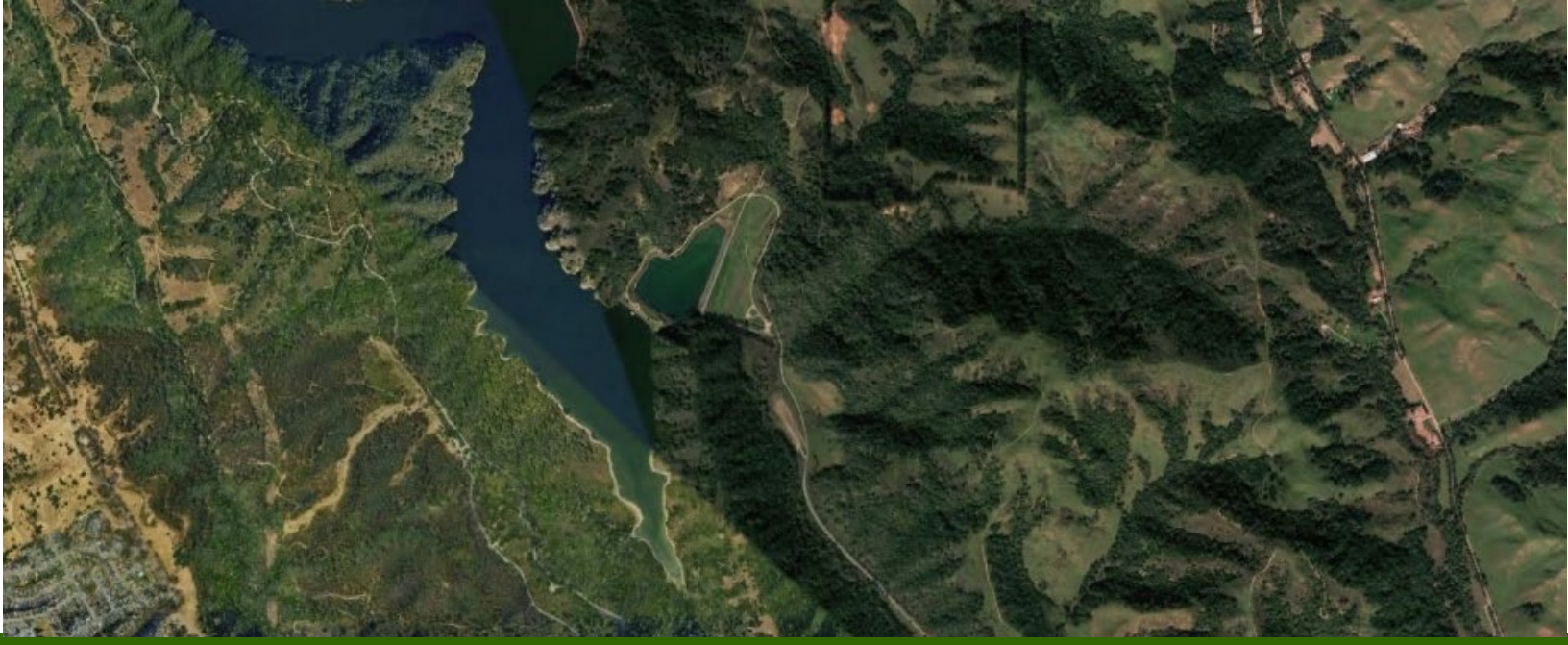

East Bay Municipal Utility District

Miller Road Trench Soil Management Project Initial Study/Mitigated Negative Declaration – Draft

March 2025

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PANORAMA ENVIRONMENTAL, INC.

East Bay Municipal Utility District

Miller Road Trench Soil Management Project Initial Study/Mitigated Negative Declaration – Draft

March 2025

Prepared for:
East Bay Municipal Utility District
375 Eleventh Street
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1 Summary

East Bay Municipal Utility District (EBMUD) provides water service to 20 incorporated cities and 15 unincorporated areas in Alameda and Contra Costa Counties (Figure 1-1). The water distribution system is comprised of 6 water treatment plants, 167 potable water reservoirs, 131 pumping plants, over 4,200 miles of potable (treated) water distribution and transmission pipelines, and numerous accessory structures that altogether provide water service to EBMUD's approximately 1.4 million customers.

1.1 Project Objective

EBMUD owns and operates the existing Miller Road stockpile site in Alameda County. The site has been operated to store excavated material generated by EBMUD pipeline construction and maintenance activities (i.e., trench soil) since 1975. The Miller Road stockpile site supports EBMUD's efforts to proactively replace and rehabilitate critical water system infrastructure. EBMUD estimates annual pipeline replacement will increase through 2030, and an increase in storage of excavated material will be required, to support the increase in pipeline replacement needs. Currently the stockpile storage site is near capacity; approximately 9,000 cubic yards (CY) of storage remains.

EBMUD's Miller Road Trench Soil Management Project (Project) involves the continued operation of the Miller Road stockpile site, including import, temporary storage, and periodic removal of trench soil, with the next removal event potentially occurring in 2025. The Project also includes continued operation of the rock and sand stockpile site approximately one mile south of the Miller Road stockpile site on EBMUD-owned property within the Project site. The Project includes a gradual increase in the volume of trench soil stockpiled at the Miller Road site, routine removal of stockpiled trench soil (referred to as *off-haul events*), and an increase in the import and off-haul of backfill materials to and from the rock and sand stockpile site. Figure 1-2, below, shows the location of the Project.

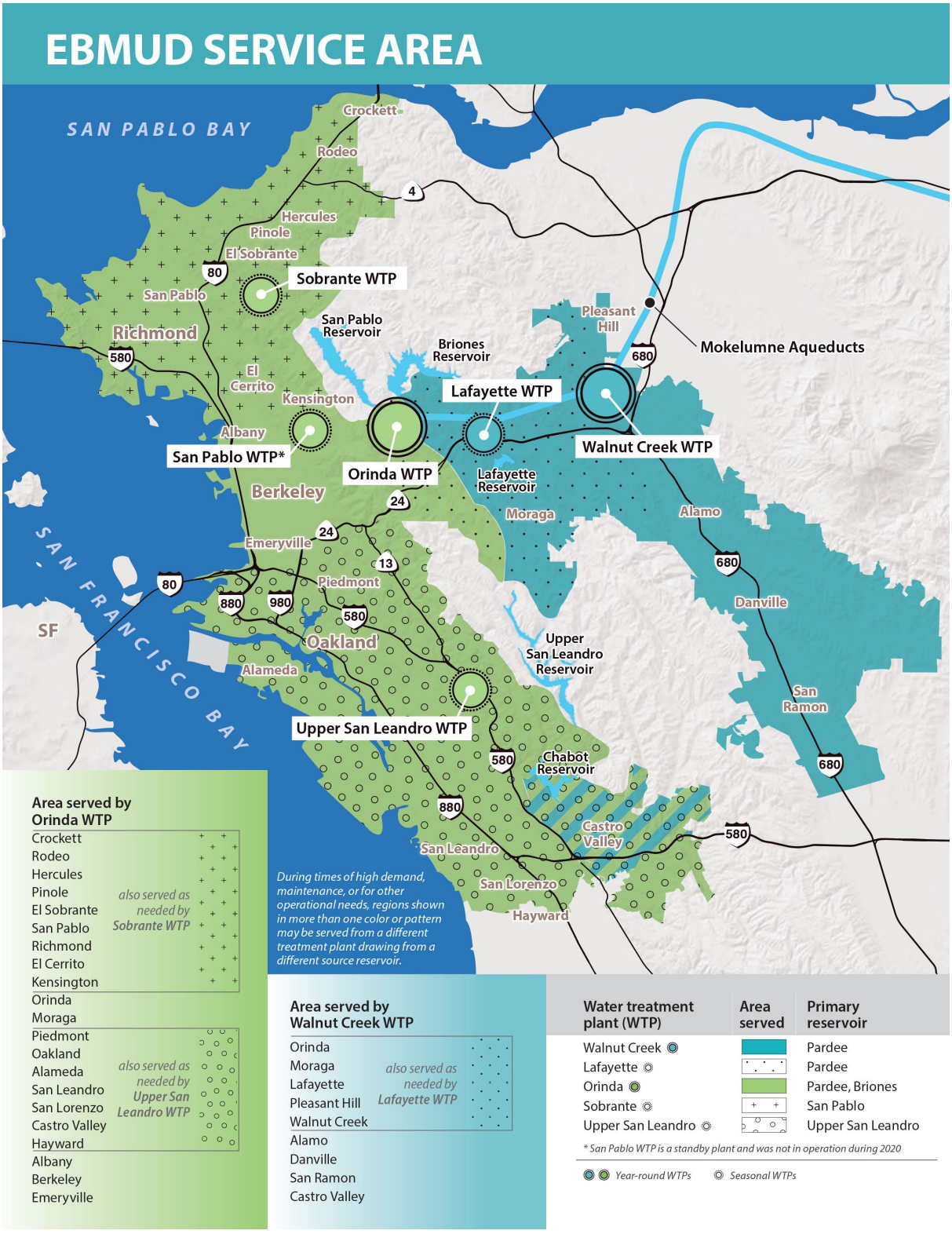

Figure 1-1 Utility District Service Area

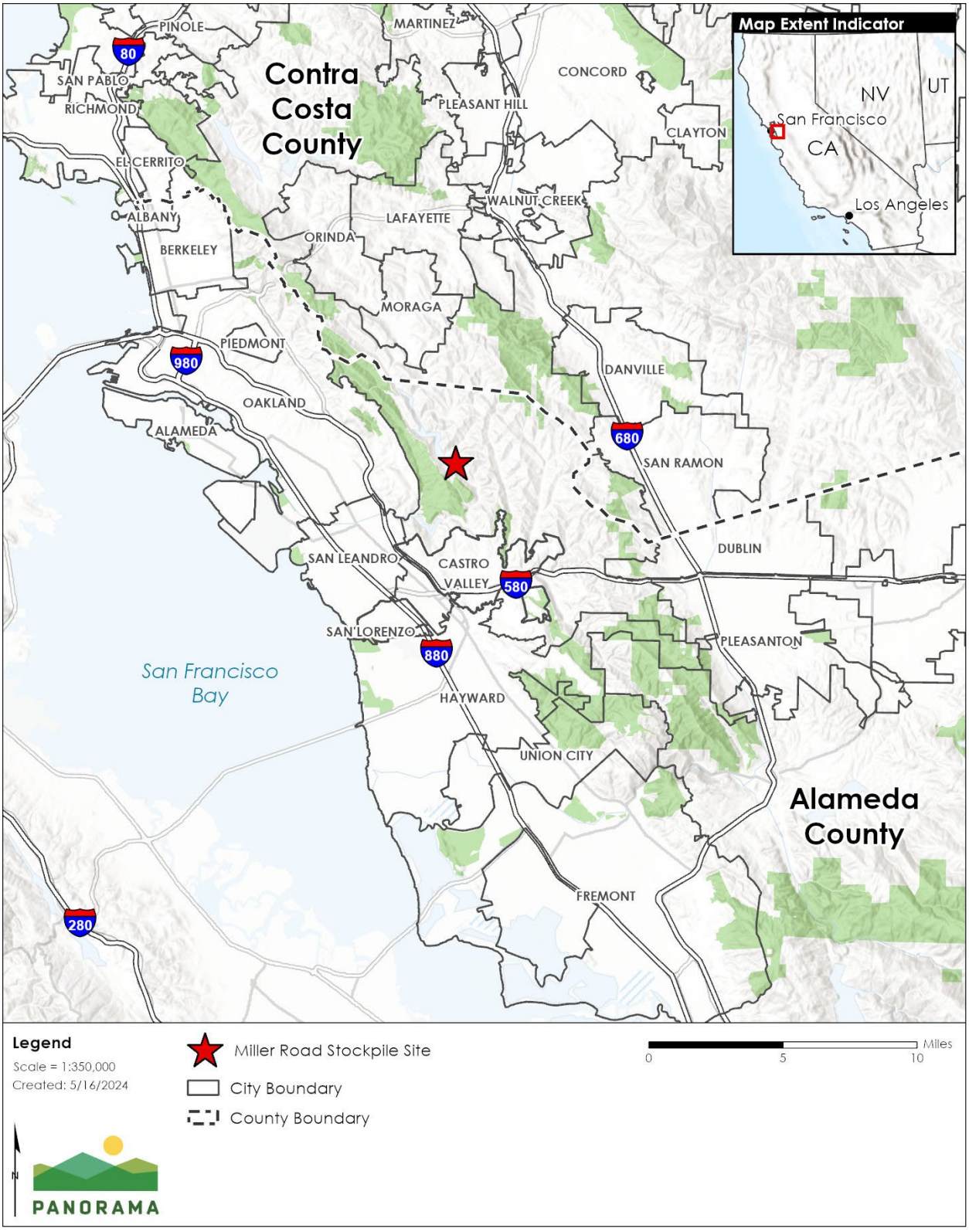

Figure 1-2 Regional Overview

1.2 Purpose of Mitigated Negative Declaration

This Initial Study and Mitigated Negative Declaration (MND) assesses the potential environmental impacts related to the Project proposed by EBMUD and has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines in which EBMUD is the lead agency. EBMUD has incorporated mitigations into the Project to mitigate the potentially significant impacts identified in the Initial Study such that no significant impacts would occur. These mitigations are summarized in the attached Mitigation Monitoring and Reporting Program (MMRP) (see Appendix A).

1.3 Summary of Environmental Considerations

Based on the results of the Initial Study, off-haul events could potentially generate environmental impacts to traffic along the off-haul routes and to emergency providers who service the areas along the off-haul routes. Mitigation measures incorporated into the Project that would reduce impacts to less-than-significant levels are discussed in Chapter 3 of this MND. EBMUD determined that an MND is the appropriate level of CEQA review for this Project. The mitigations that have been incorporated into the Project are summarized in the attached MMRP (see Appendix A).

1.4 Circulation of the MND

In accordance with CEQA, during the preparation of the Initial Study and MND, EBMUD made a good faith effort to contact affected agencies, organizations and persons who may have an interest in the Project. In reviewing the Initial Study and MND, affected persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and the ways in which the significant effects of the Project were avoided or mitigated.

Comments on the Initial Study and MND may be made in writing before the end of the comment period. A 30-day review and comment period has been established in accordance with section 15205(d) of the CEQA Guidelines. Following the close of the public comment period, which ends on April 21, 2025 at 4:30 p.m., EBMUD will consider this Initial Study and MND and comments thereto in determining whether to approve the proposed Project.

The Initial Study and MND are available online on EBMUD's webpage (https://www.ebmud.com/MillerRoad). Written comments should be sent to EBMUD's street address or email address as follows:

East Bay Municipal Utility District
Gus Cicala, Senior Civil Engineer
375 11th Street, M/S 704
Oakland, CA 94607

or

Miller.Road@ebmud.com

2 Project Description

2.1 Overview

The East Bay Municipal Utility District (EBMUD) owns and operates the Miller Road stockpile site, which is located within EBMUD-owned watershed land southeast of EBMUD's Upper San Leandro Reservoir in Castro Valley, in unincorporated Alameda County. The Miller Road stockpile site, which has been used by EBMUD for managing trench soil since 1975, is used to store excavated material generated by EBMUD pipeline construction and maintenance activities. Stockpiled materials include soil (sand, silt, and clay) mixed with asphalt, concrete, rock, and pipeline fragments. The Miller Road stockpile site supports EBMUD's efforts to proactively replace and rehabilitate critical water system infrastructure. Based on projected pipeline improvements required to address EBMUD's aging infrastructure, EBMUD estimates annual pipeline replacement will increase from 20 to 25 miles per year to approximately 30 miles per year by 2030. There is a need to increase the stockpiling and storage of materials to support this increase in pipeline replacement needs.

EBMUD's Miller Road Trench Soil Management Project (Project) involves the continued operation of the Miller Road stockpile site, including import, temporary storage, and periodic removal of trench soil. The Project also includes continued operation of the rock and sand stockpile site approximately 1 mile, south of the Miller Road soil stockpile site on EBMUD-owned property within the Project site. Materials from the rock and sand stockpile site are used to backfill trenches from the pipeline construction and maintenance activities. Continued operation of the rock and sand stockpile site includes import, temporary storage, and removal of these backfill materials. The Project includes a gradual increase in the volume of trench soil stockpiled at the Miller Road site, routine removal of stockpiled trench soil (referred to as off-haul events), and an increase in the import and off-haul of backfill materials to and from the rock and sand stockpile site.

2.2 Project Location and Site Description

The Project is located within EBMUD-owned watershed land in Alameda County approximately 2 miles east of Oakland and 2.5 miles north of Castro Valley, as shown in Figure 1-2. The Project site includes the Miller Road stockpile site and the rock and sand stockpile site, which is accessed by a portion of Miller Road (from the intersection of Redwood Road to the Miller Road stockpile site) routinely used by trucks for import and off-haul.

The Miller Road stockpile site, as shown in Figure 2-1, is located approximately 2 miles north of the intersection of Miller Road and Redwood Road and is approximately 5.9 acres.

Figure 2-1 Project Location

The site is surrounded by Upper San Leandro Reservoir to the north, Miller Road to the east and south, and San Leandro Creek to the west. Anthony Chabot Regional Park is approximately 0.7 miles west of the Miller Road stockpile site. The rock and sand stockpile site is approximately 1 acre and located approximately 1 mile south of the Miller Road stockpile site, adjacent to the Castro Valley Christmas Tree Farm.

2.3 Historic and Existing Site Operations

The Project involves EBMUD's continued operation of the Miller Road stockpile site and rock and sand stockpile site. Existing operations for each site are discussed below.

2.3.1 Miller Road Stockpile Site

The existing Miller Road stockpile site is used to store trench soil in support of EBMUD's pipeline repair and replacement work and has been used for this purpose since 1975. Trench soil is generated from EBMUD operations and maintenance, principally pipeline replacements and repairs, as trenches are excavated in the ground along pipeline lengths being replaced or repaired. Trench soil is imported to the site and managed by EBMUD or EBMUD contractors using excavators and dozers to place soil according to designed slopes to maintain proper drainage and unimpeded site access. A representative view of the Miller Road stockpile site is shown in Figure 2-2. On an as-needed basis, soil is also periodically removed, as described below.

The Miller Road stockpile site has a storage capacity of approximately 125,000 CY. As of the end of 2024, the stockpile site is currently over 90 percent filled containing approximately 116,000 CY. The average annual import of trench soil to the Miller Road stockpile site is approximately 7,000 CY. Trench soil is imported to the stockpile site from EBMUD pipeline repair and replacement projects using an average of approximately 3 roundtrips per day (typically Monday through Friday from 7 a.m. to 5 p.m.) using 10-CY dump trucks. Once the trench soil is unloaded at the Miller Road stockpile site, the empty trucks drive to the rock and sand stockpile site (discussed below) and load their trucks with trench backfill material before returning to the pipeline repair and replacement site to backfill the trench.

Historically, trench soil has been removed from the Miller Road stockpile site on an as-needed basis. Soil is removed using 11 CY end dump trucks or 13 CY double-bottom trucks. The most recent off-haul event occurred in 2019. Prior to that, an off-haul event occurred in 2005.

Figure 2-2 Existing Miller Road Stockpile Site (Facing North)

2.3.2 Rock and Sand Stockpile Site

The rock and sand stockpile site is approximately 1 acre and is used to store approximately 2,000 CY of trench backfill materials. Import trucks typically pick up backfill material from this designated storage location after unloading trench soil at the Miller Road stockpile site. The average annual export of rock and sand materials from this site is approximately 7,000 CY. Each backfill import refilling event requires approximately 30 roundtrips using 10 CY dump trucks and is completed in approximately two days on a biweekly (every 2 weeks) basis.

2.4 Proposed Project

EBMUD's pipeline replacement program focuses on pipelines that are near the end of their useful lives. Currently, EBMUD replaces between 20 and 25 miles of pipeline per year of its approximately 4,200-mile-long distribution pipeline network. Based on the age of these pipelines, EBMUD estimates that approximately 25 miles of pipeline replacement will be required in 2025 and approximately 30 miles of pipeline will need replacement annually by 2030. The Miller Road stockpile site supports EBMUD's efforts to repair and replace pipeline infrastructure, and EBMUD plans to gradually increase operations of the Miller Road stockpile site and its associated rock and sand stockpile site to meet the need associated with the

increased pipeline replacement. Trench soil generation rates are estimated by EBMUD using various methods, including drone surveys, topographic surveys, typical trench cross-sections, operations and maintenance databases, temporary stockpile inventories over time, and the anticipated repair and replacement rate of EBMUD's pipeline network.

The Project includes three primary components: 1) an increase in import of trench soil to the Miller Road stockpile site; 2) an increase in the import and off-haul of backfill materials at the rock and sand stockpile site; and 3) implementation of smaller off-haul events at regular intervals (estimated at every 5 years with the potential of off-hauls every 1 to 2 years to respond to opportunities for beneficial soil reuse in the area) to remove stockpiled soils at the Miller Road stockpile site. These Project components are described in further detail below.

2.4.1 Increased Import of Miller Road Stockpile Site Trench Soil

Trench soil transported to the Miller Road stockpile site is generated from pipeline operations and maintenance as trenches are excavated in the ground along pipeline lengths being replaced or repaired. Based on generation rate estimation methods and current and projected pipeline replacement rates, the current average annual import of trench soil of approximately 7,000 CY is anticipated to increase to approximately 11,000 CY by 2030. Worker trips constitute the number of trips EBMUD or an EBMUD contractor makes to complete weekly soil stockpile management activities. As with current operations, soil would be imported to the site by 10 CY dump trucks for a total annual number of approximately 1,100 truck trips (roundtrip) to import trench soil to the Miller Road stockpile site (see Table 2-1). However, to accommodate the increased soil import volumes, daily truck trips (roundtrip) would increase to an average of approximately 5 daily truck trips (roundtrip) per working day to import soil to the site, which includes trips in the morning period (7 a.m. to 12 p.m.) including an estimated 1 truck trip during a.m. peak hour. Additionally, EBMUD anticipates 1 worker would be at the site 1 day per week to manage the soil, with a total of approximately 52 trips per year.

The imported soil would be placed within the existing stockpile footprint with no disturbance to areas outside the existing stockpile site. EBMUD or an EBMUD contractor would continue to manage the stockpile site using excavators and dozers to place soil according to designed slopes to maintain drainage and site access.

Table 2-1 Project Truck Trips

Component	Trip type	Historic and existing annual trips (roundtrips)	Proposed annual trips (roundtrips)	Historic and existing daily trips (roundtrips)	Proposed daily trips (roundtrips)
Annual import of trench soil to Miller Road stockpile site	Truck	700[a]	1,100[b]	3[c]	5[c]
	Worker	52	52	1	1
	Truck	700[a]	1,100[b]	15	23

Component	Trip type	Historic and existing annual trips (roundtrips)	Proposed annual trips (roundtrips)	Historic and existing daily trips (roundtrips)	Proposed daily trips (roundtrips)
Annual backfill material delivery to rock and sand stockpile site	Worker	N/A	N/A	N/A	N/A
Miller Road off-haul events	Truck	6,700 to 9,700[d]	4,200[e]	150 to 300[d]	70 to 200[f]
	Worker	As needed	80 to 240[g]	As needed	4
Total for off-haul event years	Truck	8,100 to 11,100	6,400	168 to 318	98 to 228
	Worker	52 plus those associated with off-haul events	132 to 292	1 plus those associated with off-haul events	5

Table Notes:

a. For 7,000 CY of material using 10 CY trucks.
b. For 11,000 CY of material in 2030 using 10 CY trucks.
c. Assumes an average of 260 work days per year.
d. Because off-haul events were conducted as needed, the number of truck trips could vary.
e. Off-haul event of 50,000 CY every 5 years assuming an average of 12 CY per truck trip.
f. The 4,200 truck trips associated with an off-haul event would occur over a 1-month to 3-month period (21 days for a 1-month period and 60 days for a 3-month period) with a cap of 200 trucks.
g. Estimated based on 4 worker commute roundtrips per day during off-haul events over a 1-month to 3-month period.

2.4.2 Increased Import and Off-Haul of Rock and Sand Backfill Materials

Import trucks would continue to pick up backfill material from the designated rock and sand stockpile site. The volume of rock and sand backfill materials exported from the site would be similar to the volume of total soil imported. For the Project, each backfill import refilling event requires approximately 46 roundtrips using 10 CY dump trucks and is completed in approximately two days on a biweekly (every two weeks) basis. There would be an average of 23 truck roundtrips per day, with 3 roundtrips during both the a.m. and p.m. peak hours. Approximately 1,100 truck trips (roundtrip) per year would be made to deliver backfill material to the rock and sand stockpile site.

Similar to the Miller Road stockpile site, imported materials at the rock and sand stockpile site would be placed within the existing stockpile footprints with no disturbance to surrounding vegetation.

2.4.3 Smaller Routine Off-Haul Events

As similar to current operations, trench soil would be removed from the Miller Road stockpile site prior to exceeding the site's storage capacity for ongoing EBMUD pipeline replacement and repair activities. Under the Project, routine off-haul events could begin as early as 2025.

However, to accommodate the projected increase in future trench soil generation, the Project would implement smaller routine soil removal events instead of the current larger, less frequent off-haul events. Specifically, smaller soil removal events could off-haul up to 50,000 CY of material every 5 years with the potential for an off-haul every 1 to 2 years if opportunities arise for beneficial reuse in the area as opposed to being disposed at landfills. These off-haul events would require 1 to 3 months to complete and between 70 to 200 truck roundtrips per day, see Table 2-1. Approximately 4 additional workers would be on site per day during off-haul events, with an estimated 240 worker trips per year bringing the total worker truck trips to 292. Activities associated with trench soil removal include screening, loading, and hauling of trench soil from the Miller Road stockpile site to an end use facility. Standard EBMUD stormwater and dust control measures that are currently used, including street sweeping services to clear debris on portions of the haul route affected by soil removal operations, would be implemented as part of the Project. In addition, a water truck would be used daily on Miller Road to reduce dust from soil removal trucks. Excavation equipment, such as excavators and dozers, would be used to load trench soil into trucks for hauling to reuse, recycling, or disposal sites. Trucks used to export soil from the site would include 11 CY end dump trucks and 13 CY double-bottom trucks. Contractors would be required to enforce safety measures, including training in traffic safety requirements and providing public information.

2.4.4 Site Access/Haul Route

The Miller Road stockpile site is accessed via a private EBMUD roadway and is fenced with a locked gate. Similar to existing operations, access to and from the Miller Road stockpile site and the rock and sand stockpile site for all Project activities would be via Interstate 580 (I-580), Redwood Road, and Miller Road, as shown in Figure 2-3. Miller Road is an all-weather gravel road that varies from approximately 25 feet to 35 feet wide. Miller Road is within EBMUD property and begins at the Chabot Staging area near Redwood Road and terminates at the Upper San Leandro Reservoir. Redwood Road is a major arterial that spans a route from south of I-580 through Castro Valley to Skyline Boulevard in Oakland. The width of Redwood Road varies from approximately 20 to 40 feet.

Figure 2-3 Trench Soil Import and Removal Haul Route

2.4.5 Schedule and Duration

Typical hours of import operations at the Miller Road stockpile site and rock and sand stockpile site would be 7 a.m. to 5 p.m. Monday through Friday, although limited operations may occur outside these hours in response to emergency pipeline repairs.

Routine off-haul events for the Miller Road stockpile site would occur approximately every 5 years with the potential for off-haul events every 1 to 2 years to respond to beneficial soil reuse opportunities in the area. It would generally be limited to the summer season to minimize overlap when schools along the haul route are in session with a typical duration of approximately 1 to 3 months. Work hours for removal of trench soil would typically be 9 a.m. to 4 p.m. on weekdays and would be reduced to 9 a.m. to 3 p.m. if the off-haul event occurs when Castro Valley Union School District schools are in session.

2.4.6 Workforce and Equipment

The number of workers required will vary based on the Project activity occurring. Worker estimates by Project component are summarized in Table 2-2.

Table 2-2 Anticipated Workforce

Project component	Approximate workforce
Import of Miller Road stockpile site trench soil	1 truck driver per truck load 1 operator for on-site management
Import and off-haul of rock and sand stockpiles	1 truck driver per truck load 1 operator for on-site management
Miller Road off-haul events	1 truck driver per truck load 2 operators, 1 truck boss, 1 foreman on-site

Standard equipment that would be used under the Project is provided in Table 2-3.

Table 2-3 Anticipated Equipment Use

Equipment	Activity
Excavator	Stockpile management and trench soil off-haul
D6 dozer	Stockpile management, trench soil off-haul, and the import of backfill material
D8 dozer	Trench soil off-haul and the import of backfill material
Water truck	Trench soil off-haul
Sweeper	Trench soil off-haul

2.4.7 Additional Operations and Maintenance Activities

Miller Road is located on EBMUD property, and EBMUD would maintain the gravel surface of Miller Road from Redwood Road to the stockpile site as required. Ongoing required operations and maintenance of the Project site would be managed by EBMUD and/or a contractor. Additionally, EBMUD staff or EBMUD's contractors would conduct regular inspections and oversee the installation and maintenance of best management practices (BMPs) and requirements in compliance with EBMUD's existing Stormwater Pollution Prevention Plan (SWPPP) for existing operation of both the Miller Road and rock and sand stockpile sites and along Miller Road (EBMUD 2019).

2.5 Permits and Approvals

Table 2-4, below, provides a summary of the approvals and permits that EBMUD would be required to obtain prior to the start of the Project.

Table 2-4 Agency-Required Approvals and Permits

Agency/stakeholder	Type of jurisdiction	Type of approval	Status
Alameda County	Local	Conditional Use Permit	Pending
State Water Resources Control Board (SWRCB)	State	SWPPP	Obtained

3 Environmental Checklist

3.1 Project Information

1. **Project Title**
   Miller Road Trench Soil Management Project
2. **Lead Agency Name and Address**
   East Bay Municipal Utility District
   Maintenance & Construction Department
   375 11th Street
   Oakland, CA 94607
3. **Contact Person and Phone Number**
   Gus Cicala, Senior Civil Engineer
   (510) 287-1264
4. **Location**
   Unincorporated Alameda County
5. **Project Sponsor's Name and Address**
   East Bay Municipal Utility District
   Maintenance & Construction Department
   375 11th Street
   Oakland, CA 94607
6. **General Plan Designation and Zoning**
   General Plan Designation: Resource Management (RM); Zoning: Agriculture (A)
7. **Description of the proposed project**
   Please see Chapter 2 of the MND.
8. **Surrounding Land Uses and Setting**
   Open space
9. **Other Public Agencies Whose Approval is Required**
   Alameda County – Conditional Use Permit
   State Water Resources Control Board – Stormwater Pollution Prevention Plan (SWPPP)
10. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources 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.?**

No California Native American tribes traditionally and culturally affiliated with the Project area have requested consultation pursuant to Public Resources Code section 21080.3.1.

3.2 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the project, but impacts would be mitigated to a less-than-significant level as indicated in the Initial Study.

- ☐ Aesthetics
- ☐ Agriculture and Forestry
- ☐ Air Quality
- ☐ Biological Resources
- ☐ Cultural Resources
- ☐ Energy
- ☐ Geology and Soils
- ☐ Greenhouse Gas Emissions
- ☐ Hazards and Hazardous Materials
- ☐ Hydrology and Water Quality
- ☐ Land Use and Planning
- ☐ Mineral Resources
- ☐ Noise
- ☐ Population and Housing
- ☐ Public Services
- ☐ Recreation
- ☒ Transportation
- ☐ Tribal Cultural Resources
- ☐ Utilities and Service Systems
- ☒ Wildfire
- ☐ Mandatory Findings of Significance

3.3 Environmental Determination

On the basis of this initial evaluation:

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

I find that although the 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 Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

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

Pursuant to Section 21082.1 of the California Environmental Quality Act, EBMUD has independently reviewed and analyzed the Initial Study and Mitigated Negative Declaration for the proposed project and finds that the Initial Study and Mitigated Negative Declaration reflect the independent judgement of EBMUD. EBMUD further finds that the project mitigation measures shall be implemented as stated in this Mitigated Negative Declaration.

I hereby approve this project:

David A. Briggs
Director of Operations and Maintenance
East Bay Municipal Utility District

3/20/25
Date

3.4 Evaluation of Environmental Impacts and Initial Study Checklist

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
1. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
2. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
3. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
4. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D) (2017 CEQA Guidelines). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
5. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where

appropriate, include a reference to the page or pages where the statement is substantiated.

6. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
7. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
8. The explanation of each issue should identify:
   d. The significance criteria or threshold, if any, used to evaluate each question.
   e. The mitigation measure identified, if any, to reduce the impact to less than significant.

3.5 Environmental Analysis

3.5.1 Aesthetics

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
1. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒
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 publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion

The Project site is located within EBMUD-owned watershed land southeast of EBMUD's Upper San Leandro Reservoir in Castro Valley. The Project site includes the Miller Road stockpile site and the rock and sand stockpile site and is characterized by flat land in the locations used for trench soil and stockpile management and are surrounded by hilly forested areas. Anthony Chabot Regional Park is approximately 0.7 miles west of the Miller Road stockpile site. The rock and sand stockpile site is located approximately 1 mile south of the Miller Road stockpile site, adjacent to the Castro Valley Christmas Tree Farm (off Miller Road) (see Figure 2-1). Both the Miller Road stockpile site and the rock and sand stockpile site are accessed via Miller Road, which is a private, gated road off Redwood Road, a public road. The Project site is approximately 350 feet above sea level and is surrounded by areas with higher elevation (Topographic-Map.com, n.d.). The Miller Road stockpile site spans approximately 5.9 acres and the rock and sand stockpile site spans approximately one acre. The nearest residents to the Project site are located approximately 1.6 miles to the west. The Ramage Peak Trail passes approximately 0.5 miles east of the Miller Road stockpile site and is publicly accessible with an EBMUD trail permit; users on this trail may experience views of the Project site (EBMUD n.d.).

a. Less than Significant Impact
A scenic vista is defined as a distant view encompassing valued natural or built landscape features such as ridgelines, water bodies, landmark features, or open space lands. Anthony Chabot Regional Park is approximately 0.7 miles west of the Miller Road stockpile; the Project would not be visible from the park due to intervening hills and topography as well as trees and vegetation. Currently, the Project site may be visible from limited portions of the Ramage Peak Trail. The Project would not alter the appearance of the stockpile sites as compared to existing conditions. Therefore, the Project would not have a substantial adverse effect on a scenic vista, and the impact would be less than significant.

b. No Impact
The nearest scenic highway is I-580 which is located approximately 3 miles to the west of the Project site (Caltrans 2024). The Project site is not visible from the highway due to distance and intervening topography. Therefore, the Project would have no impact on a designated state scenic highway.

c. Less than Significant Impact
The Project is located within EBMUD-owned watershed land in Alameda County in a non-urbanized area. Public views of the site would be available from the Ramage Peak Trail east of the Project site. The Project would not build any new structures. The Project would involve an increase in the import of trench soil at the Miller Road stockpile site, and an increase in the import and pickup of backfill materials at the rock and sand stockpile site. However, the volume of stockpiled materials at the sites would not change because the Project would involve more frequent off-haul events. The Project would not increase the volume of soil, rock, or sand stockpiled at a given time, and would not introduce new facilities or equipment to the Project site. The Project would not result in changes to the visual character of the sites or surroundings. Therefore, the Project would not substantially degrade the existing visual character or quality of public views of the site, and the impact would be less than significant.

d. No Impact
The Project would not involve nighttime activities. As described in Section 2.4.5, Schedule and Duration, Project operations would occur during daytime hours and no new temporary or permanent lighting is proposed. Therefore, the Project would not create a new source of light or glare which would adversely affect day or nighttime views, and there would be no impact.

3.5.2 Agriculture and Forestry

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
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])?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

The Project stockpile sites are located on land that is zoned for Agriculture (A) by Alameda County and land that is designated as Resource Management (RM) in the Castro Valley Area Plan of the Alameda County General Plan. The proposed haul route travels through land zoned and designated for residential, business and commercial uses (Alameda County n.d.-b; 2012).

The California Department of Conservation (CDOC) classifies land according to agricultural suitability through the Farmland Mapping and Monitoring Program (FMMP) based on land uses, irrigation, and soil conditions. The categories of Prime Farmland, Farmland of Statewide

Importance, and Unique Farmland constitute "agricultural land" (Public Resources Code [PRC] Section 21060.1), and are defined below (CDOC n.d.-b):

- **Prime Farmland**. Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. Land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance**. Farmland like Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland**. Farmland of lesser quality soils used to produce the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.

a. No Impact

Neither of the Project stockpile sites are located on lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDOC n.d.-a). Therefore, the Project would not have the potential to convert Farmland to non-agricultural use, and there would be no impact.

b. Less than Significant Impact

The Project stockpile sites are not located on land under a Williamson Act contract (CDOC 2024a). The Project stockpile sites are located on land zoned for Agriculture (A) by Alameda County. Uses permitted by right in the Agriculture zone include various traditional agricultural uses. Conditionally permitted uses include those uses related to public utility uses or buildings (Alameda County Zoning Ordinance Chapter 17.06.40) (Alameda County n.d.-a). The public utility use is consistent with the Project because the Project would facilitate EBMUD's continued replacement of critical public utility pipelines that serve the public. Public utility use in Agricultural lands requires a conditional use permit from Alameda County, for which EBMUD will submit an application. The Project would be implemented in compliance with the conditional use permit and would thus be compliant with applicable zoning regulations. Because the Project would obtain a conditional use permit, and because the Project would comply with permit conditions set by Alameda County, the Project would not conflict with agricultural zoning. The impact would be less than significant.

c and d. No Impact

Neither of the Project stockpile sites are zoned for forest land, timberland, or timberland production. The existing Project stockpile site boundaries would be maintained; no land would be converted. The Project would not have the potential to conflict with existing zoning for, or cause rezoning of, forest or timberland uses. The Project would also not have the potential to

result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.

e. No Impact

As described above in Impacts a through d, the Project is not located on Farmland or forest land and would not convert any Project sites away from agricultural or forest uses (since such uses are not present). The Project supports EBMUD's trench soil management as part of EBMUD's ongoing pipeline repair and replacement activities. The pipelines undergoing repair and replacement serve existing customers within EBMUD's service area; therefore, pipeline repair and replacement would not contribute to indirect or off-site conversion of agricultural or forest land (e.g., by inducing unplanned population growth that could cause additional development and land conversion). Therefore, implementation of the Project would not have the potential to 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 would occur.

3.5.3 Air Quality

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

Setting

The Project is located within the San Francisco Bay Area Air Basin (SFBAAB). The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that generally keeps storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

The California Air Resources Board (CARB) and United States Environmental Protection Agency (U.S. EPA) focus on the following criteria air pollutants as regional indicators of ambient air quality:

- ozone
- coarse particulate matter (PM_{10})
- fine particulate matter ($PM_{2.5}$)
- nitrogen dioxide
- carbon monoxide
- sulfur dioxide
- lead

In the SFBAAB, the primary criteria air pollutants of concern are ground-level ozone formed through reactions of oxides of nitrogen (NO_x) and reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$.

Localized air pollutants that generally dissipate with distance from the emission source can pose a health risk to nearby populations. Toxic air contaminants (TACs), such as diesel particulate matter (DPM), are considered localized pollutants. $PM_{2.5}$ is also considered a localized air pollutant, in addition to being considered a regional air pollutant. Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of local concentrations and risk assessments.

Sensitive Receptors

Sensitive receptors are areas where individuals are more susceptible to the adverse effects of poor air quality. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Residential areas are also considered sensitive receptors because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants.

There are no sensitive receptors identified within 1,000 feet of the Miller Road stockpile site and the rock and sand stockpile site.

During Project operation, trucks will access the Miller Road stockpile site and the rock and sand stockpile site via Redwood Road and Miller Road. Sensitive receptors located on Redwood Road include residences on both sides of the road, three schools (including Castro Valley High School, Redwood Christian Elementary School, and Proctor Elementary School), two pre-schools (Redwood Forest Pre-School and A Kids Kingdom Pre-School), and Kenneth C Aitken Senior Center. These sensitive receptors are located as close as 50 feet from the road's centerline. Additional sensitive receptors located within 1,000 feet of Redwood Road include Honey Bees Preschool and Daycare about 620 feet to the east, Little Duck Montessori Preschool about 760 feet to the west, Alma Preschool about 550 feet to the east of the Redwood Road, and additional residences.

The Bay Area Air Quality Management District (BAAQMD) recommends evaluating health risks to offsite worker receptors, which are not considered sensitive receptors[1]. There are no offsite worker receptors identified within 1,000 feet of the Miller Road stockpile site and the rock and sand stockpile site. Offsite worker receptors are located at the commercial uses along both sides of Redwood Road as close as 50 feet from the road's centerline.

Bay Area Air Quality Management District CEQA Guidelines

The Project site is in the SFBAAB, which is under the jurisdiction of the BAAQMD. The BAAQMD has adopted thresholds of significance to assist lead agencies in the evaluation and

[1] On January 22, 2025, the BAAQMD announced its new name as the Bay Area Air District (Bay Area Air District 2025).

mitigation of air quality impacts under CEQA (BAAQMD 2022). The BAAQMD's thresholds established levels at which emissions of ozone precursors (i.e., reactive organic gases [ROGs] and NO_x), PM_{10}, $PM_{2.5}$, carbon monoxide, TACs, and odors could cause significant air quality impacts. The BAAQMD's thresholds of significance are used in this analysis and are summarized in Table 3-1.

Table 3-1 BAAQMD's Project-Level Thresholds of Significance for Air Quality

Impact Analysis	Pollutant	Threshold
Regional Air Quality (Operation)	ROG	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	NOx	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	PM_{10}	82 pounds/day (average daily emission) 15 tons/year (maximum annual emission)
	$PM_{2.5}$	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
Local Community Risks and Hazards	$PM_{2.5}$	0.3 µg/m^3 (annual average)
	TACs	Cancer risk increase > 10.0 in one million Chronic hazard index > 1.0
	Local CO	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)

µg/m^3 = micrograms per cubic meter; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; CO = carbon monoxide

Sources: (BAAQMD 2022)

Air districts such as BAAQMD use regional air dispersion models to evaluate regional criteria air pollutants. However, these dispersion models have limited sensitivity to the relatively small (or negligible) changes in criteria air pollutant concentrations associated with an individual project. Therefore, providing reliable estimates of specific health risks associated with regional air pollutant emissions from an individual project is not feasible and would result in speculative results (SJVUAP 2018; SCAQMD 2018). The methodology used in this analysis for regional criteria air pollutants is consistent with the California Supreme Court's ruling regarding Sierra Club v. County of Fresno (California Supreme Court 2018).

The BAAQMD's threshold of significance for local carbon monoxide concentrations is equivalent to the 1- and 8-hour California ambient air quality standards of 20.0 and 9.0 parts per million, respectively, because these represent levels that are protective of public health. The BAAQMD has developed conservative screening criteria that can be used to determine if a project would generate traffic congestion at intersections that could potentially cause or contribute to local carbon monoxide levels above the California ambient air quality standards.

According to the BAAQMD, a project would result in a less-than-significant impact related to localized carbon monoxide concentrations if all the following screening criteria are met:

- The project is consistent with an applicable Congestion Management Program (CMP) established by the County Congestion Management Agency for designated roads or highways, regional transportation plans, and local congestion management agency plans.
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic 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, below-grade roadway).

a. Less than Significant

The BAAQMD's 2017 Clean Air Plan (BAAQMD 2017) is the applicable air quality plan for projects located in the SFBAAB. Consistency may be determined by evaluating whether the Project supports the primary goals of the 2017 Clean Air Plan, including applicable control measures contained within the plan, and would not conflict with or obstruct implementation of any of the control measures.

The primary goals of the 2017 Clean Air Plan are the attainment of ambient air quality standards and reduction of population exposure to air pollutants for the protection of public health in the Bay Area. The control measures from the 2017 Clean Air Plan, which aim to reduce air pollution and greenhouse gases (GHGs) from stationary, area, and mobile sources, are organized into nine categories. As described in Table 3-2, the Project would be consistent with the applicable control measures from the 2017 Clean Air Plan. Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

Table 3-2 Project Consistency with BAAQMD's 2017 Clean Air Plan

Control Measures	Project Consistency
Stationary Source	**Not applicable**. The stationary source measures, which are designed to reduce emissions from stationary sources, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Because the Project would not include stationary sources, the stationary source control measures are not applicable to the Project.
Transportation	**Consistent.** The transportation control measures are designed to reduce vehicle trips, use, miles traveled, idling, or traffic congestion for the purpose of reducing vehicle emissions. As noted in Section 3.5.17 Transportation, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, and the Project would have a less than significant vehicle miles traveled (VMT) impact. In addition, according to the 2024 Climate Action Plan Update, EBMUD has transitioned from petroleum diesel to nearly 100 percent renewable diesel for its medium- and heavy-duty fleet, reducing on-road vehicle GHG emissions. Therefore, the Project would be consistent with the transportation control measures in the 2017 Clean Air Plan.

Control Measures	Project Consistency
Energy	**Not applicable**. The energy control measures 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 primarily apply to electrical utility providers, the energy control measures are not applicable to the Project.
Buildings	**Not applicable**. 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 building control measures focus on working with local governments that have authority over local building codes to facilitate adoption of best practices and policies to control GHG emissions. Because the Project would not construct new buildings, the building control measures are not applicable to the Project.
Agriculture	**Not applicable**. 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 are not applicable to the Project.
Natural and Working Lands	**Not applicable.** The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt 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 are not applicable to the Project.
Waste Management	**Consistent.** 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. A goal of the more frequent off-haul events is for the trench soil to be reused beneficially as opposed to being disposed at landfills. Therefore, the Project would be consistent with the waste management control measures in the 2017 Clean Air Plan.
Water	**Not applicable**. The water control measures to reduce emissions from the water sector will reduce emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works, and promoting the use of biogas recovery systems. Since these measures primarily apply to publicly owned treatment works (sewage treatment plant that is owned, and usually operated, by a government agency), the water control measures are not applicable to the Project.
Super GHGs	**Not applicable**. 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 developments, the super-GHG control measures are not applicable to the Project.

Sources: (BAAQMD 2017)

b. Less than Significant

The Project does not include construction. The Project involves three operational components, including a gradual increase in the amount of trench soil imported to the Miller Road stockpile site, an increase in the import and export of backfill materials at the rock and sand stockpile site, and removal of stockpiled trench soil (referred to as off-haul events) approximately every 5 years but potentially every 1 to 2years if beneficial reuse opportunities arise.

Operation of the Project would generate criteria pollutant emissions that could potentially impact regional air quality. The primary pollutant emissions of concern during Project operation would be ROG, NOx, and exhaust PM_{10} and $PM_{2.5}$ from mobile sources (i.e., truck trips and worker commute trips) and on-site off-road construction equipment. For the import of trench soil to the Miller Road stockpile site and the import and export of backfill materials at the rock and sand stockpile site, the increases in annual import and export amount would increase the off-site truck trips, while the worker commute trips and off-road construction equipment usage would be similar to existing conditions. To be conservative, criteria air pollutant emissions from the existing operations of the Miller Road stockpile site and the rock and sand stockpile site were not estimated and subtracted from the Project's estimated criteria air pollutant emissions.

For mobile sources, the import of trench soil to the Miller Road stockpile site, and the import and export of backfill materials at the rock and sand stockpile site would each generate about 1,100 truck roundtrips per year for a total 2,200 truck roundtrips per year. Additionally, one worker would travel to the Project site once per week to maintain both the Miller Road stockpile site and the rock and sand stockpile site, generating 52 worker commute roundtrips per year in total. During each off-haul event, which would occur approximately every 5 years and last for 1 to 3 months, up to 50,000 CY of trench soil would be off-hauled, generating 4,200 truck roundtrips and up to 240 worker commute roundtrips per event.[2] To be conservative, a worst-case scenario is assumed for the off-haul events where the off-haul events would occur once every year with 50,000 CY of trench soil being removed over a one-month period, resulting in the highest daily truck trips.

Under the worst-case scenario, the three components of the Project would generate in total 6,400 truck roundtrips and 292 worker commute roundtrips annually, see Table 2-1.[3] The Project's average daily criteria air pollutant emissions would be highest when all three Project components would occur concurrently on the same day. During the worst-case scenario day, the three components of the Project would generate in total 228 truck roundtrips and five worker commute roundtrips per day.

The BAAQMD currently recommends using the most recent version of the California Emissions Estimator Model (CalEEMod version 2022.1) to estimate construction and operational emissions of criteria air pollutants and precursors for a proposed project. CalEEMod uses widely accepted models for emission estimates combined with appropriate default data for a variety of land use projects that can be used if site-specific information is not available. The primary input data

[2] See Table 2-1 for truck trip details. If off-haul events occurred consistently every 1 to 2 years, they would remove less than 50,000 CY because the import is estimated to be up to 11,000 CY per year.

[3] Under the worst-case scenario, the off-haul events would last for a 1-month period and generates 80 worker commute roundtrips per event, which is less than the upper bound worker commute roundtrip generation of 240 roundtrips per event (assuming a 3-month event period). The upper bound estimate of 240 worker commute roundtrips per event is used to calculate the Project's annual criteria air pollutant and GHG emissions to provide the most conservative analysis.

used to estimate criteria air pollutant emissions associated with operation of the Project included information about the off-road construction equipment inventory and usage, frequency of import and off-haul events, Project-generated truck and worker commute trips, and travel distances for each trip category[4]. The Project would utilize the existing SWPPP, which includes best management practices for wind erosion control, requiring watering exposed soil and unpaved areas and limiting vehicle speeds on unpaved areas for dust control (EBMUD 2019). A water truck and a sweeper will be used during the off-haul event for dust control. It was assumed that the exposed areas will be watered twice per day. Based on Project-specific information, criteria air pollutant emissions from Project operation were calculated using CalEEMod version 2022.1 and its associated methodologies. The input parameters and assumptions used to estimate criteria air pollutant emissions, detailed calculations for criteria air pollutant emissions from off-road heavy construction equipment, and CalEEMod reports for criteria air pollutant emissions from mobile sources are provided in Appendix B.1.

Project emissions were estimated for the 2030 Project condition regarding trip generation and off-road construction equipment usage. Since routine off-haul events may begin as early as 2025, year 2025 emission factors were used in this analysis to be conservative because statewide vehicle emission standards are required to improve over time, and estimating emissions for the earliest year of operation provides the maximum expected annual emissions. The annual emissions during operation of the Project were estimated for the increased import of trench soil to the Miller Road stockpile site, the increased import and export of backfill materials at the rock and sand stockpile site, and the off-haul events. To analyze average daily emission rates, the total annual emissions estimated for each Project component were averaged over the total working days associated for that component:

- Import of trench soil to the Miller Road stockpile site: 260 workdays per year for truck trips and 52 workdays for off-road equipment usage and worker commute trips[5];
- Import and export of backfill materials at the rock and sand stockpile site: 52 workdays per year for truck trips and off-road equipment usage;
- Off-haul events: 21 workdays per year for a one-month off-haul event (worst-case scenario) for truck trips, worker commute trips,[6] and off-road equipment usage.

The estimated maximum annual emissions and average daily emissions during operation of the Project are presented in Table 3-3. As shown in Table 3-3, the Project's estimated ROG, NOx,

[4] To be conservative, the air emissions calculations assumed that all trucks used for the Project are heavy-duty diesel trucks.

[5] The same worker will maintain both the Miller Road stockpile site and the rock and sand stockpile site.

[6] As discussed above, the upper bound estimate of 240 worker commute roundtrips per event based on a 3-month event period is used to calculate the Project's annual criteria air pollutant and GHG emissions to provide the most conservative analysis. The emissions associated with off-haul event worker commute trips were averaged over a 1-month period (21 workdays) instead of 3 months again, as a worst-case scenario. It should be noted that both worst-case scenarios would not happen during a single off-haul event.

PM_{10}, and $PM_{2.5}$ emissions during operation are below the BAAQMD's threshold of significance and would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment; therefore, the Project's impact on regional air quality would be less than significant.

Table 3-3 Summary of Estimated Operation Emissions for Criteria Air Pollutants

Emission Scenario		Maximum Annual Emissions (tons)				Average Daily Emissions (pounds)			
		ROG	NOx	PM_{10}	$PM_{2.5}$	ROG	NOx	PM_{10}	$PM_{2.5}$
Trench Soil Import and Backfill Material Import/Export	Off-Road Equipment	0.01	0.11	0.06	0.03	0.20	4.3	2.20	1.2
	Mobile	<0.005	0.12	0.02	0.01	0.06	2.9	0.59	0.18
	Subtotal	**0.01**	**0.23**	**0.08**	**0.04**	**0.26**	**7.2**	**2.8**	**1.4**
Off-haul events (Every 5 years)	Off-Road Equipment	0.01	0.19	0.06	0.03	1.3	17.7	5.6	3.2
	Mobile	0.01	0.29	0.06	0.02	0.52	27.9	6.0	1.9
	Subtotal	**0.02**	**0.48**	**0.12**	**0.05**	**1.9**	**45.6**	**11.6**	**5.0**
Total Emissions		**0.03**	**0.71**	**0.20**	**0.09**	**2.1**	**52.8**	**14.4**	**6.4**
BAAQMD Threshold		10	10	15	10	54	54	82	54
Exceed Threshold?		No	No	No	No	No	No	No	No

Sources: See Appendix B.1.

c. Less than Significant

Exposure to Diesel Particulate Matter Emissions during Project Operation

Project operation would generate DPM emissions from the exhaust of on-road trucks and on-site off-road diesel construction equipment. In addition, the Project would generate fugitive $PM_{2.5}$ emissions from onsite earthwork activities, on-road vehicle brake wear and tire wear, and resuspended road dust. As discussed above, there are no sensitive receptors identified within 1,000 feet of the Project site. For sensitive receptors along the haul route, a health risk assessment was conducted to estimate the incremental increase in cancer risk and chronic hazard index (HI) from exposure to DPM emissions from trucks in accordance with guidance from the BAAQMD and Office of Environmental Health Hazard Assessment (OEHHA) (OEHHA 2015). The acute HI for DPM was not calculated because an acute reference exposure level has not been approved by OEHHA and CARB, and the BAAQMD does not recommend analysis of acute non-cancer health hazards from construction activity.

The on-road DPM and $PM_{2.5}$ emissions from trucks travelling by sensitive receptors along the haul route were estimated based on the average daily truck trips. Emission factors for operating and fugitive emissions were derived from CARB's Emission Factors Model (EMFAC2021) and based on U.S. EPA's Compilation of Air Pollutant Emissions Factors (AP-42), Section 13.2.1

Paved Road, respectively. The model input parameters, assumptions, and results are summarized in Appendix B.2.

The annual average concentrations of DPM and $PM_{2.5}$ during Project operation, including the import of trench soil to the Miller Road stockpile site, import and export of backfill materials at the rock and sand stockpile site, and off-haul events, were estimated using the American Meteorological Society/U.S. EPA regulatory air dispersion model (AERMOD). For the analysis, emissions of exhaust PM_{10} were used as a surrogate for DPM, which is a conservative assumption because more than 90 percent of DPM is less than 1 micron in diameter. The input parameters and assumptions used for estimating emission rates of DPM and $PM_{2.5}$ from trucks are included in Appendix B.2.

PM_{10} and $PM_{2.5}$ emissions from off-site trucks were modeled as a line source along Redwood Road between the I-580 Westbound On-Off Ramps and Camino Alta Mira. Daily emissions from operation would occur between 9:00 a.m. and 4:00 p.m. Monday through Friday. The AERMOD model input parameters included one year of BAAQMD meteorological data from the Hayward Executive Airport Automated Surface Observing Systems (ASOS) Met Site (KHWD) located approximately 7.2 miles to the southwest of the Project site.

For sensitive receptors along the haul route, a uniform grid of receptors spaced approximately 66 feet apart with receptor heights of approximately 5 feet was placed along the haul route as a means of developing isopleths (i.e., concentration contours) that illustrate the air dispersion pattern. In addition, lines of discrete receptors spaced approximately 66 feet apart and approximately 50 feet away from the haul route centerline were created for ground level receptors at heights of 5 feet to calculate concentrations at the closest sensitive receptors to the haul route. Comparing to other sensitive receptors and offsite workers receptors identified above, the residential receptors identified along the haul route are among the receptors that are closest to the road and have a longer exposure duration and frequency. Therefore, the discrete residential receptors modeled at 50 feet from the centerline of the haul route represent a reasonable worst-case scenario.

Based on the annual average concentrations of DPM and PM2.5 estimated using AERMOD, potential health risks were evaluated for the maximally exposed individual resident (MEIR) as shown in Figure 3-1. The incremental increase in cancer risk on the MEIR was assessed for an individual initially exposed to DPM as a fetus during the third trimester of pregnancy until the age of 30, assuming 30 years of exposure to Project operation emissions which represents the most sensitive individual who could be exposed to adverse air quality conditions in the vicinity of the haul route. The input parameters and results of the health risk assessment are included in Appendix B.2.

The estimated health risks at the MEIR due to DPM and PM2.5 emissions from Project operation are summarized and compared to the BAAQMD's thresholds of significance in Table 3-4.

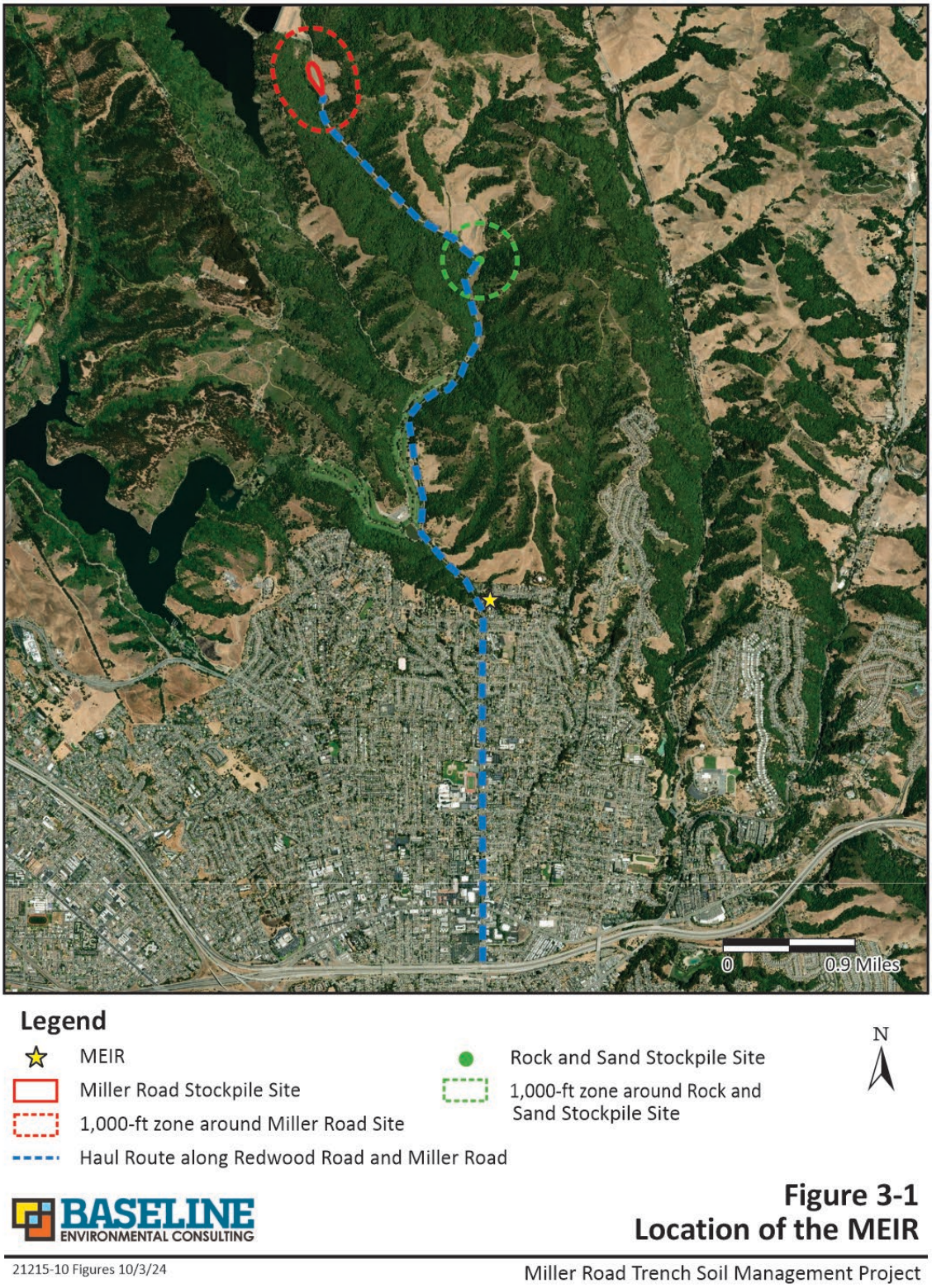

Figure 3-1 Location of the Maximally Exposed Individual Resident (MEIR)

The estimated cancer risk and chronic HI for DPM and average annual concentration of $PM_{2.5}$ at the MEIR were below the BAAQMD's thresholds. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant.

Table 3-4 Health Risks at MEIR during Project Operation

Exposure Scenario	Receptor	Diesel Particulate Matter		$PM_{2.5}$ Annual Average Concentration ($\mu g/m^3$)
		Cancer Risk (per million)	Chronic Hazard Index	
Trench Soil Import and Backfill Material Import/Export	Haul Route MEIR	0.03	<0.01	<0.001
Off-haul events (Every 5 years but modeled yearly to be conservative)		0.06	<0.01	0.005
Total		0.09	<0.01	0.005
BAAQMD Threshold		10	1.0	0.3
Exceed Threshold?		No	No	No

Notes: $\mu g/m^3$ = micrograms per cubic meter

Sources: See Appendix B.2.

Exposure to Carbon Monoxide Emissions during Project Operation

The source of local carbon monoxide concentrations is often associated with heavy traffic congestion at nearby intersections. The Project would generate approximately 233 roundtrips per day (466 one-way trips), including 228 truck roundtrips and 5 worker commute trips during an off-haul year event, which would not exceed the BAAQMD's screening criteria for local carbon monoxide concentrations. Therefore, the Project would not result in a net increase in the potential exposure of existing sensitive receptors to carbon monoxide concentrations from Project-generated traffic.

d. Less than Significant

Facilities that may generate objectionable odors affecting a substantial number of people include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities. As a stockpile operation, the Project would not be expected to generate significant odors or other emissions for a substantial duration. The Project would increase the existing operation at the Project site and would not introduce new odor sources. Therefore, Project impacts related to odors and other emissions would be less than significant.

3.5.4 Biological Resources

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES. 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 Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
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 Game or US Fish and Wildlife Service?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
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?	☐	☐	☒	☐

Discussion

The Project is within EBMUD's Upper San Leandro Watershed, which ranges in elevation from 460 to 2,000 feet and is both rugged and ecologically diverse. Primary vegetation types include California annual grassland, coyote brush, chamise-black sage chaparral, mixed oak, coast live oak, and eucalyptus series. The Upper San Leandro Watershed also contains the only occurrences of knobcone pine forest and a large stand of second growth redwood. The Miller Road stockpile site and rock and sand stockpile site are previously disturbed and consists of dirt and gravel piles that are predominantly devoid of vegetation with occasional patches of weedy vegetation.

a. Less than Significant Impact

The potential for special-status species to occur at the Project site was evaluated by determining which special-status species occur in the vicinity of the Project through a literature and database search. Special-status species included those listed as endangered, threatened, rare, or proposed for listing by U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW). California Native Plant Society (CNPS) plant lists and locally rare plant lists were also reviewed. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project:

- California Natural Diversity Database (CNDDB) records
- USFWS Information for Planning and Consultation (IPaC) Trust Resource Report
- USFWS Critical Habitat Mapper

The special-status species with known occurrences within 5 miles of the Project site and for which suitable habitat is present in the Project area are summarized in Table 3-5. The Project site is located within USFWS-designated critical habitat for Alameda whipsnake.

Table 3-5 Special Status Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status	State Status
Plants			
bent-flowered fiddleneck	*Amsinckia lunaris*	None	None; CRPR 1B.2
big-scale balsamroot	*Balsamorhiza macrolepis*	None	None; CRPR 1B.2
Congdon's tarplant	*Centromadia parryi ssp. congdonii*	None	None; CRPR 1B.1
dark-eyed gilia	*Gilia millefoliata*	None	None; CRPR 1B.2
Dense flower owl's clover	*Castilleja densiflora*	None	None; CRPR 1B.2
Diablo helianthella	*Helianthella castanea*	None	None; CRPR 1B.2
fragrant fritillary	*Fritillaria liliacea*	None	None; CRPR 1B.2
Jepson's coyote-thistle	*Eryngium jepsonii*	None	None; CRPR 1B.2
Loma Prieta hoita	*Hoita strobilina*	None	None; CRPR 1B.1
Marin knotweed	*Polygonum marinense*	None	None; CRPR 3.1
most beautiful jewelflower	*Streptanthus albidus ssp. peramoenus*	None	None; CRPR 1B.2
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	None	None; CRPR 1B.2
Presidio clarkia	*Clarkia franciscana*	Endangered	Endangered; CRPR 1B.1
Santa Cruz tarplant	*Holocarpha macradenia*	Threatened	Endangered; CRPR 1B.1
Tiburon buckwheat	*Eriogonum luteolum var. caninum*	None	None; CRPR 1B.2
western leatherwood	*Dirca occidentalis*	None	None; CRPR 1B.2

Common Name	Scientific Name	Federal Status	State Status
woodland woollythreads	*Monolopia gracilens*	None	None; CRPR 1B.2
Wildlife			
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Threatened	Threatened
Bay checkerspot butterfly	*Euphydryas editha bayensis*	Threatened	Invertebrate of Conservation Priority
California red-legged frog	*Rana draytonii*	Threatened	None
California tiger salamander	*Ambystoma californiense*	Threatened	Threatened
Foothill yellow-legged frog	*Rana boylii*	Threatened	Endangered
Monarch butterfly	*Danaus plexippus*	Candidate	Invertebrate of Conservation Priority
Western bumble bee	*Bombus occidentalis*	None	Candidate Endangered; Invertebrate of Conservation Priority
Western pond turtle	*Emys marmorata*	Proposed Threatened	None

Source: (CDFW 2024; USFWS 2024)

Under the Project, the existing operation and maintenance activities would continue. The Project would not expand or modify the footprints of the stockpiles sites or access roads. The Project would alter the frequency and timing of haul trips (as discussed in 2, Project Description), but would not change the type or location of the existing activities that could result in adverse impacts to or a reduction of special-status species habitat. All trucks would use the existing access roads (Miller Road and Redwood Road), which do not provide suitable habitat for special-status plant species. Ground-disturbing activities would be limited to the stockpile sites, where ground cover consists of dirt and gravel piles that are predominantly devoid of vegetation with occasional patches of weedy vegetation. Tiburon buckwheat, dotseed plantain, and milkweed may occur in disturbed areas. Dotseed plantain and milkweed are known host plants for bay checkerspot butterfly and monarch butterfly, respectively. Due to the existing and ongoing level of disturbance at the Project site these species are unlikely to be present. Similarly, although Tiburon buckwheat can establish on gravelly substrate, the ongoing disturbance at both stockpile sites is expected to preclude the species' ability to occupy the Project site. Therefore, the Project would not result in impacts to special-status plants or host plants for special-status butterfly species.

The Miller Road stockpile site and rock and sand stockpile site are currently operated under the Trench Spoils Storage and Removal Program, which is one of the covered activities identified in the EBMUD Low Effect East Bay Habitat Conservation Plan (HCP) (EBMUD 2008). The Trench Spoils Storage and Removal Program specifically includes the hauling, storage, and removal of trench spoils associated with the Miller Road site. In compliance with HCP requirements,

EBMUD implements HCP best management practices (BMPs) and avoidance and minimization measures (AMMs) as part of the Trench Spoils Storage and Removal Program within the watershed, including Erosion Control (3.2.1.4), Operation of Farm Machinery (3.2.5.1), and Vehicular Access of Watershed Roads (3.2.9.1). BMPs include environmental training and educational materials regarding covered species identification, stop work if encountering a covered species, including environmental awareness training for EBMUD staff and contractor, restricted access along watershed roads, adherence to posted speed limits, and implementation and routine inspection and maintenance of erosion control devices at stockpile sites. Although the HCP specifically provides coverage for impacts to California red-legged frog, western pond turtle, and Alameda whipsnake, implementation of these measures also minimizes potential impacts to other special-status wildlife species. Because the Project would not result expand or modify stockpile sites or access roads and would be required to implement HCP avoidance and minimization measures to reduce impacts to special-status species and their habitat, the impact would be less than significant.

b. Less than Significant Impact

The Miller Road stockpile site is bounded by Lower San Leandro Creek to the west. No riparian habitat or other sensitive natural communities are present within the Project site where ground cover consists of dirt and gravel piles that are predominantly devoid of vegetation with occasional patches of weedy vegetation. The Project would not change the existing footprints of the stockpile sites, and therefore would not impact habitat or natural communities. The Project would continue to be operated in accordance with the existing SWPPP (EBMUD 2019) or any updated SWPPP. The SWPPP requires implementation of BMPs to control stormwater runoff or erosion and avoid impacts to off-site water bodies. BMPs include practices such as stabilizing soils in disturbed areas, covering stockpiles, appropriate compaction and grading, and completing regular inspections. Compliance with the SWPPP would avoid any impacts 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; the impact would be less than significant.

c. Less than Significant Impact

No state or federally protected wetlands occur within Project stockpile sites. As described above under Impact b, the Project would continue to be operated in accordance with the existing SWPPP (EBMUD 2019), which would prevent impacts to off-site water bodies by implementing appropriate stormwater control BMPs. Compliance with the SWPPP would avoid any impacts 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; the impact would be less than significant.

d. No Impact

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from

natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

The Project stockpile sites are isolated areas within the landscape of EBMUD watershed land; the sites are occupied by stockpiles and already experience regular use as trench soils are deposited, and as rock and sand is delivered and picked up. The sites do not serve as important regional wildlife corridors or nursery sites. The stockpile sites are surrounded by watershed land which allow wildlife movement in the vicinity. The Project would not change the boundaries of the stockpile sites or construct new facilities (e.g., fences, roadways) that could pose an impediment to wildlife movement or interfere with nursery sites. Therefore, the Project would not result in any impact to 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

e. Less than Significant Impact
Although EBMUD is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving the transmission of water (Government Code Section 53091), EBMUD strives to consider and work with host jurisdictions and neighboring communities during project planning and to conform to local environmental protection policies, where feasible and not contrary to its public purpose and responsibilities. As discussed under impact 4 a. above, the Project would be operated in accordance with the conditions of the HCP, which would ensure continued protection of biological resources. The Project would not involve tree removal that could potentially conflict with a policy or ordinance protecting biological resources. Therefore, the impact would be less than significant.

f. Less than Significant Impact
The stockpile sites are located within the boundaries of the HCP and trench soil storage and removal is a covered activity under the HCP. The Project activities would continue to be managed in accordance with HCP conditions, as described above under impact 4 a. Therefore, the Project would not conflict with the applicable habitat conservation plan, and the impact would be less than significant.

3.5.5 Cultural Resources

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
5. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Discussion

Project activities would occur on sites that have been previously disturbed for existing stockpile operations. Although the Project would involve an increase in the volume of trench soil taken to Miller Road stockpile site, and a corresponding increase in rock and sand stockpile site, off-haul and delivery events would be more frequent; therefore, the Project site footprints would not be increased, and no new area would be disturbed. EBMUD maintains an Archaeological Resources Geographic Information System (GIS) database that is updated annually with the results of a records search of the Northwest Information Center (NWIC) of the California Historical Resources Information System; no known cultural resources are present at the Project sites.

a. No Impact

CEQA Guidelines Section 15064.5 requires the lead agency (EBMUD) to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register of Historical Resources (California Register) or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California.

The Project footprint would be limited to the existing stockpile sites, where no historical resources are present. Therefore, the Project would have no potential to cause a substantial adverse change in the significance of a historical resource. No impact would occur.

b. Less than Significant Impact

The Project would involve vehicle and equipment use within the existing bounds of the highly disturbed stockpile sites. The Project would not require construction or excavation; no ground disturbance would occur. Thus, the Project would not involve activities that would have the potential to result in inadvertent discovery of buried archaeological resources. As a result, the

Project would not have the potential to cause a substantial adverse change in the significance of an archaeological resource, and the impact would be less than significant.

c. Less than Significant Impact

As described under Impact b, above, the Project would not involve ground-disturbing activities. If, however, human remains were found during Project operation, EBMUD would be required by law to adhere to regulations outlined in the California Health and Safety Code Section 7050.5. In accordance with this section, in the event of unanticipated discovery of human remains, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner. As required by law, EBMUD will work with the most likely descendant to implement the recommendations for treatment of the remains. EBMUD would adhere to existing statutory requirements, and the impact would be less than significant.

3.5.6 Energy

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
6. ENERGY. 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?	☐	☐	☒	☐
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion

As discussed in Section 3.5.3, Air Quality, the CalEEMod version 2022.1 was used to quantify construction and operational emissions of criteria air pollutants and precursors for the Project. The CalEEMod quantifies direct emissions from off-road construction equipment inventory and usage, frequency of import and off-haul events, project-generated truck and worker commute trips, and travel distances for each trip category.

a. Less than Significant

Operation of the Project would require the use of machinery and vehicles, which are discussed in Chapter 2, Project Description, including a breakdown of equipment use by Project activity in Table 2-3. The Project would require the use of an excavator, D6 dozer, D8 dozer, water truck and a sweeper. While the precise amount of construction energy consumption is uncertain, use of these fuels would be consistent with typical construction and manufacturing practices and would not be wasteful or unnecessary because doing so would not be economically sustainable for contractors. Vehicles and equipment would comply with federal standards for vehicle fuel efficiency because all vehicles and machinery that are sold in the U.S. must meet those standards. The Project would increase the import of trench soil to the Miller Road stockpile site; increase the import and off-haul of backfill materials at the rock and sand stockpile site; and require smaller off-haul events at regular intervals to remove stockpiled soils at the Miller Road stockpile site. Operational energy use would be similar to the existing operational energy use of the site, despite the increased aforementioned level of activities, due to advances in energy efficiency of equipment resulting in a less than significant impact.

b. No Impact

The Project would comply with federal standards for vehicle fuel efficiency because all vehicles and machinery that are sold within the U.S. are required to meet those standards. EBMUD has long been committed to renewable energy generation and wise energy use, and generates energy through hydropower, solar power, and biogas production at its wastewater treatment plant. The Project would neither affect the generation nor use of renewable energy. Therefore, there would be no impact associated with conflicts with energy plans and policies related to renewable energy or energy efficiency.

3.5.7 Geology and Soils

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
7. GEOLOGY AND SOILS. 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.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
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?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Discussion

This section describes the existing geologic and paleontological environmental setting in the Project area based on review of published reports and maps, including a 1998 geotechnical investigation report prepared by the EBMUD for the Miller Road stockpile site. This section also

discusses the applicable regulatory framework and assesses the Project's impacts related to geology, soils, seismicity, and paleontological resources.

Impact Evaluation

a. Less than Significant Impact

The Project stockpile sites are located within the Coast Ranges geomorphic province, which includes numerous active faults identified by the California Geological Survey (CGS) under the Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of known active faults and to issue appropriate maps. CGS defines an active fault as one that has ruptured during the Holocene Epoch (i.e., the last 11,000 years). The entire Bay Area is within the San Andreas Fault Zone, a complex of active faults. Numerous historical earthquakes have been generated in Northern California on faults within the San Andreas Fault Zone. The major active faults that are closest to the Project stockpile sites are the Hayward (2.8 miles away), Calaveras (5.6 miles away), and San Andreas (21 miles away) faults (CDOC 2024b).

(i) Surface Fault Rupture

A surface rupture occurs when fault movement breaks through to the surface and is expected to occur along known active fault traces. Areas susceptible to surface fault ruptures are delineated by the CGS Alquist-Priolo Earthquake Fault Zones. The Project stockpile sites are not located within an Alquist-Priolo Earthquake Fault Zone (CDOC 2024b). The nearest Alquist-Priolo Earthquake Fault Zone is the Hayward Fault Zone approximately 2.8 miles southwest of the Project stockpile sites. No impact would occur.

(ii) Seismic Ground Shaking

Seismic ground shaking generally refers to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions.

The Working Group on California Earthquake Probabilities and the U.S. Geological Survey (USGS) have predicted the following probabilities of a Moment Magnitude (MW) 6.7 or greater earthquake occurring on Bay Area faults between 2014 and 2043 (USGS 2016):

- 33 percent probability on the Hayward Fault;
- 22 percent probability on the San Andreas Fault; and
- 72 percent total probability on one of the regional Bay Area faults.

Earthquakes this large can cause widespread damage to structures. The Project would not introduce new structures that would be susceptible to strong ground shaking. No impact would occur.

(iii) Seismic-Related Ground Failure

Liquefaction and lateral spreading are types of ground failure that can be triggered by a seismic event. Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state due to seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary or a creek bank. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface toward a free face. The lateral spreading hazard tends to mirror the liquefaction hazard for a site when a free face is present.

According to the 1998 geotechnical investigation report, the Miller Road stockpile site is predominantly underlain by approximately 20 feet of fill materials generally consisting of medium-dense clayey, sand silts and silty clays (EBMUD 1998). The fill materials are underlain by bedrock composed of shale, siltstone, and sandstone. The trench soil that are present above the fill materials consist of soil mixed with concrete, asphalt, and gravel. The fill materials and trench soil have a low liquefaction potential.

The native alluvial soils located around the Miller Road stockpile site area, including along the San Leandro Creek bank, consist of medium stiff to stiff sandy clay, and medium dense to dense clayey or silty sand with occasional layers of loose to medium dense sand and gravel. The loose to medium dense sand lenses within the alluvial materials have a high liquefaction potential when saturated. However, due to the discontinuous and random nature of the lenses, the extent of liquefaction would be expected to be limited. Seismic-related ground failures, if they were to occur, would not be large enough to block creek flow or to affect overall stability of the trench soil (EBMUD 1998).

The native soils underlaying and/or surrounding the rock and sand stockpile site likely have a similar liquefaction potential to the Miller Road stockpile site based on the proximity of the stockpile sites to each other and San Leandro Creek. Therefore, impacts associated with ground failure during a seismic event would be less than significant.

(iv) Landslides

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. Areas susceptible to landslides are characterized by steep slopes and downslope creep of surface materials.

The 1998 geotechnical investigation report found that maintaining a stockpile slope of 3H:1V would provide adequate slope stability under static and seismic conditions. According to EBMUD's current Stockpile Operations Plan, a 3H:1V slope is currently maintained at the Miller

Road stockpile site and trench soil are compacted in approximate 1-foot-thick layers with three to five passes using a dozer or compacter to maintain slope stability (Terraphase Engineering Inc. 2021). The Project would continue to implement the slope stability protocols identified in the Stockpile Operations Plan. The maximum capacity of the rock and sand stockpile (2,000 CY) is substantially less than the Miller Road stockpile (125,000 CY) and would not pose a risk related to landslides under the Project. Therefore, impacts associated with landslides would be less than significant.

b. Less than Significant

Soil erosion is discussed in greater detail in Section 3.5.10, Hydrology and Water Quality. As detailed in the Project Description, the Project would continue to adhere to the existing SWPPP. EBMUD's existing SWPPP identifies erosion controls for the Miller Road stockpile site, such as implementation of hydroseeding and drainage swales (EBMUD 2019). The rock and sand stockpile area is covered with coarse sand and gravel to prevent erosion. The Project would continue to implement erosion controls in accordance with the SWPPP and would not substantially alter existing stormwater runoff for the stockpile sites. Therefore, impacts associated with substantial soil erosion, or the loss of topsoil would be less than significant.

c. Less than Significant

Subsidence or Collapse

Subsidence or collapse can result from the removal of subsurface water resulting in either catastrophic or gradual depression of the surface elevation of the Project site. The Project would not include groundwater pumping or removal. No impact would occur.

Settlement

The Project does not propose new structures and there are no existing structures located on or adjacent to the existing stockpile sites that could be affected by settlement. No impact would occur.

Liquefaction, lateral Spreading, and Landslides

As discussed above, the Project's potential impacts related to liquefaction, lateral spreading, and landslides would be less than significant.

d. No 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 percent change of the soil volume. The Project does not propose new structures and there are no existing structures located on or adjacent to the existing stockpile sites that could be affected by settlement. No impact would occur.

e. No Impact

The Project stockpile sites do not have existing or proposed septic tanks or alternative wastewater disposal systems. No impact would occur.

f. No Impact

The Project would not excavate or disturb the existing native soils at the stockpile sites. No impact would occur.

3.5.8 Greenhouse Gas Emissions

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
8. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Climate change refers to change in the Earth's weather patterns, including the rise in temperature because of an increase in heat-trapping GHGs in the atmosphere. Existing GHGs allow about two-thirds of the visible and ultraviolet light from the sun to pass through the atmosphere and be absorbed by the Earth's surface. To balance the absorbed incoming energy, the surface radiates thermal energy back to space at longer wavelengths, primarily in the infrared part of the spectrum. Much of the thermal radiation emitted from the surface is absorbed by the GHGs in the atmosphere and is re-radiated in all directions. Because part of the re-radiation is back toward the Earth's surface and the lower atmosphere, the global surface temperatures are elevated above what they would be in the absence of GHGs. This process of trapping heat in the lower atmosphere is known as the greenhouse effect.

An increase of GHGs in the atmosphere affects the energy balance of the Earth and results in a global warming trend. Increases in global average temperatures have been observed since the mid-twentieth century and have been linked to observed increases in GHG emissions from anthropogenic sources. The primary GHG emissions of concern are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Other GHGs of concern include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), but their contributions to climate change is less than one percent of the total GHGs that are well-mixed (i.e., that have atmospheric lifetimes long enough to be homogeneously mixed in the troposphere) (IPCC 2013). Each GHG has a different global warming potential. For instance, CH_4 traps about 28 times more heat per molecule than CO_2 (IPCC 2014). Therefore, GHG emissions are reported in metric tons of carbon dioxide equivalent (CO_2e), wherein each GHG emission is weighted by its global warming potential relative to CO_2.

According to the Intergovernmental Panel on Climate Change (IPCC), over the past few hundred years, the atmospheric concentrations of CO_2 have increased to unprecedented levels. Fossil fuels combustion and industrial processes account for the largest share and growth in gross GHG emissions (IPCC 2023). According to the BAAQMD, some of the effects of increased GHG emissions and associated climate change may include loss of snowpack (affecting water supply), more frequent extreme weather events, more large forest fires, more drought years,

and sea-level rise. In addition, climate change may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health (BAAQMD 2017)

California has established the following long-term climate action goals:

- **Assembly Bill (AB) 32:** Reduce GHG emissions to 1990 levels by 2020. The state achieved its 2020 GHG emissions reductions target of returning to 1990 levels four years earlier than mandated by AB 32 (CARB n.d.).
- **Senate Bill (SB) 32:** Reduce GHG emissions to 40 percent below 1990 levels by 2030.
- **AB 1279:** Achieve carbon neutrality as soon as possible, but no later than 2045 and maintain net negative GHG emissions thereafter; and reduce GHG emissions to 85 percent below 1990 levels by 2045.

In 2008, EBMUD adopted a climate change objective in its Strategic Plan. In 2014, EBMUD updated its Climate Change Monitoring and Response Plan to inform future planning of water supply, water quality, and infrastructure planning, and to guide GHG mitigation efforts (EBMUD 2014). In 2023, EBMUD's Energy Policy (Policy 7.07) was updated to achieve carbon neutrality for GHG emissions from both the water and wastewater systems by 2030. In 2024, EBMUD prepared an updated Climate Action Plan that includes mitigation actions to reduce EBMUD's GHG emissions, as well as adaptation plans to cope with the inevitable changing conditions to ensure resilience.

a. Less than Significant

Operation of the Project would generate GHG emissions from several sources, such as operation of on-site off-road construction equipment, off-site truck trips, and worker commute trips. The Project involves three operational components, including a gradual increase in the volume of trench soil imported to the Miller Road stockpile site, an increase in the import and off-haul of backfill materials at the rock and sand stockpile site, and removal of stockpiled trench soil (referred to as off-haul events) approximately every 5 years but potentially every 1 to 2 years. The increases in annual import and export volumes would increase the off-site truck trips, while the worker commute trips and off-road construction equipment usage would be similar to existing conditions. To be conservative, all trucks used for the Project are assumed to be heavy-duty diesel trucks.

The BAAQMD does not have a quantitative threshold of significance for GHG emissions; therefore, the estimated net increase in GHG emissions from Project operations is provided for informational purposes and potential impacts related to GHG emissions are discussed qualitatively. Based on Project-specific information, GHG emissions from Project operation were calculated for the 2030 Project condition regarding trip generation and off-road construction equipment usage using the California Emissions Estimator Model (CalEEMod) version 2022.1 and its associated methodologies. Since routine off-haul events may begin as early as 2025, year 2025 emission factors were used in this analysis to be conservative because

statewide vehicle emission standards are required to improve over time, so estimating emissions for the earliest year of operation provides the maximum expected annual emissions. To be conservative, GHG emissions from the existing operations of the Miller Road stockpile site and the rock and sand stockpile site were not estimated and subtracted from the Project's estimated GHG emissions. As discussed in Section 3.5.3 Air Quality, under the worst-case scenario, the Project would generate in total approximately 6,400 truck roundtrips[7] and 292 roundtrip worker commute trips per year.

As shown in Table 3-6, the Project's estimated GHG emissions from operation would total approximately 373.7 metric tons CO_2e per year during an off-haul event year. The input parameters, assumptions, and calculations for estimating GHG emissions from off-road heavy construction equipment and the CalEEMod reports for estimating GHG emissions from mobile sources are provided in Appendix B.1.

Table 3-6 Maximum Annual GHG Emissions from Project Operation

Project Component	GHG Emissions (Metric Tons CO_2e)
Import to Miller Road Stockpile Site Trench Soil	62.2
Import and Off-Haul of Rock and Sand Stockpiles	62.2
Miller Road Off-Haul Events	282.4
Total	**406.8**

As noted previously, the BAAQMD does not have a quantitative threshold of significance for GHG emissions and climate change is not caused by any individual emissions source but by a large number of sources around the world emitting GHGs that collectively create a significant cumulative impact. CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a "cumulatively considerable" contribution to the significant cumulative impact on climate change. The BAAQMD's CEQA Air Quality Guidelines include recommended thresholds of significance for GHG emissions from typical land use projects that are intended to assist public agencies in determining whether proposed projects would make a cumulatively considerable contribution to global climate change, as required by CEQA (BAAQMD 2022). The thresholds identify design elements that an individual project needs to incorporate to do its "fair share" in achieving the State's goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. The GHG thresholds for typical land use projects include two options, as follows:

Option 1. Projects must include, at a minimum, the following project design elements:

[7] Import of trench soil to Miller Road Stockpile Site and backfill material delivery to the rock and sand stockpile site would each generate 1,100 truck trips per year and the off-hauling event would generate 4,200 truck trips per event.

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.

Transportation

a) Achieve compliance with electric vehicle (EV) requirements in the most recently adopted version of CALGreen Tier 2.
b) Achieve a reduction in project-generated vehicle miles travelled (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 target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
    - Residential projects: 15 percent below the existing VMT per capita
    - Office projects: 15 percent below the existing VMT per employee
    - Retail projects: no net increase in existing VMT

Option 2. Be consistent with local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

The thresholds described under Option 1 were developed for typical residential and commercial land use development and have limited applicability to the Project. For example, the BAAQMD's Option 1 design elements for buildings and EV parking infrastructure are not applicable to the Project because the Project would not construct buildings or parking spaces. However, the VMT reduction goal under Option 1 is applicable to the Project and evaluated below. Alameda County and EBMUD do not have a local GHG Reduction Strategy that meets the Option 2 criterion.

The BAAQMD's VMT reduction goal under Option 1 is based on the Office of Land Use and Climate Innovation (LCI) which was previously the Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018). The Technical Advisory defines VMT as the amount and distance of travel attributable to a project, pursuant to section 15064.3(a) of the CEQA Guidelines. Vehicle trips generated during Project operation would include passenger vehicle trips for employee commute as well as truck trips. The VMT reduction goal under Option 1 is applicable only to the employee commute VMT that would be generated by the Project; the term *automobile* is defined to include cars and light duty trucks. As mentioned above, the worker commute trips associated with the import of trench soil to the Miller Road stockpile site and import and export of backfill materials to the rock and sand stockpile site would be similar to the existing conditions. The off-haul events would occur every 5 years, but potentially every 1 to 2 years and generate approximately 240 additional worker

commute roundtrips (480 worker commute one-way trips) per event. For an off-haul event year, this would result in an annual net increase in GHG emissions that would be equivalent to approximately 1 to 2 additional worker commute one-way trip per day, which is considered a negligible increase in Project-generated VMT compared to existing conditions. Because the net increase in Project-generated VMT associated with employee commute trips is negligible, the Project would not conflict with the VMT reduction goal.

In summary, the Project would be consistent with the applicable BAAQMD's CEQA Guidance design element necessary to help achieve the statewide goal of carbon neutrality by 2045. Therefore, the Project would not generate a net increase in GHG emissions that would, either directly or indirectly, have a significant impact on the environment. The impact would be less than significant.

b. Less than Significant

Consistency with 2022 Scoping Plan

In December 2008, the CARB adopted the Climate Change Scoping Plan to identify how the State can achieve its 2020 climate action goal under AB 32. The state achieved its 2020 GHG emissions reductions target of returning to 1990 levels four years earlier than mandated by AB 32 (CARB, n.d.). In 2017, CARB updated the Scoping Plan to identify how the State can achieve its 2030 climate action goal under SB 32 and substantially advance toward its 2050 climate action goal under Executive Order S-3-05. The state is currently implementing strategies in the 2017 Scoping Plan Update to further reduce its GHG emissions by 40 percent below 1990 levels by 2030 (CARB, n.d.). The 2017 Scoping Plan includes the regulatory programs such as the Advanced Clean Cars Program, Low-Carbon Fuel Standard, Renewable Portfolio Standard Program, and energy efficiency standards (CARB 2017).

In December 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality, which outlines a roadmap to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045 (CARB 2022). Building on the 2017 Scoping Plan, the 2022 Scoping Plan evaluates the progress made toward meeting the 2030 GHG reduction target established in SB 32 and identifies a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045. The 2022 Scoping Plan presents an approach for an aggressive reduction of fossil fuels and a rapid transition to renewable energy resources and zero-emission vehicles. The 2022 Scoping Plan identifies actions and outcomes such as rapidly moving to zero-emission transportation; electrifying cars, buses, trains, and trucks; phasing out the use of fossil gas used for heating homes and buildings; clamping down on chemicals and refrigerants; providing communities with sustainable options for walking, biking, and public transit; building out clean, renewable energy resources (such as solar arrays and wind turbine capacity) to displace fossil-fuel fired electrical generation; and scaling up new options such as renewable hydrogen and biomethane.

The trucks used for the Project would be subject to State regulations, strategies, and plans to reduce GHG emissions, such as Truck and Bus Regulation and Advanced Clean Fleets

Regulation. The Truck and Bus Regulation, as amended in 2014, requires heavy-duty diesel vehicles that operate in California to reduce TACs emissions from their exhaust. As of January 1, 2023, nearly all trucks and buses are required to have 2010 or newer model year engines, to reduce particulate matter and oxides of nitrogen emissions, which also will help to reduce GHG emissions. Under the CARB's Advanced Clean Fleets Regulation, California State and local government fleets would be required to ensure 50 percent of vehicle purchases are zero-emissions beginning in 2024 and 100 percent of vehicle purchases are zero-emissions by 2027. EBMUD will comply with the Advanced Clean Fleets Regulation. After 2027, all purchased medium- and heavy-duty vehicles will be 100 percent zero-emissions (EBMUD 2024), supporting the transition from internal combustion to zero-emission vehicles and will not conflict with CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (CARB 2022). Therefore, the Project would comply with the State GHG emissions reduction strategies for on-road vehicles. In addition, according to the 2024 Climate Action Plan Update, EBMUD has also transitioned from petroleum diesel to nearly 100 percent renewable diesel for its medium- and heavy-duty fleet, reducing GHG emissions (EBMUD 2024). In summary, the Project would not conflict with the 2022 Scoping Plan, and the impact would be less than significant.

Consistency with Alameda County CAP 2026

In May 2010, Alameda County adopted the Alameda County Climate Action Plan (CAP) for Government Services and Operations Through 2020 (Alameda County 2020) including 16 Commitments to Climate Project that aim to reduce GHG emissions associated with providing government services by 15 percent to 30 percent below 2003 levels by 2020. The CAP 2020 goal was met in 2019. The updated CAP, Alameda County Climate Action Plan for Government Services and Operations Through 2026 (Alameda County 2023), was adopted by Alameda County in May 2023. Aligning with the State's long-term climate action goals, CAP 2026 set a goal to achieve carbon neutrality by 2045 and contains six action areas including building environment, community resilience, green economy and prosperity, sustainable materials management, transportation, and climate leadership and governance. The CAP 2026 focuses on actions that need to be taken between 2023 to 2026.

The CAP 2026 Transportation Measure – Green Fleet aims to reduce transportation-related emissions via transitioning Alameda County fleet away from internal combustion engine vehicles to ZEVs. For the transition from internal combustion to ZEV, EBMUD would comply with the applicable State regulations, strategies, and plans, such as the Advanced Clean Cars Regulation and the Advanced Clean Fleet Regulation. According to the 2024 Climate Action Plan Update, EBMUD's present light-duty fleet consists of 402 vehicles in total, including 70 hybrid vehicles and 14 ZEVs. Starting in 2024, hybrid and internal combustion engine vehicles surpassing 100,000 VMT will generally be replaced with ZEVs. As required by the Advanced Clean Fleets Regulation, all vehicle purchases will be ZEVs after 2027. The EBMUD fleet used for this Project would be consistent with the CAP 2026 Transportation Measure – Green Fleet. The Project would not conflict with CAP 2026, and the impact would be less than significant.

3.5.9 Hazards and Hazardous Materials

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
9. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Discussion

This section describes the existing conditions in the Project area related to hazards and hazardous materials based on review of published reports and maps discussed below. This section also discusses applicable plans and guidelines implemented by EBMUD to manage hazardous material concerns and assesses the Project's potential impacts related to hazards and hazardous materials.

For the purposes of this section, the term *hazardous material* refers to both hazardous materials and hazardous wastes. The California Health and Safety Code section 25501(n) define

hazardous material as any material that because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous waste is any waste that meets the criteria for identification of a hazardous waste as set forth in California Code of Regulations, title 22, section 66261.3. A waste may be hazardous if it exhibits one or more of the characteristics of toxicity, reactivity, corrosivity, or ignitability, or if it is included on a specific list of wastes the U.S. EPA and/or Department of Toxic Substances Control (DTSC) has determined are hazardous because the waste poses substantial present or potential hazards to human health or the environment.

Impact Evaluation

a. Less than Significant

A hazardous material is any substance or material that could adversely affect human health or the environment, such as petroleum products. Hazardous wastes are hazardous materials that no longer have practical use (e.g., waste oil) or are discarded or released into the environment. The Project proposes to increase the import and export of materials at the stockpile sites, which would result in a net increase in petroleum products (e.g., diesel and oil) used for operation of trucks and off-road equipment. However, the Project would not include the storage of fuel, waste oil, or other types of hazardous materials at the stockpile sites.

Hazardous materials handling, disposal, and transport must occur in accordance with applicable federal, state, and local regulations. Hazardous materials must be transported to and from the Project site in accordance with Resource Conservation and Recovery Act (RCRA) and U.S. Department of Transportation (U.S. DOT) regulations, managed in accordance with the Alameda County Department of Environmental Health's Certified Unified Program Agency (CUPA) programs, and disposed of in accordance with RCRA and the California Code of Regulations at a facility that is permitted to accept the waste. Workers handling hazardous materials are also required to adhere to federal Occupational Safety and Health Administration (OSHA) and California Division of Occupational Safety and Health Administration (CAL OSHA) health and safety requirements. In addition to complying with federal, state, and local regulations, as detailed in the Project Description, the Project would continue to adhere to the existing SWPPP.

In accordance with EBMUD's existing SWPPP, spill kits would be available on equipment with hydraulics used at the stockpile sites (Pacific States Environmental Contractors, Inc. 2019). Additionally, the existing SWPPP, requires the preparation of a Spill Prevention and Emergency Response Plan to specify methods for preventing and controlling the accidental release of hazardous materials (EBMUD 2019). The Project does not propose any other activities that

would involve the routine transport, use, or disposal of significant quantities of hazardous materials, and the Project would continue to implement the existing SWPPP for the stockpile sites. Therefore, impacts associated with the routine transport, use, or disposal of hazardous materials would be less than significant.

b. Less than Significant

As discussed above, the Project involves the routine use of fuels for trucks and off-road equipment to manage trench soil at the stockpile sites. An accidental release of petroleum (e.g., hydraulic oil) from trucks or off-road equipment used at the stockpile sites could potentially create a significant hazard to the public or the environment if not properly managed. In accordance with the EBMUD's existing SWPPP, equipment with hydraulics must be equipped with spill kits to cleanup any petroleum products accidentally released during Project operations (EBMUD 2019).

Excavated trench soil could potentially be contaminated and accidently introduced to the stockpile sites if not properly evaluated. According to the EBMUD's Trench Soils Program Guidelines, contaminated trench soils and trench soils from Areas of Concern (AOC)[8] are not permitted for stockpiling at the Miller Road stockpile site (EBMUD 2022). Trench soil site investigations are required for all planned jobs with the potential for encountering contaminated trench soils and/or if the work is being performed in an AOC. The investigation results are then used to determine appropriate management and disposal methods for the excavated trench soil. Trench soil excavated outside an AOC may only be stockpiled at the Miller Road site if no evidence of contamination, such as odors or staining, is detected during excavation.

The Project would continue to implement the existing SWPPP and the Trench Soils Program Guidelines for the stockpile sites. Therefore, impacts associated with the foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be less than significant.

c. No Impact

The Project stockpile sites are not located within one-quarter mile of an existing or proposed school. No impact would occur.

d. No Impact

The Project stockpile sites are not included on any of the lists of hazardous material release sites compiled in accordance with Government Code section 65962.5 (also known as the Cortese List) (DTSC n.d.; SWRCB n.d.; CalEPA n.d.). No impact would occur.

[8] AOC include, but are not limited to, industrial areas, current and former clean-up sites, areas with land use restrictions, and areas immediately adjacent to older freeways (where there is an increased potential for lead contamination of soil).

e. No Impact
The Project site is not located within an airport land use plan or within 2 miles of where a plan has been adopted. No impact would occur.

f. No Impact
The Project stockpile sites would not impair implementation or physically interfere with the Alameda County Emergency Operations Plan due to the remote location of the sites (Alameda County 2012). The Project would not close or block any roads required for emergency response during operation of the stockpile sites. No impact would occur.

g. Less than Significant
According to the California Department of Forestry and Fire Protection (CAL FIRE) the Project stockpile sites are located in a Very High Fire Hazard Severity Zone for a State Responsibility Area (CAL FIRE 2024). While the Project would gradually increase operations of the Miller Road stockpile site and its associated rock and sand stockpile site, the Project would not introduce new types of equipment or operations that could potentially generate a substantial increase in the risk of wildfire hazards. Therefore, impacts related to the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires would be less than significant.

3.5.10 Hydrology and Water Quality

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
10. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
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:				
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?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

The Project site is surrounded by the Upper San Leandro Reservoir to the north, Miller Creek to the east, and San Leandro Creek to the west. The Project is located within the San Leandro Creek Watershed (Alameda County Flood Control District, n.d.).

a. Less than Significant

The San Leandro Creek and Upper San Leandro Reservoir are listed as impaired on the SWRCB section 303(d) list. San Leandro Creek is impaired by several types of pesticides, metals,

nutrients, pathogens, trash, and toxic organics, while the Upper San Leandro Reservoir is impaired by pesticides, metals, and toxic organics (SWRCB 2018).

The Project supports EBMUD's efforts to repair and replace pipeline infrastructure under EBMUD's pipeline replacement program. The Project would gradually increase operations of the Miller Road stockpile site and its associated rock and sand stockpile site to meet anticipated needs to support EBMUD's pipeline replacement projections throughout its service area. The Project would not require excavation, nor would the Project require construction of any structures. Additionally, no potable water discharges would result from the Project, and the Project would not increase impervious surfaces to implement Project activities.

The Project site would continue to be maintained in a manner that keeps it clean and free of trash and other debris. Backfill materials and soil transported under the Project would be clean and inert (i.e., non-hazardous) and would not be expected to introduce pollutants that could impact surface or groundwater quality. As discussed in Section 3.5.9, Hazards and Hazardous Materials, the Project would involve the routine use of fuels for trucks and off-road equipment to manage trench soils at the stockpile sites. Project activities could result in an accidental release of petroleum (e.g., hydraulic oil) from trucks or off-road equipment used at the stockpile sites and could potentially create a significant hazard to the public or the environment if not properly managed. As detailed in the Project Description, the Project would continue to adhere to the existing SWPPP. In compliance with the existing SWPPP for the Project, during the rainy season (October 15 through April 15), EBMUD would implement sediment control BMPs, including preservation of existing vegetation, performing soil compaction, stabilization of non-active disturbed areas, grading to minimize steep slopes, permanent stabilization of areas after final completion of Project activities, performing checks on the Upper San Leandro Dam, and the use of fiber rolls when necessary (EBMUD 2019). Additionally, Project vehicles and equipment with hydraulics would be equipped with spill kits to prevent the transport of pollutants offsite should an accidental release occur. Therefore, impacts on water quality standards or waste discharge during Project operation would be less than significant.

b. No Impact

The Project would not require excavation or ground disturbance below existing grade and would not impact groundwater supplies. A water truck would be used daily on Miller Road to reduce dust from soil removal trucks. Water for the truck would come from an EBMUD hydrant and would not require the use of groundwater. No impact would occur.

c. i, ii, iii, iv Less than Significant

The Project would not involve grading or excavation below existing grade and would not increase impervious surfaces, nor would the Project change the course of any waterway or alter drainage patterns at the Project site. Project activities at the Miller Road stockpile site would occur approximately 50 feet from the San Leandro Creek and associated riparian zone, however there is an approximately 3-foot-tall earthen berm separating the creek from the stockpile site to prevent potential runoff into the creek. As detailed in the Project Description, the Project would

continue to adhere to the existing SWPPP. In compliance with EBMUD's existing SWPPP for the Project, EBMUD is required to implement specific erosion and sediment control BMPs during the rainy season (October 15 through April 15), including preservation of existing vegetation, performing soil compaction, stabilization of non-active disturbed areas, grading to minimize steep slopes, permanent stabilization of areas after final completion of Project activities, performing checks on the Upper San Leandro Dam, and the use of fiber rolls when necessary. The SWPPP Measure WM-4 requires spill prevention and control including processes that would be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response processes include notification of EBMUD and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup (EBMUD 2019). The Project would not create or contribute runoff water which would a) result in substantial erosion or siltation on or off site, b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site, c) 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 d) impede or redirect flood flows. Impacts would be less than significant.

d. Less than Significant

The Project stockpile sites are located sufficiently inland to be out of what would be considered a potential hazard area for seiches, tsunamis, and sea level rise. (CDOC, n.d.; FEMA, 2020). Further, the Project stockpile sites are not located in flood hazard zones, as mapped by the FEMA Flood Map Service Center. The Project stockpile sites are within the dam inundation area for the Upper San Leandro Dam and its spillway, however as stated above, backfill materials and soil transported under the Project would be clean and inert (non-hazardous) and would not be expected to introduce pollutants at the site (California Department of Water Resources (DWR), n.d.). Therefore, impacts associated with flood hazards, tsunamis, or seiche zones, or risk release of pollutants due to project inundation would be less than significant.

e. Less than Significant

The Project would not include any discharges to surface waters and would not require the use of groundwater; therefore, the Project would not interfere with the implementation of a water quality control plan or sustainable groundwater management plan. A water truck would be used daily on Miller Road to reduce dust from soil removal trucks. Water for the truck would be sourced from an EBMUD hydrant and would not require the use of groundwater.

As detailed in the Project Description, the Project would continue to adhere to the existing SWPPP. As discussed under Impacts a. and c. above, in compliance with the Project's existing SWPPP requirements, EBMUD would implement sediment control BMPs during the rainy season (October 15 through April 15), including preservation of existing vegetation, performing soil compaction, stabilization of non-active disturbed areas, grading to minimize steep slopes, permanent stabilization of areas after final completion of Project activities, and the use of fiber rolls when necessary (EBMUD 2019). The Project would not add any impervious area to the Project site and no stormwater flow onto the Project site is anticipated. Additionally, as stated above, the approximately 3-foot-tall earthen berm located at the Miller Road stockpile site

would reduce the potential for runoff from the stockpile site into the adjacent creek. Backfill materials and soil transported under the Project would be clean and inert (non-hazardous) and would not be expected to introduce pollutants at the Project site during precipitation events California Department of Water Resources (DWR, n.d.). Therefore, impacts would be less than significant.

3.5.11 Land Use and Planning

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
11. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☒	☐

Discussion

The Project stockpile sites are designated as Resource Management (RM) by the Castro Valley Area Plan of the Alameda County General Plan (Alameda County 2012), and zoned for Agriculture (A). The Project stockpile sites are located on lands owned by EBMUD and are currently in use for trench soil, rock, and sand stockpiles.

a. No Impact

The Project would be located at existing sites which are currently used for trench soil management, and the Project would not develop new land or facilities that would have the potential to divide a community. Therefore, the Project would not have the potential to physically divide an established community, and there would be no impact.

b. Less than Significant Impact

Castro Valley Area Plan of the Alameda County General Plan policies for RM lands relate to topics such as agricultural processing facilities, development on ridgelines and hilltops, clustering structures, and other topics applicable to new development (Alameda County 2012). None of the policies in the Castro Valley Area Plan would apply directly to the Project. Land uses allowed on parcels with the RM designation (including the EBMUD-owned Project site), are described in the Castro Valley Area Plan. Allowable uses on RM lands include agriculture, recreation, habitat protection, watershed management, public and quasi-public uses, secondary residential units, active sand and gravel and other quarries, reclaimed quarry lakes, and similar and compatible uses. The Project would have features in common with allowable uses, such as stockpiling of aggregate material, equipment use, and regular haul trips, and would be considered a similar and compatible use with the RM designation.

As described in Section 3.5.2 Agriculture and Forestry, public utility uses are considered a conditionally permissible use in areas zoned for Agriculture. The Project would facilitate EBMUD's continued replacement of critical public utility pipelines and would therefore be consistent with the applicable zoning. EBMUD will submit an application for a conditional use permit from Alameda County; the Project would be implemented in compliance with the conditional use permit and would thus be compliant with applicable zoning regulations.

Because the Project would obtain a conditional use permit and would be operated in compliance with the permit, the Project would not 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, and the impact would be less than significant.

3.5.12 Mineral Resources

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
12. MINERAL RESOURCES. 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a and b. No Impact

The Castro Valley Area Plan of the Alameda General Plan does not identify significant mineral resources or active mining sites within its planning area boundaries, including the Project stockpile sites and haul routes (Alameda County 2012). The California Department of Conservation Division of Mines and Geology has not identified any mineral resource zone (MRZ) overlying the Project site (Stinson, et. al 1987). The Project would not take place in an area with known mineral resources, including those identified on land use plans. The Project would not expand the footprint of the existing stockpile sites and, therefore, would not have the potential to make a known mineral resource unavailable. Therefore, Project activities would not have the potential to result in the loss of availability of a known mineral resource that would be of value to the region and residents of the State, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. No impact would occur.

3.5.13 Noise

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
13. NOISE. 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?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Background Information

Noise is commonly defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. Sound is measured in decibels (dB), which is a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure, but they cannot accurately describe sound as perceived by the human ear since the human ear is only capable of hearing sound within a limited frequency range. For this reason, a frequency-dependent weighting system is used, and monitoring results are reported in A-weighted decibels (dBA). Although a measured A-weighted noise level will adequately indicate the level of environmental noise at any instant in time, noise levels in populated communities typically vary by time. Equivalent sound level (L_{eq}) is a commonly used noise metric that is defined as the average A-weighted noise level during the measurement period of time. For this CEQA evaluation, L_{eq} refers to a 1-hour period.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people (Caltrans 2013):

- A 3 dBA increase is considered barely perceptible.
- A 5 dBA increase is considered readily perceptible.
- A 10 dBA increase is perceived as a doubling in loudness.

Traffic noise levels are often expressed in terms of the hourly dBA. The noise levels generated by vehicular sources mainly depend on three factors: traffic volume, vehicle speed, and percent

of trucks within the fleet. Increases in these three factors will lead to higher noise levels and decreases in these factors will reduce the noise levels. Doubling the number of sources, such as the same types of vehicles, increases the noise level by approximately 3 dBA due to the logarithmic nature of noise levels (FHWA 2018). In an unconfined space, such as outdoors, noise attenuates with distance. Noise levels at a known distance from roadway traffic, a line source, are reduced by 3 dBA for every doubling of that distance for hard surfaces (e.g., asphalt) and by 4.5 dBA for every doubling of distance for soft surfaces (e.g., vegetative areas). Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance for hard surfaces and by 7.5 dBA for every doubling of distance for soft surfaces.

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Vibration amplitudes are usually expressed as either *peak particle velocity* (PPV) or the *root mean square* (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration. The RMS of a signal is the average of the squared amplitude of the signal and is more appropriate for evaluating human response to vibration. PPV is normally described in units of inches per second (in/sec), and RMS is often described in vibration decibels (VdB).

Vibration can be felt or heard by humans well below a level that would result in damage to a structure. Except for long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. People may tolerate infrequent, short-duration vibration levels, but human annoyance to vibration becomes more pronounced if the vibration is continuous or occurs frequently. According to the Federal Transit Administration (FTA), a vibration level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible (FTA 2018).

Setting

Existing Noise Environment

The Project site includes the Miller Road stockpile site and the rock and sand stockpile site located within EBMUD-owned watershed land in unincorporated Alameda County approximately 2.5 miles north of Castro Valley. The Project site is accessed via Redwood Road through Castro Valley and a portion of Miller Road that is closed to the public. The primary sources of noise in the vicinity of the Project site are on-site off-road equipment used for stockpile management and the import/export of materials, and trucks travelling on Miller Road.

The existing noise environment in the vicinity of Redwood Road is dominated by traffic noise. As noted in Section 3.5.17 Transportation, the existing average weekday traffic volume on

Redwood Road is approximately 17,000 vehicles near Somerset Avenue.[9] Approximately 3.3 percent of the total daily traffic volume is from trucks. The posted speed limit along Redwood Road is 35 miles per hour (mph). Using Federal Highway Administration Traffic Noise Model version 2.5 (TNM2.5), the existing day-night average sound level[10] is approximately 70 dBA at 50 feet from the vehicle pathway centerline of Redwood Road near Somerset Avenue. In addition, peak traffic periods were observed between 8 a.m. and 9 a.m. in the morning, and between 5 p.m. and 6 p.m. in the afternoon along Redwood Road. Using TNM2.5, the existing noise levels from vehicular traffic on Redwood Road during the a.m. and p.m. peak hours were estimated for four roadway segments, as presented in Table 3-7. The traffic model inputs and outputs are included in Appendix C.

Table 3-7 Existing (2024) Traffic Noise Levels along Redwood Road during AM and PM Peak Hours

Road segment		Traffic noise levels (dBA L_{eq} at 50 feet from centerline)	
		AM peak	PM peak
Redwood Road	North of Seven Hills Road	65.3	64.6
	Between Seven Hills Road and Castro Valley Road	66.9	67.3
	Between Castro Valley Road and I-580 West Ramps	68.8	69.8
	Between I-580 West Ramps and I-580 East Ramps	69.8	70.3

Sources: See Appendix C.

Sensitive Receptors

Noise-sensitive receptors typically include residences, motels and hotels, schools, libraries, houses of worship, hospitals, and convalescent homes. There are no sensitive receptors located in the vicinity of the Miller Road stockpile site and the rock and sand stockpile site. The nearest noise-sensitive receptors are residences located more than 5,300 feet to the east and northeast, more than 6,000 feet to the southeast, and more than 8,000 feet to the west of the Project site.

As discussed above, during Project operation, trucks would access the Miller Road stockpile site and the rock and sand stockpile site via Redwood Road and Miller Road. There are no noise-sensitive receptors located along the portion of Miller Road that would be used to access the Project site. Sensitive receptors in the vicinity of Redwood Road include the following:

- Residences as close as approximately 50 feet to the centerline of Redwood Road.
- Schools as close as approximately 55 feet to the centerline of Redwood Road, including three schools (Castro Velley High School, Redwood Christian Elementary Schools, and Proctor Elementary School) and two pre-schools (Redwood Forest Pre-School and A Kids Kingdom Pre-School).

[9] Traffic counts were calculated on May 16, 2024.

[10] Day-night average sound level is defined as the average A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.

- Castro Valley Library approximately 750 feet to the centerline of Redwood Road.
- Place of Worship as close as approximately 50 feet to the centerline of Redwood Road, including Faith Lutheran-Castro Valley, Redwood Chapel Community Church, and Congregation Shir Ami.
- Kenneth C Aitken Senior Center approximately 210 feet to the centerline of Redwood Road.

Vibration-sensitive receptors are locations where people are more susceptible to the adverse effects of vibration. These include residences and other buildings where people normally sleep, such as hotels and hospitals, as well as buildings that have the potential for activity interference, such as schools, places of worship, medical offices, concert halls, recording studios, and theatres (FTA 2018). In certain situations, vibration also can cause structural damage. There are no vibration-sensitive receptors located near the Miller Road stockpile site and the rock and sand stockpile site. Vibration-sensitive receptors near the haul route are the same as the noise-sensitive receptors discussed above.

Regulatory Settings Alameda County Noise Ordinance

Alameda County regulates noise via the County's Noise Ordinance (Code of Ordinance Chapter 6.60). Chapter 6.60.040 establishes exterior noise level standards based on receiving land use, as shown in Table 3-8, below. In addition, Chapter 6.60.050.B prohibits the generation of vibration levels above the vibration perception threshold at or beyond the property boundary of the source if on private property or at 150 feet from the source if on a public space or public right-of-way. Since there are no vibration-sensitive receptors within 150 feet to the Project site, and the nearest vibration-sensitive receptor is located more than 5,300 feet from the Project site, County Noise Ordinance threshold of perceptible vibration levels at 150 feet from the source is not applicable to the Project.

Table 3-8 Alameda County Exterior Noise Level Standards (dBA)

Cumulative number of minutes in any 1-hour time period	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Single- or multiple-family residential, school, hospital, church, and public library		
30	50	45
15	55	50
5	60	55
1	65	60
0	70	65
Commercial uses		
30	65	60
15	70	65

Cumulative number of minutes in any 1-hour time period	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
5	75	70
1	80	75
0	85	80

Source: Alameda County Code of Ordinance Chapter 6.60.040.

a. Less than Significant Impact

The Project does not include construction. The Project involves three operational components, including a gradual increase in the amount of trench soil imported to the Miller Road stockpile site, an increase in the import and export of backfill materials at the rock and sand stockpile site, and removal of stockpiled trench soil from the Miller Road stockpile site (referred to as off-haul events) approximately every 5 years with the potential for off-haul events every 1 to 2 years to respond to opportunities for beneficial soil reuse.

The primary source of noise during Project operation would be off-road equipment and truck activities on the Project site and Project-generated vehicle trips along the haul route. The increases in annual import and export amounts at the stockpile sites would increase truck trips, but the worker commute trips and off-road construction equipment usage would be similar to existing conditions. As discussed in Section 3.5.3 Air Quality, under the worst-case scenario, the Project's average daily truck trips and associated noise levels would be highest when all three Project components would occur concurrently on the same day. On such days, the Project would generate in total 228 truck roundtrips and 5 worker commute roundtrips per day. To be conservative, the noise levels generated by existing vehicle trips associated with the operations of the Miller Road stockpile site and the rock and sand stockpile site were not estimated as part of the existing setting and subtracted from the Project's estimated noise levels. Project operation would occur during the daytime. No nighttime work is expected for the Project.

Off-Road Equipment Noise

A dozer and excavator currently used at the Project site for trench soil import and import/export of backfill materials would continue to be used in a similar capacity for the Project. During an off-haul event, 2 dozers and 2 excavators would be used at the Project site, as well as a water truck and sweeper for dust control. The estimated noise level at the nearest noise-sensitive receptor, located 5,300 feet from the Miller Road stockpile site and the rock and sand stockpile site, is approximately 39 dBA, below the County Noise Ordinance exterior noise standard of 50 dBA (Noise calculations are provided in Appendix C). Therefore, the Project's operation of off-road equipment would not generate substantial noise levels at the nearest noise-sensitive receptors. The impact would be less than significant.

Vehicle Traffic Noise

Noise levels along the haul route would increase with the additional vehicle trips contributed by Project operations. The analysis focused on the noise impact on sensitive receptors along

Redwood Road because there are no sensitive receptors identified along Miller Road. As presented in Table 3-7, the existing ambient noise levels along Redwood Road range from 64.6 to 70.3 dBA Leq, which exceed the applicable Alameda County Noise Ordinance exterior noise standard listed in Table 3-8. Therefore, the analysis evaluates if the Project would result in a substantial permanent increase in traffic noise levels based on a conservative threshold of 3 dBA above the ambient conditions. A threshold of 3 dBA was selected because according to the noise criteria from Caltrans's Technical Noise Supplement (Caltrans 2013), a 3 dBA increase above ambient noise levels is considered barely perceptible.

The Project would generate a total of 68 one-way truck trips (34 inbound trips and 34 outbound trips) and 5 one-way worker commute trips during the a.m. peak hours and 66 one-way truck trips (33 inbound trips and 33 outbound trips) and 5 one-way worker commute trips during the p.m. peak hours, when all three Project components occur concurrently on the same day (i.e., a worst-case scenario). As presented in Table 3-7, the lowest estimated existing noise level from vehicle traffic along Redwood Road is 64.6 dBA Leq, which occurs north of Seven Hills Road during the p.m. peak period. Therefore, Project-generated traffic noise levels were calculated during the p.m. peak period to represent the highest traffic noise increase during Project operation. Traffic noise impacts are evaluated for the Existing plus Project condition, which is the 2024 condition plus the Project-generated trips, and the Future Baseline plus Project condition, which is the 2030 future baseline condition plus the Project-generate trips. [11] Traffic volumes during the p.m. peak period and associated traffic composition were used in TNM2.5 to estimate traffic noise levels for the Existing (2024) condition, Existing plus Project (2024) condition, Future Baseline (2030) condition, and Future Baseline plus Project (2030) condition. Traffic model inputs and outputs are included in Appendix C.

The estimated Existing (2024), Existing plus Project (2024), Future Baseline (2030), and Future Baseline plus Project (2030) traffic noise levels for the Redwood Road segments are summarized in Table 3-9. Based on these estimates, the Project would increase traffic noise by up to 2.9 dBA and 2.5 dBA along the Redwood Road under the worst-case scenario compared to the Existing (2024) condition and Future Baseline (2030) condition, respectively, which are below the conservative 3 dBA threshold. Therefore, the Project-generated traffic noise increase along the haul route would be less than significant.

[11] For modeling purposes, the Project's a.m. and p.m. peak hours truck trip generations were rounded up to 70 one-way trips (approximately 35 inbound trips and 35 outbound trips) which provides a conservative estimate for noise.

Table 3-9 Traffic Noise Levels along Redwood Road during PM Peak Hours

Road segment	Traffic noise levels (dBA L_{eq} at 50 feet from centerline)					
	Existing (2024)	Existing plus Project (2024)	Estimated increase (2024)	Future baseline (2030)	Future baseline plus Project (2030)	Estimated increase (2030)
Redwood Road North of Seven Hills Road	64.6	67.5	2.9	65.4	67.9	2.5
Redwood Road Between Seven Hills Road and Castro Valley Road	67.3	69.1	1.8	67.8	69.5	1.7
Redwood Road Between Castro Valley Road and I-580 West Ramps	69.8	70.9	1.1	70.3	71.3	1
Redwood Road Between I-580 West Ramps and I-580 East Ramps	70.3	70.8	0.5	70.6	71.1	0.5
Threshold	--	--	3	--	--	3
Exceed threshold?	--	--	No	--	--	No

Sources: See Appendix C.

b. Less than Significant Impact

The Project does not include construction. Operation of the Project includes import, temporary storage, and removal of trench soil (Miller Road stockpile site) or backfill materials (rock and sand stockpile site). Operation at the Project site would not involve equipment (such as vibratory rollers and crack-and-seat equipment) or activities (such as pile driving) that would generate excessive groundborne vibration or groundborne noise levels. Off-road construction equipment that would be used at the Project site include a dozer and excavator. According to FTA, typical vibration levels generated by a large bulldozer at a distance of 25 feet would be 0.089 inch per second, which is below the most conservative criteria of 0.12 inch per second recommended by FTA to prevent damage to structures to buildings extremely susceptible to vibration damage (FTA 2018).

In addition, vibration dissipates quickly with increased distance from the source. The nearest vibration-sensitive receptors, including building structures or human receptors, are located more than 5,300 feet from the Project site. As discussed above, the County's vibration perception threshold applies to 150 feet from the source. Therefore, Project operation would not generate excessive groundborne vibration at sensitive receptors exceeding the criteria related to vibration damage and human disturbance.

Loaded trucks travelling along the Redwood Road and Miller Road is an existing condition. Given the current daily traffic volume of approximately 17,000 vehicles, vibration generated by the Project-generated truck trips, maximum of 249 daily round trip truck trips, would be negligible. Therefore, the impact would be less than significant.

c. No Impact

The Project site is not located within the vicinity of a private airstrip or an airport land use plan, or within 2 miles of a public airport or public-use airport. The nearest airport is the Hayward Executive Airport located about 7.2 miles to the southwest of the Project site. The Project site is not located within the Hayward Executive Airport Influence Area. Therefore, the Project would have no impact related to the exposure of people to excess noise levels from aircraft noise.

3.5.14 Population and Housing

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
14. POPULATION AND HOUSING. 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a. No Impact

The Project supports EBMUD's trench soil management as part of EBMUD's ongoing pipeline repair and replacement activities. The pipelines undergoing repair and replacement serve existing customers within EBMUD's service area. The Project does not include new homes or businesses and, therefore, would not directly induce growth. The Project would not have indirect impacts associated with accommodation of additional growth because it does not expand utility service areas or increase water supply. Thus, there would be no impact on population and housing.

b. No Impact

No housing presently exists at the Project site; therefore, the Project would not displace people or housing. No impact would occur.

3.5.15 Public Services

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
15. PUBLIC SERVICES.				
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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a. No Impact

The Project does not include residential or commercial development that would induce population growth requiring new or expanded fire and police protection, schools, parks, or other facilities. In addition, the Project would not indirectly induce unplanned population growth that would place new demands on public service providers. Thus, the Project would not require new or expanded governmental facilities. The Project would not affect the ability of local providers to maintain acceptable service ratios, response times, or other performance objectives for services. No new or expanded governmental facilities would be needed; there would be no impact.

3.5.16 Recreation

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
16. RECREATION.				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a. No Impact

The Project would not generate or attract additional population as would be associated with residential, commercial, or industrial uses; therefore, it would not affect demand for recreational facilities and no impact would occur.

b. No Impact

The Project consists exclusively of continued operation of the Miller Road stockpile site and rock and sand stockpile site, which supports EBMUD's ongoing pipeline repair and replacement activities and does not require the construction or expansion of recreational facilities. There would be no impact.

3.5.17 Transportation

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
17. TRANSPORTATION. Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

Discussion

This section evaluates the transportation impacts on Redwood Road resulting from increased truck traffic associated with the routine import and removal of stockpiled trench soil and backfill materials to and from the Project site.

Miller Road, a 2.5-mile-long street, extends between Redwood Road and Miller Canyon. Miller Road provides direct access to the Miller Road stockpile site and the rock and sand stockpile site. Miller Road is situated entirely within EBMUD-owned land and is closed to the public north of the Chabot Staging Area, located at the intersection of Redwood Road and Miller Road.

Transportation Settings

The Project site is located approximately 5.4 miles north of I-580 and is accessed via Redwood Road. Redwood Road is an arterial roadway as designated by the Castro Valley Area Plan of the Alameda County General Plan, extending between Jordan Road in the City of Oakland and Grove Way in Castro Valley (Alameda County 2012). Redwood Road serves as a key access route for multiple schools, including Castro Valley High School, Redwood Christian Elementary School, and Proctor Elementary School. Redwood Road generally has 3 lanes in each direction between I-580 and Castro Valley Boulevard; two lanes in each direction between Castro Valley Road and Seven Hills Road; and one lane in each direction north of Seven Hills Road. The posted speed limit is 35 mph.

Average weekday traffic volume on Redwood Road is approximately 17,000 vehicles near Somerset Avenue with 8,800 vehicles traveling northbound and 8,200 vehicles traveling

southbound.[12] Heavy vehicles account for approximately 3.3 percent of the total daily traffic volume.[13] Peak traffic periods are observed between 8 a.m. and 9 a.m. with approximately 1,450 vehicles, and between 5 p.m. and 6 p.m. with approximately 1,400 vehicles. Figure 3-2 presents existing intersection traffic volumes along Redwood Road during these a.m. and p.m. peak hours.

The Bay Area Rapid Transit (BART) Castro Valley Station is located at the northwest corner of Redwood Road and I-580. Two Alameda-Contra Costa Transit District (AC Transit) bus routes operate along sections of Redwood Road with service to the BART station. Route 28 operates along Redwood Road between Seven Hills Road and the BART station every 60 minutes on weekdays. Route 93 operates along Redwood Road between Grove Way and the BART station every 45 minutes on weekdays. The closest bus stop is approximately 4.1 miles south of the Project site, at the intersection of Redwood Road and Seven Hills Road.

Redwood Road features Class II bike lanes on both sides, except for the segment between Castro Valley Boulevard and Seven Hills Road, which is designated as a Class III bike facility with a wide curb lane for shared use with vehicles.[14] According to the 2019 Alameda County Bicycle and Pedestrian Master Plan, this segment is proposed for future Class II bike lanes (Alameda County 2019a). Bicycle counts conducted on Thursday, May 9, 2024, recorded 3 bicyclists during the a.m. peak period and 5 bicyclists during the p.m. peak period along Redwood Road.

South of Camino Alta Mira, Redwood Road generally provides 8-foot-wide sidewalks on both sides, with marked crosswalks and Americans with Disabilities Act (ADA)-accessible curb ramps at intersections. High-visibility crosswalks are located at key locations, including near Proctor Elementary School, Redwood Christian Elementary School, and Castro Valley High School. North of Camino Alta Mira, Redwood Road lacks sidewalks but provides access to various trailheads at the Proctor Staging Area and the Chabot Staging Area.

[12] Traffic counts were collected on Thursday, May 16, 2024, when Redwood Road was closed north of Redwood Canyon Golf Course. Based on historic traffic counts provided by the East Bay Regional Park District, approximately 60 additional daily vehicles travel along Redwood Road when the road is fully open.

[13] Include vehicles in Class 4 and up categories per the Federal Highway Administration's Vehicle Classification.

[14] Bikeways are typically classified as Class I, Class II, or Class III facilities. Class I bikeways are bike paths with exclusive rights-of-way for use by bicyclists, with minimal cross flow by motorized vehicles. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the exclusive use of bicyclists. Class III bikeways are signed bike routes that allow bicycles to share streets with vehicles.

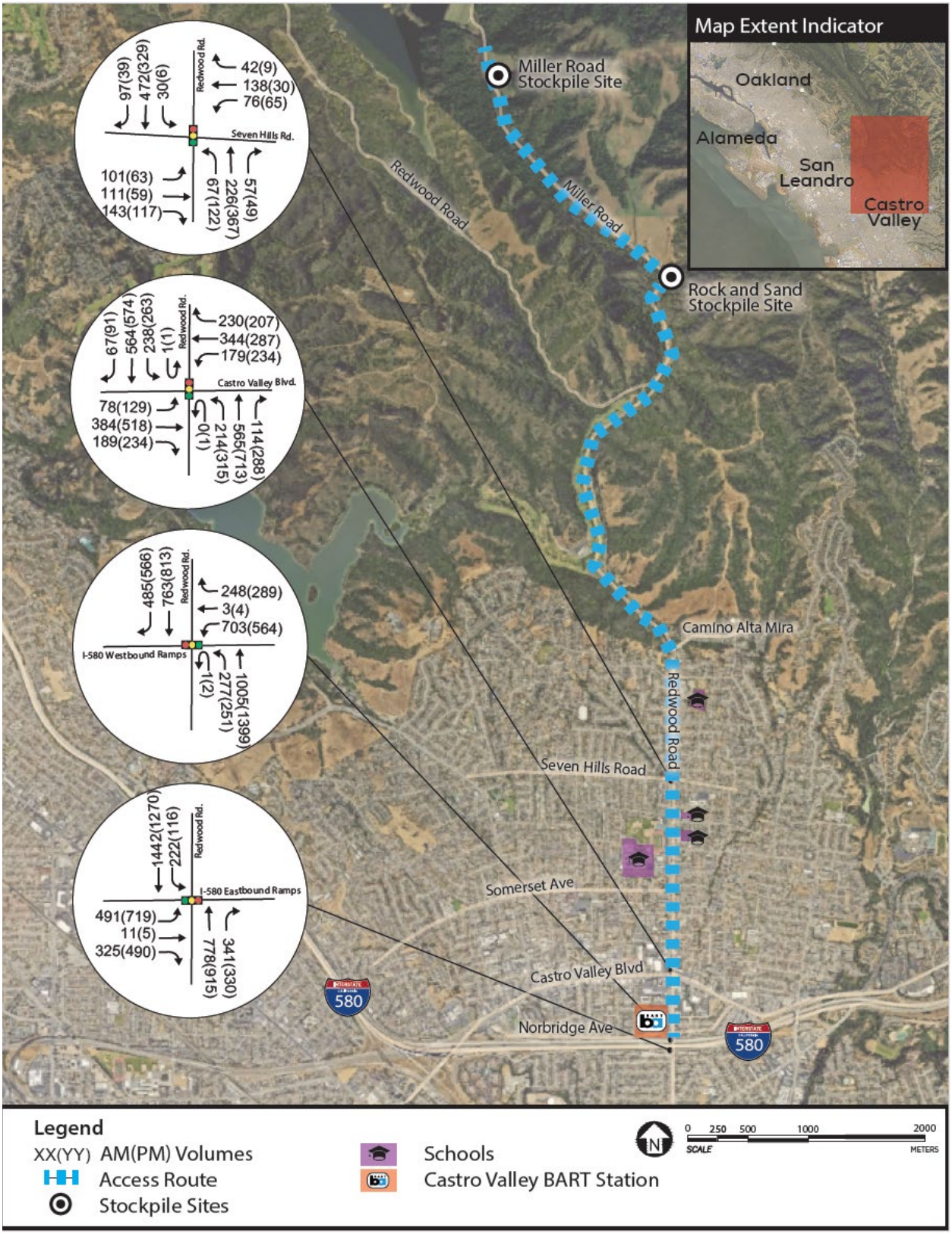

Figure 3-2 Existing Intersection Traffic Volumes during AM and PM Peak Hours

Project Trip Generation

Trip generation for the Project was estimated for each Project component:

- **Import of trench soil to Miller Road stockpile site** – Approximately 11,000 CY of trench soil would be imported annually using 10-CY dump trucks, generating about 1,100 truck roundtrips per year (11,000 CY/10-CY truck). This activity would generally occur every workday, averaging 5 truck roundtrips per day (1,100 trucks/260 days). These trips would generally be expected in the morning hours between 7 a.m. and 12 p.m. with approximately 1 roundtrip during the a.m. peak hour (5 trucks/5 hours) and none during the p.m. peak period. Each roundtrip includes 1 inbound trip and 1 outbound trip. Additionally, 1 worker would travel to the site weekly for maintenance, arriving during the a.m. peak hour and departing during the p.m. peak period.
- **Backfill material delivery to rock and sand stockpile site** – Similarly, approximately 11,000 CY of backfill materials would be delivered annually using 10 CY dump trucks, generating 1,100 truck roundtrips per year (11,000 CY/10 CY truck). This activity would occur biweekly, over approximately 2 days each time, for a total of approximately 52 days per year (26 weeks*2 days). There would be an average of 23 truck roundtrips per day (1,100 trucks/52 days), with 3 roundtrips during both the a.m. and p.m. peak periods (23 trucks/10 hours). No additional worker trips are anticipated as the same worker would maintain both the Miller Road and rock and sand stockpile sites.
- **Off-hauling trench soil from the Miller Road stockpile site** – Up to 50,000 CY of trench soil would be off-hauled at a time, generating approximately 4,200 truck roundtrips using 11 CY end dump trucks and 13 CY double-bottom trucks (50,000 CY/12 CY truck).[15] The off-haul events would be scheduled as needed and are anticipated to occur approximately every 5 years.[16] When an off-haul event takes place, it would span 1 to 3 months, typically during the summer when schools are not in session. These events would generate approximately 70 to 200 truck roundtrips per day, depending on the overall duration of the event each year. For example, there would be an average of 70 daily truck roundtrips if the off-haul event is for the full 50,000 CY spread over 3 months (4,200 trucks/60 days) or up to 200 daily truck roundtrips if occurring over 1 month (4,200 trucks/21 days). For the transportation analysis, 200 daily truck roundtrips are used as the more conservative assumption. Although these trips would occur between 9 a.m. and 4 p.m., which is outside of typical a.m. and p.m. peak periods, a conservative

[15] The analysis assumes that both 11-CY and 13-CY trucks would be used equally and averages them as 12-CY trucks.

[16] While the Project anticipates off-haul events every 5 years with 50,000 CY analyzed, if off-haul events occurred at 1 to 2 year intervals to response to opportunities for beneficial reuse of the off-haul, less than 50,000 CY would be off-hauled per event.

estimate assumes 30 truck roundtrips during both the a.m. and p.m. peak periods (200 trucks/7 hours).[17] Additionally, 4 workers are expected to arrive during the a.m. peak period and depart during the p.m. peak period.

Table 3-10 summarizes the Project trip generation estimates. Overall, the Project is expected to generate 6,400 annual truck roundtrips and 292 worker trips during an active off-haul year. The Project would generate up to 34 truck roundtrips and 5 worker one-way trips during the a.m. and p.m. peak periods. It is noted that there would be up to 4 truck roundtrips and 1 worker trip during the a.m. and p.m. peak periods during the years without off-haul activities.

Table 3-10 Project Trip Generation Estimates by Project Component

Project component	Trip type	Annual trips	Daily trips	AM peak period		PM peak period	
				Inbound	Outbound	Inbound	Outbound
Import of Trench Soil to Miller Road stockpile site	Truck	1,100 roundtrips	5 roundtrips	1 trip	1 trip	-	-
	Worker	52 roundtrips	1 roundtrip	1 trip	-	-	1 trip
Backfill material delivery to Rock and Sand stockpile site	Truck	1,100 roundtrips	23 roundtrips	3 trips	3 trips	3 trips	3 trips
	Worker	-	-	-	-	-	-
Miller Road Off-Haul events	Truck	4,200 roundtrips	70 to 200 roundtrips	30 trips	30 trips	30 trips	30 trips
	Worker	240 roundtrips	4 roundtrips	4 trips	-	-	4 trips
Total	Truck	6,400 roundtrips	98 to 228 roundtrips	34 trips	34 trips	33 trips	33 trips
	Worker	292 roundtrips	5 roundtrips	5 trips	-	-	5 trips

The Project site currently generates daily truck and worker trips related to the import of trench soils and the backfill material delivery resulting in approximately 1,400 annual truck roundtrips and 52 worker roundtrips per year. Additionally, the Project site periodically generated trips for off-haul events, with removals in 2005 and 2019. These off-haul events generated between 6,700 and 9,700 annual truck roundtrips during those years, which is substantially higher than the anticipated truck roundtrips (up to approximately 4,200 truck roundtrips a year) under the Project condition. These existing trips were not credited to ensure the most conservative

[17] While 200 daily trips evenly distributed over a 7-hour period result in approximately 29 trips per hour, a conservative transportation analysis assumes up to 30 trips per hour during each peak period. It is noted that per Project Description, work hours would be reduced to 9 a.m. to 3 p.m. when Castro Valley Union School District schools are in session, typically starting around the second week of August and ending in early June.

estimate for the CEQA analysis. As a worst-case scenario all three Project components (i.e., trench soil import, backfill material delivery, and off-haul events) were assumed to occur simultaneously on any given day.

Project Trip Distribution

All trips generated by the Project are expected to utilize Redwood Road to access the site from I-580. Since the specific destinations and origins of these trips are currently unknown, it is assumed that approximately half of the Project trips would use I-580 East, while the other half would use I-580 West.

a. Less than Significant Impact

Vehicular Circulation

The Castro Valley Area Plan of the Alameda County General Plan establishes the minimum acceptable vehicular circulation level of service (LOS) for Redwood Road as LOS E or better (Policy 6.2-1). LOS serves as a performance metric, describing the average delay experienced by vehicles passing through an intersection. The vehicular circulation was evaluated under 2 scenarios:

- Existing plus Project – Evaluating the current (2024) traffic conditions with the addition of Project-generated trips.
- Future Baseline plus Project – Evaluating future baseline (2030) traffic conditions with the addition of Project-generated trips.

Traffic conditions were analyzed for the a.m. and p.m. peak periods, as these times typically experience higher background traffic volumes. As summarized in Table 3-10 above, the Project would add a total of 34 inbound and 34 outbound truck trips, as well as 5 inbound worker trips during the a.m. peak period. Similarly, 33 inbound and 33 outbound truck trips, along with 5 outbound worker trips, are added during the p.m. peak period. In the analysis, each truck trip was treated as equivalent to 2 passenger car trips, considering that trucks require more time to accelerate, decelerate, and make turns due to their larger size.[18] Table 3-11 presents the LOS and associated delays under the Existing and Existing plus Project conditions. The analysis indicates that, even with the addition of Project trips, all studied intersections would continue to operate within the LOS E threshold during both the a.m. and p.m. peak periods.

Table 3-11 Existing (2024) and Existing Plus Project Intersection Operating Condition

Intersection	Control	Peak period	Existing LOS (Delay)[1]	Existing plus Project LOS (Delay)[1]
	Signal	AM	D (38.6)	D (38.7)

[18] The Highway Capacity Manual (HCM) uses a passenger car equivalent (PCE) as a metric to measure how much a heavy vehicle impacts traffic flow compared to a passenger car. The PCEs ranges from 1.3 for a single unit truck to 1.7 for a large semitrailer on level ground.

Intersection	Control	Peak period	Existing LOS (Delay)[1]	Existing plus Project LOS (Delay)[1]
Redwood Road/ Seven Hills Road		PM	C (22.7)	C (21.6)[2]
Redwood Road/ Castro Valley Road	Signal	AM	D (47.7)	D (48.3)
		PM	D (51.1)	D (51.5)
Redwood Road/ I-580 West Ramps	Signal	AM	D (37.9)	D (43.8)
		PM	B (19.1)	C (20.2)
Redwood Road/ I-580 East Ramps	Signal	AM	C (25.9)	C (26.6)
		PM	B (16.5)	B (17.3)

Notes:
1. Intersection delays are calculated as "seconds of delay per vehicle."
2. Adding a very small number of trips to an approach with shorter delays could improve the intersection average delay "per vehicle" or not cause any change in delays at all.

The 2030 Future Baseline condition reflects the projected timeframe when the Miller Road stockpile site is expected to experience the increase in annual stockpiling up to 11,000 CY. To estimate traffic volumes for this scenario, the 2024 existing background traffic volumes were adjusted using the growth rates projected for the study area by the Alameda Countywide Transportation Model (Alameda County 2019b).[19] Table 3-12 presents the LOS and delay comparisons under both the Future Baseline and Future Baseline plus Project conditions. The analysis indicates that, even with the addition of Project-generated trips, all study intersections are anticipated to continue operating within the LOS E threshold during the a.m. and p.m. peak periods.

Table 3-12 Future Baseline (2030) and Future Baseline Plus Project Intersection Operating Condition

Intersection	Control	Peak Hour	Future Baseline (2030) LOS (Delay)[1]	Future Baseline plus Project LOS (Delay)[1]
Redwood Road/ Seven Hills Road	Signal	AM	D (39.0)	D (41.4)
		PM	C (24.6)	C (23.9)[2]
Redwood Road/ Castro Valley Road	Signal	AM	D (48.6)	D (49.3)
		PM	E (56.0)	E (56.4)
Redwood Road/ I-580 West Ramps	Signal	AM	D (41.5)	D (48.7)
		PM	C (20.5)	C (22.1)

[19] Based on the review of existing development in the area and local plans, the growth rate for the Redwood Road and Seven Hills Road intersection was adjusted to 1 percent per year. The Future Baseline condition also includes approximately 10 additional trips during each peak hour, assuming Redwood Road would be fully open north of Miller Road.

Intersection	Control	Peak Hour	Future Baseline (2030) LOS (Delay)[1]	Future Baseline plus Project LOS (Delay)[1]
Redwood Road/ I-580 East Ramps	Signal	AM	C (28.7)	C (29.4)
		PM	B (17.8)	B (18.7)

Notes:
1. Intersection delays are calculated as "seconds of delay per vehicle."
2. Adding a very small number of trips to an approach with shorter delays could improve the intersection average delay "per vehicle" or not cause any change in delays at all.

Bicycle and Pedestrian Circulation

The Castro Valley Area Plan policies on bicycle and pedestrian circulation emphasize managing vehicular traffic to provide a safe environment for schoolchildren (Policy 6.6-2) and improving traffic enforcement to increase pedestrian safety (Policy 6.6-5).

The trench soil import and backfill material delivery are expected to generate up to 4 truck roundtrips during the a.m. and p.m. peak periods throughout the year. While these trips may coincide with school pick-up and drop-off times, they are not anticipated to adversely affect the safety of children walking or biking to school due to the low volumes and the presence of continuous sidewalks and marked crosswalks near schools. Additionally, all truck drivers would be required to yield to traffic, bicyclists, and pedestrians when traveling to and from the Project site.

Major off-haul events, occurring approximately every 5 years with the potential for every 1 to 2 years, would be coordinated with the Castro Valley Union School District to schedule off-haul activities during summer months when schools are not in session whenever feasible or reduce the hours of the off-haul events if they occurred during school sessions. The Project would not reduce the safety of children walking or biking to school because, as described in Section 2.4.5 of the Project Description, truck trips are required to be scheduled between 9 a.m. and 3 p.m. when schools are open to minimize overlap with school traffic. Therefore, off-haul truck trips are not expected to interfere with school-related traffic.

The Project-generated truck trips are unlikely to reduce pedestrian safety, as continuous sidewalks are available on both sides of Redwood Road, along with marked crosswalks at intersections.

Transit Facilities

The Castro Valley Area Plan includes transit-related policies (Policies 6.4-1 through 6.4-4); however, these policies are primarily aimed at promoting transit use and access for large destinations such as shopping areas, schools, and recreational facilities, and are not directly applicable to the Project. The Project would not displace any existing transit stop or adversely impact transit operations.

Project-generated trips are not expected to degrade intersection operating conditions to an unacceptable LOS. The Project would not reduce the safety of children walking or biking to

school because off-haul events would be scheduled during summer seasons if feasible and truck trips are required to be scheduled between 9 a.m. and 3 p.m. when schools are in session to minimize overlap with school traffic. Pedestrian safety would remain the same due to the presence of continuous sidewalks and marked crosswalks along the haul route. Therefore, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, and the impact would be less than significant.

b. Less than Significant Impact

CEQA Guidelines section 15064.3 identifies VMT as the most appropriate metric for assessing transportation impacts. Although Alameda County does not have a specific VMT policy, it contributed to the LCI draft and final VMT guidelines, which implement SB 743 (OPR 2018). Thus, the analysis utilizes LCI's guidelines as published in the Technical Advisory on Evaluating Transportation Impacts in CEQA, which outlines several criteria that jurisdictions may use to identify certain types of projects unlikely to have a significant VMT impact, allowing them to be "screened" from further VMT analysis. One such screening criterion pertains to small projects, which LCI defines as generating fewer than 110 vehicle trips per day, similar to the trips generated by a general office building with a footprint of less than 10,000 square feet, which is categorically exempt.

As shown in Table 3-10, above, the Project is estimated to generate a total of up to 228 truck roundtrips per day. Approximately 5 of these trips are associated with the import of trench soil occurring daily, and approximately 23 trips are associated with backfill material deliveries occurring 52 days a year (i.e., 2 days biweekly). The remaining 200 trips associated with off-haul events would occur daily over a 1 to 3 month period occurring every 5 years or as frequently as every 1 to 2 years as needed. Given the infrequency of the backfill material delivery and off-haul truck trips, the total annual trips generated by the Project are equivalent to approximately 20 roundtrips (40 one-way trips) occurring daily throughout the year.[20] In other words, the Project would generate substantially fewer trips annually than a 10,000-square-foot general office building, which typically generates 110 daily vehicle trips throughout the year. Therefore, the Project is considered a small project, for which the impact on VMT can be presumed to be less than significant.

Moreover, the Project is a public utility service project responding to needs created by development from authorized land uses (e.g., office and residential) permitted by local jurisdictions and maintenance and replacement activities related to the associated infrastructure, some of which is aging. For example, new residential or office developments may occur in areas with aging utility infrastructure and/or lead to increased water usage from

[20] Trench soil import activities generate 5 daily roundtrips throughout the year, and backfill material deliveries generating 23 daily roundtrips for 52 days a year are equivalent to approximately 5 daily roundtrips (=23 trips*52/260 days) throughout the year. Off-haul events generating 200 roundtrips daily for 3 months each year, occurring every approximately 5 years, equate to 10 daily roundtrips per year (=200 daily trips*3/12months/5 years). Combined, import and off-haul activities would amount to approximately 20 daily roundtrips throughout the year.

an influx of occupants. Where existing pipelines may lack the capacity to handle the increased demand, this could lead to more rapid replacement or may require replacement to accommodate new developments. The Project is responsive to development, but due to its nature does not independently generate VMT and can be presumed to have a less than significant impact on VMT.

c. Less than Significant Impact with Mitigation

The trench soil import and backfill material delivery would not present a significant impact due to the low volumes of truck traffic (up to 4 truck roundtrips during peak hours). Redwood Road and Miller Road currently accommodate the movements of these trucks for such activities as well.

During routine off-haul events, the analysis conservatively assumes up to 34 trucks would be traveling along Redwood Road in each direction during the a.m. and p.m. peak periods. Since the off-haul activities occur infrequently, roughly every 5 years during primarily the summer months, local users may not be accustomed to the presence of large trucks when they occur, which could lead to an increase in conflicts. Additionally, the larger vehicles may have difficulty seeing smaller vehicles, bicyclists, and pedestrians, potentially increasing the risk of accidents, resulting in a potentially significant impact. Mitigation Measure TRA-1, which has been incorporated into the Project and is described below, would require contractors to implement safety measures such as installing advance warning signs and reminding and requiring truck drivers to adhere to the safety protocols, which would raise public awareness of truck traffic and encourage safer driving behavior for truck drivers, thereby reducing this potentially significant impact to a less-than-significant level.

d. Less than Significant Impact

As shown in Table 3-12, the Project trips are not anticipated to cause substantial delays along Redwood Road or result in any lane or roadway closures that potentially interfere with emergency access. It is expected that all truck drivers and workers will yield the right-of way to emergency vehicles in accordance with California Vehicle Code 21806. Additionally, all worker parking would be contained within the Project site, ensuring that the site entrance and exit remain unobstructed. Therefore, the Project would have a less than significant impact on emergency access.

Mitigation Measures

TRA-1 Minimize Impacts of Heavy Truck Traffic during Off-Haul Events

Contractors shall enforce the following safety measures to minimize potential safety hazards associated with the increased truck traffic during off-haul events:

- Ensure truck drivers have received written traffic safety requirements focusing on road safety, defensive driving, navigating through school zones, and blind spot monitoring. All drivers shall provide signed acknowledgement of having understood all traffic safety requirements and the consequences of non-compliance. Traffic safety requirements may include:
  - Contractor vehicles shall yield to traffic, bicyclists, and pedestrians at all times.
  - Trucks shall not park or queue along Redwood Road. When trucks are making wide turns at Redwood Road/Miller Road intersection and into the Project site, illuminated signs, a temporary stop sign, or a combination of these methods shall be used to slow approaching traffic.
  - Trucks shall travel along designated routes only.
- Install radar speed feedback signs in each direction on Redwood Road to deter speeding by trucks on haul route.
- Conduct frequent inspections and maintenance of trucks (e.g., brakes, tires, lights) to ensure they are in safe working condition.
- Install advance warning signs and dynamic message signs to alert drivers of upcoming heavy truck traffic along Redwood Road. The signs shall indicate the presence of heavy trucks and the anticipated timeframe.
- Inform the public and local communities about expected truck traffic and safety measures through various channels, such as local media, social media, and community meetings, to provide timely updates and ensure public awareness.
- Prior to any major off-haul events, a visual survey shall be conducted along Redwood Road between I-580 and Miller Road to establish the baseline condition of the roadway. Any damage to the pavement on Redwood Road shall be repaired after each major off-haul event.
- Coordinate with the nearest emergency and sensitive land uses such as police and fire stations, schools, and medical facilities. Notify emergency providers in advance of the timing, location, and duration of off-haul events.
- Monitor the impact of heavy truck traffic and adjust safety measures as needed.

3.5.18 Tribal Cultural Resources

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
18. TRIBAL CULTURAL RESOURCES				
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.	☐	☐	☒	☐

Discussion

EBMUD has not received any requests from tribes for Project notifications under PRC section 21080.3.1(b)(1).

a. i, ii Less than Significant Impact

As discussed in Section 3.5.5 Cultural Resources, the Project would not require excavation or ground disturbance, and the stockpile site footprints would be limited to the existing sites that have already been highly disturbed. Thus, the Project would not involve activities that would have the potential to result in inadvertent discovery of buried tribal cultural resources. Adherence to applicable laws would prevent significant impacts associated with potential discovery of human remains. As a result, the Project would not be anticipated to cause a substantial adverse change in the significance of a tribal cultural resource, and the impact would be less than significant.

3.5.19 Utilities and Service Systems

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
19. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

a. No Impact

The Project would continue the existing trench soil management activities that are ongoing at the stockpile sites. The Project does not include changes to utilities on or off site and would not include or require new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities. Therefore, there would be no impact associated with relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities.

b. Less than Significant Impact

During the Project, water would continue to be used for dust control at the stockpile sites and on Miller Road. The Project would not include additional facilities that consume water. Water use for dust control would continue to be minimized in accordance with EBMUD's existing SWPPP for operation of both the Miller Road stockpile site and rock and sand stockpile site and along Miller Road. As required by the SWPPP, water conservation practices would be implemented during all Project activities to avoid causing erosion and the transport of pollutants offsite (EBMUD 2019). Water used for dust control would be managed to ensure that

excessive water is not applied. Because the Project would not substantially increase water demand, EBMUD would have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years, and the impact would be less than significant.

c. No Impact
The Project would not generate wastewater; there would be no impact.

d. No Impact
The Project would entail stockpiling of trench soil generated by EBMUD's ongoing pipeline repair and replacement activities. The Project itself would not involve the generation of solid waste; instead, it aids in managing trench soil from other projects. The Project would involve continued use of the stockpile sites as well as smaller, more frequent off-haul events, which would improve EBMUD's ability to take advantage of opportunities for trench soil to be transferred to end-use locations, and to allow more soil to be reused beneficially as opposed to being disposed at landfills. Thus, the Project would provide a benefit to solid waste goals by supporting beneficial re-use of soil. There would be no impact.

e. No Impact
The Project would comply with all applicable regulations regarding solid waste. There would be no impact.

3.5.20 Wildfire

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
20. WILDFIRE. 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?	☐	☒	☐	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

a. Less than Significant with Mitigation Incorporated

Public roads are managed by Alameda County and the County is primarily responsible for managing emergency response protocols and creating evacuation plans. The Project would not change the local roadway circulation pattern in a way that would physically interfere with local emergency response plans. The Project would maintain the gravel surface of Miller Road from Redwood Road to the stockpile site, conduct regular inspections, and manage the installation and maintenance of BMPs and EBMUD's existing SWPPP.

EBMUD would complete a visual survey of the conditions of Miller Road and Redwood Road, managed by Alameda County, before and after soil removal projects to limit damage to roadways as result of the Project. EBMUD would ensure that local traffic circulation would continue to support emergency response and evacuation plans. If obvious damage were to result from soil removal projects, EBMUD would coordinate with Alameda County Public Works for any needed repairs.

At times, the Project may result in vehicle delays of 1 to 2 minutes as equipment enters and exits the Project site via Miller Road and/or Redwood Road. Vehicles and equipment would be parked and staged adjacent to the Project site and off public roads, within designated parking

and staging areas. However, access would continue to be provided for emergency responders to allow for safe emergency access.

As discussed in Section 3.5.17 Transportation, Mitigation Measure TRA-1 requires coordination with the nearest emergency services (such as police and fire stations) and public facilities (such as schools and medical facilities) and notification in advance of the timing, location, and duration of off-haul events. Therefore, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and impact would be less than significant with mitigation.

b. No Impact
The Project would not construct new facilities or structures that would be occupied, which would expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impact would occur.

c. and d. No Impact
The Project involves the gradual increase in operations at the Miller Road stockpile site and rock and sand stockpile site to support EBMUD's ongoing pipeline repair and replacement activities. However, the Project would not require installation of additional infrastructure or structures to support the operational increase, that could exacerbate fire risk or that would result in temporary or ongoing impacts to the environment. Additionally, as discussed in Section 3.5.7 Geology and Soils and Section 3.5.10 Hydrology and Water Quality, the Project would not 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. No impact would occur.

3.5.21 Mandatory Findings of Significance

Environmental Impacts	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
21. MANDATORY FINDINGS OF SIGNIFICANCE:				
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?	☐	☐	☒	☐
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)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a. Less than Significant

The Project would result in less than significant impacts related to biological resources, cultural resources, and tribal cultural resources. The Project does not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of a rare or endangered plant or animal, threaten to eliminate a plant or animal community, or eliminate important examples of the major periods of California history or prehistory, as described in the Biological Resources, Cultural Resources, and Tribal Cultural Resources environmental discipline sections of the document. Impacts would be less than significant.

b. No Impact

The CEQA Guidelines section 15130 requires a discussion of the cumulative impacts of a Project. Cumulative impact analysis accounts for the combined impacts associated with 2 or more projects in a given area. No projects were identified near the Project site or off-haul route with an expected construction timeframe of 2030.[21]

[21] Panorama researched projects on the Alameda County Planning Department, BART, Caltrans, and CEQAnet.

Alameda County policies, plans, and ordinances were also reviewed for potential future development. Alameda County is in the process of updating the Castro Valley Central Business District Specific Plan (Specific Plan), which focuses on the Castro Valley's commercial and mixed-use center which includes some parcels that are located along Redwood Road near the I-580. The planning and CEQA review phase of the Specific Plan is scheduled to go until winter of 2026; however, development under the updated Specific Plan could occur along Redwood Road post-2030. If any development occurred along Redwood Road under the Specific Plan, it would likely result in temporary truck traffic that could overlap with the Project off-haul events. Development under the Specific Plan would be subject to the CEQA review and would require traffic control measures if the development impacted traffic along Redwood Road, reducing the impacts to less than significant. Because any future development under the Specific Plan would be required to mitigate traffic impacts during construction and would have the potential to overlap with off-haul events temporarily, the Project would not be anticipated to result in a significant cumulative impact when combined with development under the Specific Plan. Operation of the Project would not combine with anticipated cumulative projects to result in a significant cumulative impact.

c. Less than Significant with Mitigation

The Project has the potential to adversely affect human beings directly and/or indirectly through transportation impacts. With implementation of Mitigation Measure TRA-1, the Project would not cause substantial adverse effects on human beings either directly or indirectly. The impact would be less than significant.

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Appendix A: Mitigation Monitoring and Reporting Program

Mitigation Monitoring and Reporting Program

MMRP Requirements and Use

East Bay Municipal Utility District (EBMUD) prepared an Initial Study and Mitigated Negative Declaration (IS/MND) to identify and evaluate potential environmental impacts associated with the Miller Road Trench Soil Management Project (Project). Mitigation measures were defined in the Initial Study and MND to reduce potentially significant impacts of project construction and operation.

Approval of the project will require implementation and monitoring of all the mitigation measures identified in the IS/MND in compliance with the California Environmental Quality Act (CEQA). The CEQA Guidelines Section 15097(a) requires that:

> "… in order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program."

CEQA Guidelines Section 15097(c) defines monitoring and reporting responsibilities of the lead agency.

> "(c) The public agency may choose whether its program will monitor mitigation, report on mitigation, or both. "Reporting" generally consists of a written compliance review that is presented to the decision making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. "Monitoring" is generally an ongoing or periodic process of project oversight. There is often no clear distinction between monitoring and reporting and the program best suited to ensuring compliance in any given instance will usually involve elements of both. The choice of program may be guided by the following:
>
> > (1) Reporting is suited to projects which have readily measurable or quantitative mitigation measures or which already involve regular review. For example, a report may be required upon issuance of final occupancy to a project whose mitigation measures were confirmed by building inspection.

> (2) Monitoring is suited to projects with complex mitigation measures, such as wetlands restoration or archeological protection, which may exceed the expertise of the local agency to oversee, are expected to be implemented over a period of time, or require careful implementation to assure compliance.
>
> (3) Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements."

This Mitigation Monitoring and Reporting Program (MMRP) is intended to facilitate implementation and monitoring of the mitigation measures to ensure that measures are executed. This process protects against the risk of non-compliance.

The purpose of the MMRP is to:

- Summarize the mitigation required for the Miller Road Trench Soil Management Project
- Comply with requirements of CEQA and the CEQA Guidelines
- Clearly define parties responsible for implementing and monitoring the mitigation measures
- Provide a plan for how to organize the measures into a format that can be readily implemented and monitored

MMRP Components

The MMRP provides a summary of all mitigation measures that will be implemented for the Project. The mitigation measure is provided in Table 1. Each impact and mitigation measure is accompanied with identification of:

- Implementation and Timing – the party or parties that will undertake the mitigation measure and timing of implementation, including prior to construction, during construction, post construction, or a combination of construction phases
- Monitoring Responsibility – the monitoring and/or reporting actions to be undertaken to ensure the measure is implemented.

The responsible and involved parties will utilize the MMRP to identify actions that must take place to implement mitigation measures, the time of those actions and the parties responsible for implementing and monitoring the actions.

Impact	Mitigation Measures	Implementation and Timing	Monitoring Responsibility
Impact TRA-C: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**MM TRA-1 Minimize Impacts of Heavy Truck Traffic during Off-Haul Events** Contractors shall enforce the following safety measures to minimize potential safety hazards associated with the increased truck traffic during off-haul events: • Ensure truck drivers have received written traffic safety requirements focusing on road safety, defensive driving, navigating through school zones, and blind spot monitoring. All drivers shall provide signed acknowledgement of having understood all traffic safety requirements and the consequences of non-compliance. Traffic safety requirements may include: – Contractor vehicles shall yield to traffic, bicyclists, and pedestrians at all times. – Trucks shall not park or queue along Redwood Road. When trucks are making wide turns at Redwood Road/Miller Road intersection and into the Project site, illuminated signs, a temporary stop sign, or a combination of these methods may be used to slow approaching traffic.	**Implementation:** EBMUD and its contractor(s) **Timing:** During Project Implementation	EBMUD

Impact	Mitigation Measures	Implementation and Timing	Monitoring Responsibility
	– Trucks shall travel along designated routes only. • Install radar speed feedback signs in each direction on Redwood Road to deter speeding by trucks on haul route. • Conduct frequent inspections and maintenance of trucks (e.g., brakes, tires, lights) to ensure they are in safe working condition. • Install advance warning signs and dynamic message signs to alert drivers of upcoming heavy truck traffic along Redwood Road. The signs shall indicate the presence of heavy trucks and the anticipated timeframe. • Inform the public and local communities about expected truck traffic and safety measures through various channels, such as local media, social media, and community meetings, to provide timely updates and ensure public awareness. • Prior to any major off-haul events, a visual survey shall be conducted along Redwood Road between I-580 and Miller Road to establish the baseline condition of the roadway. Any damage to the pavement on Redwood Road shall be repaired after each major off-haul event.		

Impact	Mitigation Measures	Implementation and Timing	Monitoring Responsibility
	• Coordinate with the nearest emergency and sensitive land uses such as police and fire stations, schools, and medical facilities. Notify emergency providers in advance of the timing, location, and duration of off-haul events. • Monitor the impact of heavy truck traffic and adjust safety measures as needed.		
Impact WILD-A: Substantially impair an adopted emergency response plan or emergency evacuation plan?	**MM TRA-1**, discussed above.	See above	See above

Appendix B.1: Air Quality and Greenhouse Gas Emissions Calculations

Off-Road Equipment Exhaust Emissions Calculations

Overview

Information about off-road equipment usage, including equipment type, number of equipment, engine tier, and hours of operation, was provided by EBMUD. Exhaust emissions of criteria air pollutants and greenhouse gases (GHGs) were estimated using the methodology from the California Emissions Estimator Model (CalEEMod) version 2022.1.1. The estimated average daily emissions represent a worst-case scenario where stockpile management, import of backfill materials, and an off-haul event would occur simultaneously.

Summary of Off-Road Construction Equipment Usage and Emission Factors

Project Component	Equipment Type	CalEEMod Equipment Category	# of Equipment	Fuel Type	Horse-power	Engine Tier	Load Factor	Frequency	Project Condition (2030)		Emission Factor (g/hp-hr)							Global Warming Potential		
									Hours per Month	Total Hours per Year	ROG	NO_X	PM_{10E}	$PM_{2.5E}$	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Trench Soil Import	Cat 336 Excavator	Excavators	1	Diesel	300	Tier 4 Interim	0.38	Weekly	16	192	0.06	1.29	0.01	0.01	527	0.021	0.004	1	25	298
Trench Soil Import	D6 Dozer	Rubber Tired Dozers	1	Diesel	367	Tier 4 Interim	0.4	Weekly	16	192	0.06	1.29	0.01	0.01	532	0.022	0.004	1	25	298
Backfill Material Import/Export	D8 Dozer	Rubber Tired Dozers	1	Diesel	367	Tier 4 Interim	0.4	Biweekly	16	192	0.06	1.29	0.01	0.01	532	0.022	0.004	1	25	298
Miller Road Off-Haul Events	Cat 336 Excavator	Excavators	2	Diesel	300	Tier 4 Interim	0.38	1 month (21 workdays) every year	189	189	0.06	1.29	0.01	0.01	527	0.021	0.004	1	25	298
Miller Road Off-Haul Events	D6 or D8 Dozer	Rubber Tired Dozers	2	Diesel	367	Tier 4 Interim	0.4		189	189	0.06	1.29	0.01	0.01	532	0.022	0.004	1	25	298
Miller Road Off-Haul Events	Water Truck	Off-Highway Trucks	1	Diesel	376	Average	0.38		189	189	0.177	1.09	0.038	0.035	529	0.021	0.004	1	25	298
Miller Road Off-Haul Events	Sweeper	Sweepers/Scrubbers	1	Diesel	36	Average	0.46		189	189	0.622	3.85	0.191	0.176	587	0.024	0.005	1	25	298

Notes

It was conservatively assumed that all off-road equipment would use diesel fuel. CalEEMod default values were used when project-specific information was not available. Project-specific horsepower was obtained from manufacturer specifications was used for excavators, instead of CalEEMod default values. Emission factors were obtained from CalEEMod 2022.1. Global warming potentials for greenhouse gases were obtained from the California Air Resources Board website (https://ww2.arb.ca.gov/ghg-gwps) on September 9, 2024.

Abbreviations

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10E} = coarse particulate matter (exhaust); $PM_{2.5E}$ = fine particulate matter (exhaust); CO_2 = carbon dioxide; CH_4 =methane; N_2O =nitrous oxide; g/hp-hr = gram per horsepower-hour

Off-Road Construction Equipment Criteria Air Pollutant and GHG Emissions

Project Component	Annual Emissions								Average Daily Emissions			
	Criteria Air Pollutants (tons/year)				GHGs (metric tons/year)				Criteria Air Pollutants (lbs/day)			
	ROG	NO_X	PM_{10E}	$PM_{2.5E}$	CO_2	CH_4	N_2O	CO_{2e}	ROG	NO_X	PM_{10E}	$PM_{2.5E}$
Trench Soil Import	0.003	0.071	0.001	0.001	26.51	0.0011	0.0002	26.6	0.13	2.74	0.02	0.02
Backfill Material Import/Export	0.002	0.040	0.0003	0.0003	14.98	0.0006	0.0001	15.0	0.07	1.54	0.01	0.01
Miller Road Off-Haul Events	0.014	0.19	0.003	0.003	68.29	0.0028	0.0005	68.5	1.33	17.7	0.3	0.3
Total without Off-Haul Events	**0.01**	**0.11**	**0.001**	**0.001**	**41.49**	**0.0017**	**0.0003**	**41.62**	**0.20**	**4.3**	**0.03**	**0.03**
Total with Off-Haul Events	**0.019**	**0.297**	**0.004**	**0.004**	**109.8**	**0.004**	**0.001**	**110.1**	**1.5**	**22.0**	**0.3**	**0.3**

Assumptions

Work days per year	52	Stockpile Management (one day per week)
Work days per year	52	Import of Backfill Materials (occur biweekly over about 2 days each time)
Work days per event year	21	Miller Road Off-Haul Events (Monday through Friday for 1-month)

Abbreviations

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10E} = coarse particulate matter (exhaust); $PM_{2.5E}$ = fine particulate matter (exhaust); CO_2 = carbon dioxide; CH_4 =methane; N_2O =nitrous oxide; lbs = pounds

Equations

Emissions [grams] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation

Unit conversions

Grams per pound	453.92
Pounds per metric ton	2,205
Pounds per ton	2,000

Earthmoving Activity Dust Emissions Calculations

Overview

Information about bulldozing activities was provided by EBMUD. Emissions of fugitive dust were estimated using emission factors from the U.S. Environmental Protection Agency's Compilation of Air Pollutant Emissions Factors (AP-42), Section 11.9 and guidance from the California Emissions Estimator Model (CalEEMod) version 2022.1.

Summary of Earthmoving Activity and Emission Factors

Project Component	Equipment Type	CalEEMod Equipment Category	Activity	# of Equipment	Frequency	Project Condition (2030)		$PM_{2.5D}$ Emission Factor (lbs/hour)		PM_{10D} Emission Factor (lbs/hour)	
						Hours per Month	Total Hours per Year	Uncontrolled	Controlled[1]	Uncontrolled	Controlled[1]
Trench Soil Import	D6 Dozer	Rubber Tired Dozers	Bulldozing	1	Weekly	16	192	0.41	0.16	0.75	0.29
Backfill Material Import/Export	D8 Dozer	Rubber Tired Dozers	Bulldozing	1	Biweekly	16	192				
Miller Road Off-Haul Events	D6 or D8 Dozer	Rubber Tired Dozers	Bulldozing	2	1 month (21 workdays) every year	189	189				

Notes

[1] For the controlled scenario, it was assumed that the exposed areas will be watered twice per day.

Assumptions

Bulldozing EF (lb/hour) = BC*sBa/MBb*BF AP-42 Table 11.9-1

Where:

	$PM_{2.5D}$	PM_{10D}	
Bulldozing Coefficient (BC)	5.7	1.0	AP-42 Table 11.9-1
Bulldozing Constant (Ba)	1.2	1.5	AP-42 Table 11.9-1
Bulldozing Constant (Bb)	1.3	1.4	AP-42 Table 11.9-1
Material Silt Content (s)	6.9	6.9	AP-42 Table 11.9-3
Material moisture content (M)	7.9	7.9	AP-42 Table 11.9-3
Bulldozing Scaling Factor (BF)	0.11	0.75	AP-42 Table 11.9-1
Dust Control Efficiency		61%	Assume watering exposed area twice per day ((SCAQMD CEQA Air Quality Handbook, Table XI-A: Construction and Demolition))

Abbreviations

lbs = pounds; PM_{10D} = coarse particulate matter (dust) ; $PM_{2.5D}$ = fine particulate matter (dust)

Earth Moving $PM_{2.5}$ Dust Emissions

Project Component	Annual PM_{10D} Emissions		Average Daily PM_{10D} Emissions		Annual $PM_{2.5D}$ Emissions		Average Daily $PM_{2.5D}$ Emissions	
	tons/year		lbs/day		tons/year		lbs/day	
	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Trench Soil Import	0.07	0.03	2.78	1.08	0.04	0.02	1.53	0.60
Backfill Material Import/Export	0.07	0.03	2.78	1.08	0.04	0.02	1.53	0.60
Miller Road Off-Haul Events	0.14	0.06	13.55	5.28	0.08	0.03	7.45	2.90
Total without Off-Haul Events	**0.14**	**0.06**	**5.56**	**2.17**	**0.08**	**0.03**	**3.06**	**1.19**
Total with Off-Haul Events	**0.29**	**0.11**	**19.11**	**7.45**	**0.16**	**0.06**	**10.50**	**4.10**

Assumptions

Work days per year	52	Stockpile Management (one day per week)
Work days per year	52	Import of Backfill Materials (occur biweekly over about 2 days each time)
Work days per event year	21	Miller Road Off-Haul Events (Monday through Friday for 1-month)

Abbreviations

lbs = pounds;PM_{10D} = coarse particulate matter (dust) ; $PM_{2.5D}$ = fine particulate matter (dust)

Equations

Bulldozing Emissions = Hours of Operation * Emission Factor

Unit conversions

Pounds per ton 2,000

On-Road Vehicle Emissions Calculations

Overview

Information about project generated vehicle trips and associated vehicle miles travelled (VMT) was provided by EBMUD for the 2030 Project condition. CalEEMod default values were used when project-specific information was not available. To be conservatiEmissions of criteria air pollutants and greenhouse gases (GHGs) were estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.Since routine off-haul evens may begin as early as 2025, year 2025 emission factors were used in this analysis to be conservative.

Summary of On-Road Vehicle Trips

Project Component	Annual Import/Export Amount	Trip Type	Vehicle Type	Roundtrips per Year	One-Way Trips per Year	One-way Trip Distance (miles)	VMT per Year	CalEEMod Input			
								Trip Type	Annual VMT	Percent VMT	Vehicle Classification
Trench Soil Import	11,000 CY	Hauling	10 CY Trucks	1,100	2,200	10	22,000	Hauling	22,000	100.0%	HHDT
Backfill Material Import/Export	11,000 CY	Worker Commute	Worker commute vehicles[2]	52	104	11.7	1,217	Worker Commute	1,217	4.4%	50% LDA, 25% LDT1, 25% LDT2[1]
		Hauling	10 CY Trucks	1,100	2,200	12	26,400	Hauling	26,400	95.6%	HHDT
Miller Road Off-Haul Events	50,000 CY	Worker Commute	Worker commute vehicles	240	480	11.7	5,616	Worker Commute	5,616	4.3%	50% LDA, 25% LDT1, 25% LDT2[1]
		Hauling	11 CY Trucks and 13 CY Trucks	4,200	8,400	15	126,000	Hauling	126,000	95.7%	HHDT

Notes

[1] In accordance with CalEEMod, assume a fleet mix of 50 percent light-duty auto, 25 percent light-duty truck type 1, and 25 percent light-duty truck type 2.

[2] The same worker will maintain both the Miller Road stockpile site and the rock and sand stockpiles site.

On-Road Criteria Air Pollutant and GHG Emissions Summary (Based on CalEEMod Report)

Project Component	Annual Emissions								Average Daily Emissions			
	Criteria Air Pollutants (tons/year)				GHGs (metric tons/year)				Criteria Air Pollutants (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_{2e}	ROG	NO_X	PM_{10}	$PM_{2.5}$
Trench Soil Import	0.001	0.06	0.011	0.003	36	0.002	0.006	38	0.01	0.43	0.08	0.03
Backfill Material Import/Export	0.001	0.06	0.013	0.004	43	0.003	0.007	45	0.05	2.48	0.51	0.16
Miller Road Off-Haul Events	0.006	0.29	0.063	0.019	204	0.011	0.032	214	0.52	27.90	6.00	1.85
Total	**0.01**	**0.41**	**0.09**	**0.03**	**283**	**0.016**	**0.045**	**297**	**0.6**	**30.8**	**6.6**	**2.0**

Assumptions

Work days per year	260	Trench Soil Import (occur every weekday)
Work days per year	52	Import of Backfill Materials and Stockpile Sites Maintainence (occur biweekly over about 2 days each time)
Work days per event year	21	Miller Road Off-Haul Events (Monday through Friday for 1-month)

Abbreviations

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; CO_2 = carbon dioxide; CH_4 =methane; N_2O =nitrous oxide; lbs = pounds

Unit conversions

Pounds per ton	2,000

Miller Rd - Trench Soil Import Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Miller Rd - Trench Soil Import
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.30
Precipitation (days)	7.20
Location	37.76043059928759, -122.09058066800141
County	Alameda
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1408
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Recreational	0.00	User Defined Unit	5.90	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.30	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.02	—	216	216	0.01	0.03	0.47	228
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.30	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.02	0.00	216	216	0.01	0.03	0.47	228
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.31	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.02	—	217	217	0.01	0.03	0.01	227
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.31	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.02	0.00	217	217	0.01	0.03	0.01	227
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.31	0.14	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	217	217	0.01	0.03	0.20	227
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.31	0.14	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	0.00	217	217	0.01	0.03	0.20	227
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.9	35.9	< 0.005	0.01	0.03	37.6
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	35.9	35.9	< 0.005	0.01	0.03	37.6

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

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

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	6.03	6.03	6.03	2,200	60.3	60.3	60.3	22,000

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	—

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
User Defined Recreational	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
User Defined Recreational	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
User Defined Recreational	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

8. User Changes to Default Data

Screen	Justification
Land Use	Miller Road stockpile site acreage was obtained from the project description.
Operations: Off-Road Equipment	Off-road equipment exhaust emissions calculations were provided in the Appendix.
Operations: Fleet Mix	Information about project-generated vehicle trips and associated VMT was provided by EBMUD for the 2030 project condition. Fleex mix was calculated based on VMT associated with each vehicle category. Since routine off-haul evens may begin as early as 2025, year 2025 emission factors were used in this analysis to be conservative.

Miller Rd - Backfill Material Import/Export Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Miller Rd - Backfill Material Import/Export
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.30
Precipitation (days)	7.20
Location	37.76043059928759, -122.09058066800141
County	Alameda
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1408
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Recreational	0.00	User Defined Unit	5.90	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.57	273
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.00	260	260	0.02	0.04	0.57	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.36	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.01	273
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.36	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.00	260	260	0.02	0.04	0.01	273
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.35	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.25	273
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.35	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.00	260	260	0.02	0.04	0.25	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.0	43.0	< 0.005	0.01	0.04	45.2
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	43.0	43.0	< 0.005	0.01	0.04	45.2

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

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

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	6.31	6.31	6.31	2,304	75.7	75.7	75.7	27,617

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	—

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
User Defined Recreational	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
User Defined Recreational	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
User Defined Recreational	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

8. User Changes to Default Data

Screen	Justification
Land Use	Miller Road stockpile site acreage was obtained from the project description.
Operations: Off-Road Equipment	Off-road equipment exhaust emissions calculations were provided in the Appendix.
Operations: Fleet Mix	Information about project-generated vehicle trips and associated VMT was provided by EBMUD for the 2030 project condition. Fleex mix was calculated based on VMT associated with each vehicle category. Since routine off-haul evens may begin as early as 2025, year 2025 emission factors were used in this analysis to be conservative.

Miller Rd - Off-Haul Events Trips Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Miller Rd - Off-Haul Events Trips
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.30
Precipitation (days)	7.20
Location	37.76043059928759, -122.09058066800141
County	Alameda
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1408
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Recreational	0.00	User Defined Unit	5.90	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.03	1.55	0.69	0.01	0.02	0.33	0.35	0.02	0.09	0.11	—	1,231	1,231	0.07	0.19	2.73	1,293
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.03	1.55	0.69	0.01	0.02	0.33	0.35	0.02	0.09	0.11	0.00	1,231	1,231	0.07	0.19	2.73	1,293
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.03	1.64	0.69	0.01	0.02	0.33	0.35	0.02	0.09	0.11	—	1,231	1,231	0.07	0.19	0.07	1,291
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.03	1.64	0.69	0.01	0.02	0.33	0.35	0.02	0.09	0.11	0.00	1,231	1,231	0.07	0.19	0.07	1,291
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.03	1.61	0.69	0.01	0.02	0.33	0.35	0.02	0.09	0.11	—	1,231	1,231	0.07	0.19	1.18	1,292
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.10	0.03	1.61	0.69	0.01	0.02	0.33	0.35	0.02	0.09	0.11	0.00	1,231	1,231	0.07	0.19	1.18	1,292
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.01	0.29	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	204	204	0.01	0.03	0.20	214
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.29	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	0.00	204	204	0.01	0.03	0.20	214

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

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

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	24.3	24.3	24.3	8,880	361	361	361	131,616

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	—

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
User Defined Recreational	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
User Defined Recreational	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
User Defined Recreational	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

8. User Changes to Default Data

Screen	Justification
Land Use	Miller Road stockpile site acreage was obtained from the project description.
Operations: Off-Road Equipment	—
Operations: Fleet Mix	Information about project-generated vehicle trips and associated VMT was provided by EBMUD for the 2030 project condition. Fleex mix was calculated based on VMT associated with each vehicle category. Since routine off-haul evens may begin as early as 2025, year 2025 emission factors were used in this analysis to be conservative.

Appendix B.2: Health Risk Assessment

On-Road Haul Truck Emission Rates for Air Dispersion Modeling

Scenario	Emission Source Type	PM_{10} EF	$PM_{2.5}$ EF				Maximum Daily One-Way Trip Rate (trips/day)[3]	Length[4] (miles)	Frequency (days/week)	Average Weekday VMT	Emission Rate (g/s)	
		RUNEX[1] (g/mile)	RUNEX[1] (g/mile)	PMTW[1] (g/mile)	PMBW[1] (g/mile)	Resuspended Road Dust[2] (g/mile)					PM_{10}	$PM_{2.5}$
Import of trench soil	Heavy Duty Trucks_Running	0.027	0.026	0.009	0.028	0.07324	10	1.94	5	19.4	0.000006	0.00003
Import of backfill materials							46	1.94	1	17.9	0.000006	0.00003
Off-haul events							400	1.94	5	777	0.00024	0.0012

Notes

[1] EMFAC2021 Emission Rates in SFBAAB for operational year 2025. Since routine off-haul events may begin starting 2025, year 2025 emission factors were used in this analysis to be conservative.

[2] Paved road resuspended dust emission factor was calculated based on U.S. Environmental Protection Agency's Compilation of Air Pollutant Emissions Factors (AP-42), Section 13.2.1 Paved Roads and guidance

[3] Project emissions were estimated for the 2030 Project condition regarding trip generation. According to the transportation analysis of the Project, the import of trench soil would occur every workday. The import of backfill materials would occur biweekly over about 2 days each time through the year (one day per week in average). Off-haul events would occur every five years and last for one to three months per event, with the potential for off-haul events every one to two years to respond to beneficial soil reuse opportunities in the area. Under a worst-case scenario, the off-haul event would off-haul 50,000 CY of material and last for 1 month (21 days), resulting in 400 heavy-duty truck one-way trips per workday.

[4] Assume 1.94-mile line source on the proposed haul truck route for receptors along Redwood Road between I-580 WB On-Off Ramps and Camino Alta Mira.

Abbreviations

EF = Emission Factor
g = Gram
RUNEX = Engine Running Exhaust Emission Factor
PMTW = Tire wear emission factor
PMBW = Brake wear emission factor
VMT = Vehicle miles traveled

Equations

Resuspended Road Dus EF = $k*(sL)^{0.91}*(W)^{1.02}*[1-P/(4N)]*$conversion

Where:
Particle size multiplier (k) = 0.00054 (lbs/VMT, AP-42, Table 13.2.1-1)
Road surface silt loading (sL) = 0.1 (g/m^2)
Average weight all vehicles on road (W) = 2.4 (tons) (CalEEMod guidance)
Days of Precipitation (P) =7.2 (days) (CalEEMod default for the project region)
Day in averaging period (N) = 365 (days)

Truck Running PM_{10} Emission Rate = VMT Rate * RUNEX EF * conversion

Truck Running $PM_{2.5}$ Emission Rate = VMT Rate *(RUNEX EF + PMTW EF + PMBW EF + Resuspended Road Dust EF)* conversion

Unit conversions

1 day = 86400 seconds
1 pound = 453.6 grams

Summary of Dispersion Model Parameters, Assumptions, and Results for DPM and $PM_{2.5}$ Emissions from Haul Trucks during Operation

AERMOD Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Line Source: On-Road Haul Truck Emission			
DPM Emssion Rate - Trench Soil and Backfill Material Import	gram/second	1.16E-05	Exhaust PM_{10} from on-road running emissions
DPM Emssion Rate - Off-haul Events	gram/second	2.43E-04	
$PM_{2.5}$ Emssion Rate - Trench Soil and Backfill Material Import	gram/second	5.85E-05	$PM_{2.5}$ emissions including running exhaust, tire wear, brake wire, and resuspended road dust.
$PM_{2.5}$ Emssion Rate - Off-haul Events	gram/second	1.22E-03	
Average Hours/Work Day	hours/day	7	Assume a 7-hour workday from 9 am to 4 pm, Monday through Friday
Length of Side	meters	13.3	Width of a two-lane road + 6 meter
Line Length	meters	3127	1.94 miles haul route along Redwood Road
Release Height	meters	3.4	AERMOD Haul Road Area Source Calculator
Initial Vertical Dimension	meters	3.2	AERMOD Haul Road Area Source Calculator
AERMOD Model Results			
Sensitive Receptor	**Pollutant**	**Annual Average Concentration**	**Notes**
MEIR at 50 feet - Trench Soil and Backfill Material Import	DPM ($\mu g/m^3$)	0.000045	Maximally exposed individual residence (MEIR) is located as close as 50 feet from the centerline of Redwood Road
	$PM_{2.5}$ ($\mu g/m^3$)	0.000226	
MEIR at 50 feet - Off-Haul Events	DPM ($\mu g/m^3$)	0.000936	
	$PM_{2.5}$ ($\mu g/m^3$)	0.005	

Notes:
DPM = diesel particulate matter
$PM_{2.5}$ = fine particulate matter
$\mu g/m^3$ = micrograms per cubic meter

USEPA, 2021. PM Hot-spot Guidance. EPA-420-B-21-037. October.

PROJECT TITLE:

Miller Road Trench Soil
Haul Route - Truck Emissions

PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 4.03 [ug/m^3] at (581631.63, 4175029.66)

0.04 0.05 0.06 0.08 0.10 0.20 0.40 0.50 0.60 0.80 1.00 2.00 4.00 4.03

COMMENTS: Concentrations based on unit emission rate (1 g/s)	SOURCES: **1**	COMPANY NAME: **Baseline Environmental Consulting**	
	RECEPTORS: **1753**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:23,089 0 0.5 km	
	MAX: **4.03 ug/m^3**		PROJECT NO.: **21215-10**

Summary of Health Risk Assessment at the Maximally Exposed Individual Resident Exposed to DPM
Trench Soil and Backfill Material Import

Health Risk Assessment Parameters and Results						
Inhalation Cancer Risk Assessment	**Units**	**3rd Trimester**	**0-2 Year Infant**	**2-16 Year Child**	**> 16 Year Adult**	**Notes**
DPM Concentration (C)	$\mu g/m^3$	0.000045	0.000045	0.000045	0.000045	AERMOD Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1,090	572	261	OEHHA, 2015
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	$mg\text{-}m^3/\mu g\text{-}L$	0.000001	0.000001	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose (D)	mg/kg/day	0.000000016	0.000000047	0.000000025	0.000000011	$C*DBR*A*EF*CF_D$ (OEHHA, 2015)
Cancer Potency Factor (CPF)	$(mg/kg/day)^{-1}$	1.1	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	1	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	14	13.75	30 years of exposure commencing at year 2030.
Averaging Time (AT)	years	70	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	1.00	1.00	1.00	0.73	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk at MEIR location	per million	0.0006	0.0148	0.0163	0.0018	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk at MEIR location	per million	0.033				
Hazard Index for DPM	**Units**		**Value**			**Notes**
Chronic REL	$\mu g/m^3$	5.0				OEHHA, 2015
Chronic Hazard Index for DPM	unitless	0.00005				At the MEIR along the haul truck route

Notes:

DPM = diesel particulate matter

REL = reference exposure level

$\mu g/m^3$ = micrograms per cubic meter

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

$(mg/kg/day)^{-1}$ = 1/milligrams per kilograms per day

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

Summary of Health Risk Assessment at the Maximally Exposed Individual Resident Exposed to DPM
Miller Road Off-Haul Events

Health Risk Assessment Parameters and Results						
Inhalation Cancer Risk Assessment	**Units**	**3rd Trimester**	**0-2 Year Infant**	**2-16 Year Child**	**> 16 Year Adult**	**Notes**
DPM Concentration (C)	$\mu g/m^3$	0.000936	0.000936	0.000936	0.000936	AERMOD Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1,090	572	261	OEHHA, 2015
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	$mg\text{-}m^3/\mu g\text{-}L$	0.000001	0.000001	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose (D)	mg/kg/day	0.000000324	0.000000978	0.000000513	0.000000234	$C*DBR*A*EF*CF_D$ (OEHHA, 2015)
Cancer Potency Factor (CPF)	$(mg/kg/day)^{-1}$	1.1	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	1	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.08	0.2	1.2	1.2	30 years of exposure commencing at year 2030. Off-haul events would occur approximately every five years with up to 50,000 CY of trench soil off-hauled, but potentially every one to two years if beneficial soil reuse opportunities arise. If off-haul events occurred at one to two year intervals, less than 50,000 CY would be off-hauled per event. To be conservative, it was assumed that the off-haul events would occur every year with 50,000 CY of trench soil off-hauled and last for one-month per event in this analysis.
Averaging Time (AT)	years	70	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	1.00	1.00	1.00	0.73	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk at MEIR location	per million	0.00	0.03	0.03	0.003	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk at MEIR location	per million	0.061				
Hazard Index for DPM	**Units**		**Value**			**Notes**
Chronic REL	$\mu g/m^3$	5.0				OEHHA, 2015
Chronic Hazard Index for DPM	unitless	0.00094				At the MEIR along the haul truck route

Notes:
DPM = diesel particulate matter
REL = reference exposure level
$\mu g/m^3$ = micrograms per cubic meter
L/kg-day = liters per kilogram-day
m^3/L = cubic meters per liter
$(mg/kg/day)^{-1}$ = 1/milligrams per kilograms per day
Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

Appendix C: Noise Calculations

Noise Calculations for Onsite Activities

Project Component	Noise Generating Equipment[1]	Noise Generating Equipment (USDOT List)[2]	No. Equipment[1]	Acoustical Usage Factor[2]	Maximum Noise Level @ 50 feet (Lmax)[2,3]	Typical Noise Level @ 50 feet (dBA_1)	Ground Absorption Constant (G)	Reference Distance (D_1)	Distance to Receptor (D_2)	Noise Level at Receptor (dBA_2)		Combined Noise Level at Receptor (dBA2)
			Unit:	%	dBA Lmax	dBA Leq	unitless	feet	feet	dBA Leq	dBA Leq	dBA Leq
Trench Soil Import	Cat 336 Excavator	Excavator	1	40	85	81	0.5	50	5,300	30	33	39
	D6 Dozer	Dozer	1	40	85	81	0.5	50	5,300	30		
Backfill Material Import/Export	D8 Dozer	Dozer	1	40	85	81	0.5	50	5,300	30	30	
Miller Road Off-Haul Events	Cat 336 Excavator	Excavator	2	40	85	81	0.5	50	5,300	30	37	
	D6 or D8 Dozer	Dozer	2	40	85	81	0.5	50	5,300	30		
	Water Truck	Flat Bed Truck	1	40	84	80	0.5	50	5,300	29		
	Sweeper	Vacuum Street Sweeper	1	10	80	70	0.5	50	5,300	19		

Notes:

Noise level at the receptor calculated based on the following equation:[4]

$dBA_2 = dBA_1 + 10 * \log_{10}(D_1/D_2)^{2+G}$

Where:

dBA_2 = Noise level at receptor

dBA_1 = Noise level at reference distance

D_1 = Reference distance

D_2 = Receptor distance

G = Ground absorption constant (0 for hard surface, 0.5 for soft surface)

Combined noise levels at receptor calculated for two noisiest equipment using decibel addition:

$L = 10 * \log_{10}(10^{(L_1/10)}+10^{(L_2/10)})$

Where:

L = Combined noise level

L_1 = Noise level for first noisiest piece of equipment

L_2 = Noise level for second noisiest piece of equipment

[1] Off-road equipment list was provided by EBMUD.

[2] U.S. Department of Transportation, 2006. FHWA Highway Construction Noise Handbook, Table 9.1. August.

[3] Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, Table 7-1. September.

[4] California Department of Transportation, 1998. Technical Noise Supplement (TeNS). Equation N-2141.2. October.

Traffic Counts on Redwood Road

Assumptions:

Speed limit : 35 mph

Truck percent for existing conditions: 3.30%

It was assumed that for 2024 existing conditions and future baseline 2030 conditions, heavy-duty trucks account for 3.3% of the daily traffic volume.

Worst case scenario: the project would generate 35 inbound trips, 35 outbound trips, and 5 worker commute one-way trips during AM and PM peak hours

Source:

Traffic volumes at each studied intersections for the 2024 existing condition, the 2030 future Baseline condition, and project-generated vehicle trips during AM and PM peak hours were provided by the transportation consultant.

Traffic Counts during AM and PM Peak Hours

Road Segment		Vehicle Type	Existing (2024)		Existing (2024) plus Project		Future Baseline (2030)		Future Baseline (2030) plus Project	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Redwood Road	North of Seven Hills Road	Passenger	936	786	941	791	1,007	949	1,012	954
	Between Seven Hills Road and Castro Valley Road		1,346	1,464	1,351	1,469	1,428	1,664	1,433	1,669
	Between Castro Valley Road and I-580 West Ramps		2,092	2,624	2,097	2,629	2,230	2,923	2,235	2,928
	Between I-580 West Ramps and I-580 East Ramps		2,640	2,925	2,643	2,927	2,854	3,141	2,857	3,144
Redwood Road	North of Seven Hills Road	Heavy-duty Trucks	32	27	102	97	34	32	104	102
	Between Seven Hills Road and Castro Valley Road		46	50	116	120	49	57	119	127
	Between Castro Valley Road and I-580 West Ramps		72	90	142	160	76	100	146	170
	Between I-580 West Ramps and I-580 East Ramps		90	100	125	135	98	107	133	142

Truck Percentage

Roadway Segment		Existing (2024)		Existing (2024) plus Project		Future Baseline (2030)		Future Baseline (2030) plus Project	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Redwood Road	North of Seven Hills Road	3.3%	3.3%	9.8%	10.9%	3.3%	3.3%	9.3%	9.7%
	Between Seven Hills Road and Castro Valley Road	3.3%	3.3%	7.9%	7.6%	3.3%	3.3%	7.7%	7.1%
	Between Castro Valley Road and I-580 West Ramps	3.3%	3.3%	6.3%	5.7%	3.3%	3.3%	6.1%	5.5%
	Between I-580 West Ramps and I-580 East Ramps	3.3%	3.3%	4.5%	4.4%	3.3%	3.3%	4.4%	4.3%

Existing AM

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	101	111	143	76	138	42	67	226	57	30	472	97
2	78	384	189	179	344	230	214	565	114	239	564	67
3				703	3	248	278	1005			763	485
4	491	11	325					778	341	222	1220	

Existing PM

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	63	59	117	65	30	9	122	367	49	6	329	39
2	129	518	234	234	378	207	316	713	288	264	574	91
3				564	4	289	253	1399			813	566
4	719	5	490					915	330	116	1270	

2030 Baseline AM

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	109	120	154	81	146	45	71	251	61	32	501	103
2	95	470	231	179	344	230	220	591	117	252	595	71
3				741	3	266	307	1115			793	504
4	580	13	381					809	355	240	1318	

2030 Baseline PM

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	83	78	154	69	32	10	153	459	61	7	378	44
2	175	701	317	269	434	238	350	789	319	271	600	94
3				571	4	293	276	1528			930	649
4	785	5	535					981	354	124	1301	

Project Trips AM - Worker

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1								5				
2								5				
3						2.5		2.5				
4	2.5											

Project Trips PM - Worker

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1											5	
2											5	
3											2.5	2.5
4										2.5		

Project Trips AM - Truck

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1								35			35	
2								35			35	
3						17.5		17.5			17.5	17.5
4	17.5									17.5		

Project Trips PM - Truck

INTID	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1								35			35	
2								35			35	
3						17.5		17.5			17.5	17.5
4	17.5									17.5		

Baseline Environmental Consulting **10 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR Ldn
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway Name	Points Name	No.	Segment ADT	Autos			MTrucks			HTrucks			Buses			Motorcycles		
				%D	%N	S	%D	%N	S	%D	%N	S	%D	%N	S	%D	%N	S
			veh/24hrs	%	%	mph	%	%	mph	%	%	mph	%	%	mph	%	%	mph
Redwood Rd near Somerset Ave	point1	1	17000	97	97	35	0	0	0	3	3	35	0	0	0	0	0	0
	point2	2																

Baseline Environmental Consulting
Baseline Env

10 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Ldn	No Barrier		Increase over existing		Type Impact	With Barrier	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated Ldn	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting				**10 October 2024**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21215-10**											
RUN:	**Miller Road Trench Soil Project**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
North of Seven Hills Rd-2024 E AM	point1	1	936	35	0	0	32	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env
10 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway Name	Points Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
North of Seven Hills Rd-2024 existing PM	point1	1	786	35	0	0	27	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
North of Seven Hills Rd-2024 E+P PM	point1	1	791	35	0	0	97	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway Name	Points Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
North of Seven Hills Rd-2030 B PM	point1	1	949	35	0	0	32	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env
2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting				**2 October 2024**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21215-10**											
RUN:	**Miller Road Trench Soil Project**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
North of Seven Hills Rd-2030 B+P PM	point1	1	954	35	0	0	102	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env
2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting 10 October 2024
Baseline Env TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project

Roadway Name	Points Name	No.	Segment	Autos		MTrucks		HTrucks		Buses		Motorcycles	
				V	S	V	S	V	S	V	S	V	S
				veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between SH and CVR-2024 E AM	point1	1		1346	35	0	0	46	35	0	0	0	0
	point2	2											

Baseline Environmental Consulting
Baseline Env
10 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting				**2 October 2024**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21215-10**											
RUN:	**Miller Road Trench Soil Project**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between SH and CVR-2024 E PM	point1	1	1464	35	0	0	50	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway Name	Points Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between SH and CVR-2024 E+P PM	point1	1	1469	35	0	0	120	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between SH and CVR-2030 B PM	point1	1	1664	35	0	0	57	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env
2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between SH and CVR-2030 B+P PM	point1	1	1669	35	0	0	127	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting 10 October 2024
Baseline Env TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between CVR & I580W-2024 E AM	point1	1	2092	35	0	0	72	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env
10 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project

Roadway Name	Points Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between CV Rd & I580W-2024 E PM	point1	1	2624	35	0	0	90	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between CV Rd & I580W-2024 E+P PM	point1	1	2629	35	0	0	160	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env
2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between CV Rd & I580W-2030 B PM	point1	1	2923	35	0	0	100	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between CV Rd & I580W-2030 B+P PM	point1	1	2928	35	0	0	170	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting				**10 October 2024**									
Baseline Env				**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	**21215-10**												
RUN:	**Miller Road Trench Soil Project**												
Roadway	**Points**												
Name	**Name**	**No.**	**Segment**										
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**		
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Between I580W & I580E -2024 E AM	point1	1	2640	35	0	0	90	35	0	0	0	0	
	point2	2											

Baseline Environmental Consulting
Baseline Env

10 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between I580W and I580E-2024 E PM	point1	1	2925	35	0	0	100	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between I580W and I580E-2024 E+P PM	point1	1	2927	35	0	0	135	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between I580W and I580E-2030 B PM	point1	1	3141	35	0	0	107	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Baseline Environmental Consulting **2 October 2024**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21215-10**
RUN: **Miller Road Trench Soil Project**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Between I580W and I580E-2030 B+P PM	point1	1	3144	35	0	0	142	35	0	0	0	0
	point2	2										

Baseline Environmental Consulting
Baseline Env

2 October 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21215-10
RUN: Miller Road Trench Soil Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0