feet						78	74

Sources: RCNM

¹ - Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level