MEMORANDUM

June 16, 2023

From: Will Burns, Vice President
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To: Erika Lewit, Senior Planner
City of Burlingame
501 Primrose Road
Burlingame, CA 94010

Re: Qualification of the Residential Project at 123-135 Primrose Road for CEQA Class 32 Categorical Exemption

INTRODUCTION TO CATEGORICAL EXEMPTIONS

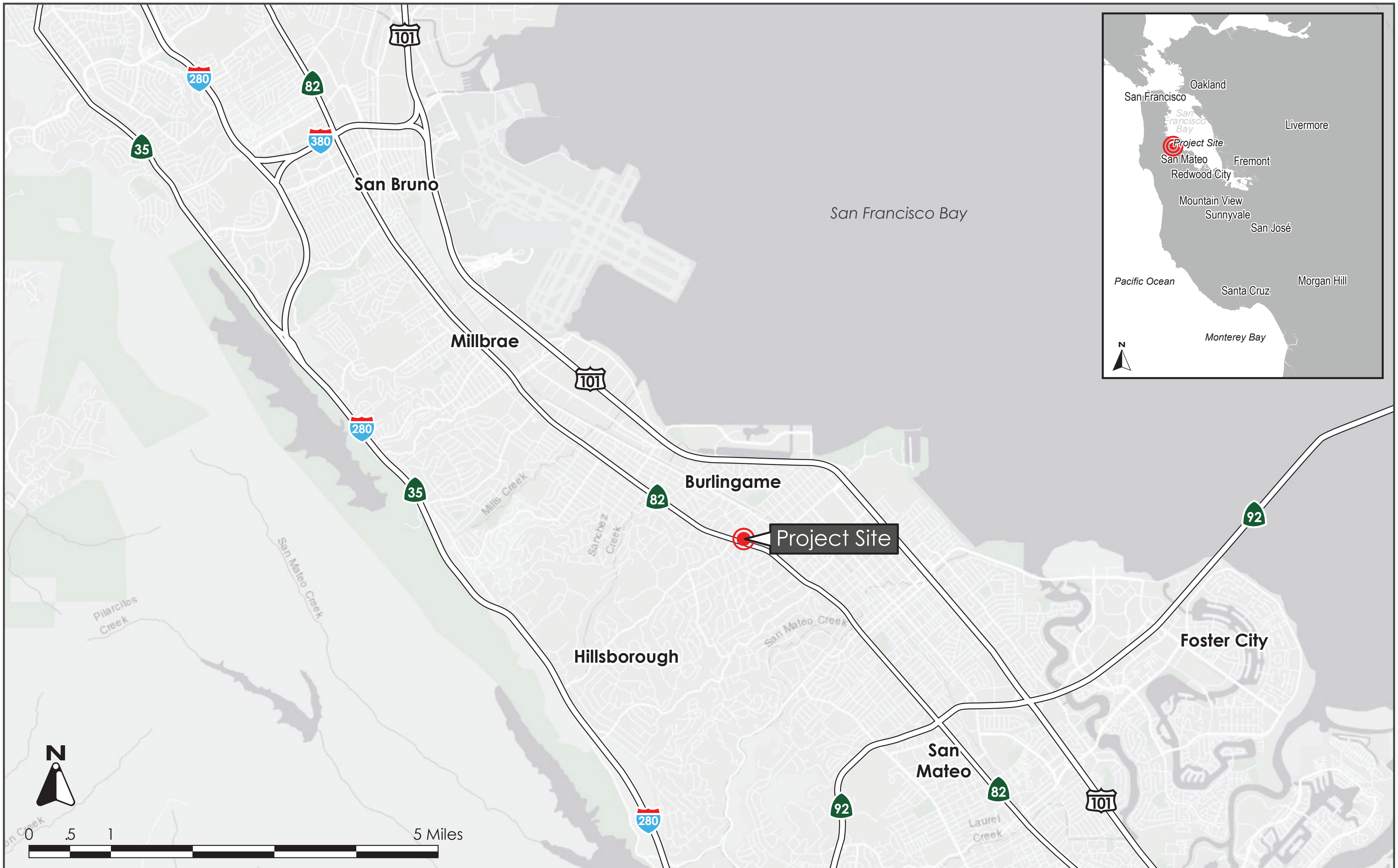
The California Environmental Quality Act (CEQA) Guidelines contain classes (or categories) of projects that have been determined not to have a significant effect on the environment and are therefore exempt from the provisions of CEQA. CEQA Guidelines Sections 15301 – 15333 constitute the list of categorically exempt projects and contain specific criteria that must be met in order for a project to be found exempt. Additionally, CEQA Guidelines Section 15300.2 includes a list of exceptions to exemptions, none of which may apply to a project in order for it to qualify for a categorical exemption, i.e., if an exception applies, a project is precluded from being found categorically exempt.

CEQA Guidelines Section 15332 – In-Fill Development Projects sets forth criteria for projects characterized as in-fill development that may be found categorically exempt. The analysis below shows that: a) none of the exceptions contained in 15300.2 apply to the project and, b) the project is consistent with the in-fill criteria in Section 15332. We conclude that the project proposed for 123-135 Primrose Road can be found categorically exempt from CEQA under Guidelines Section 15332.

PROJECT DESCRIPTION

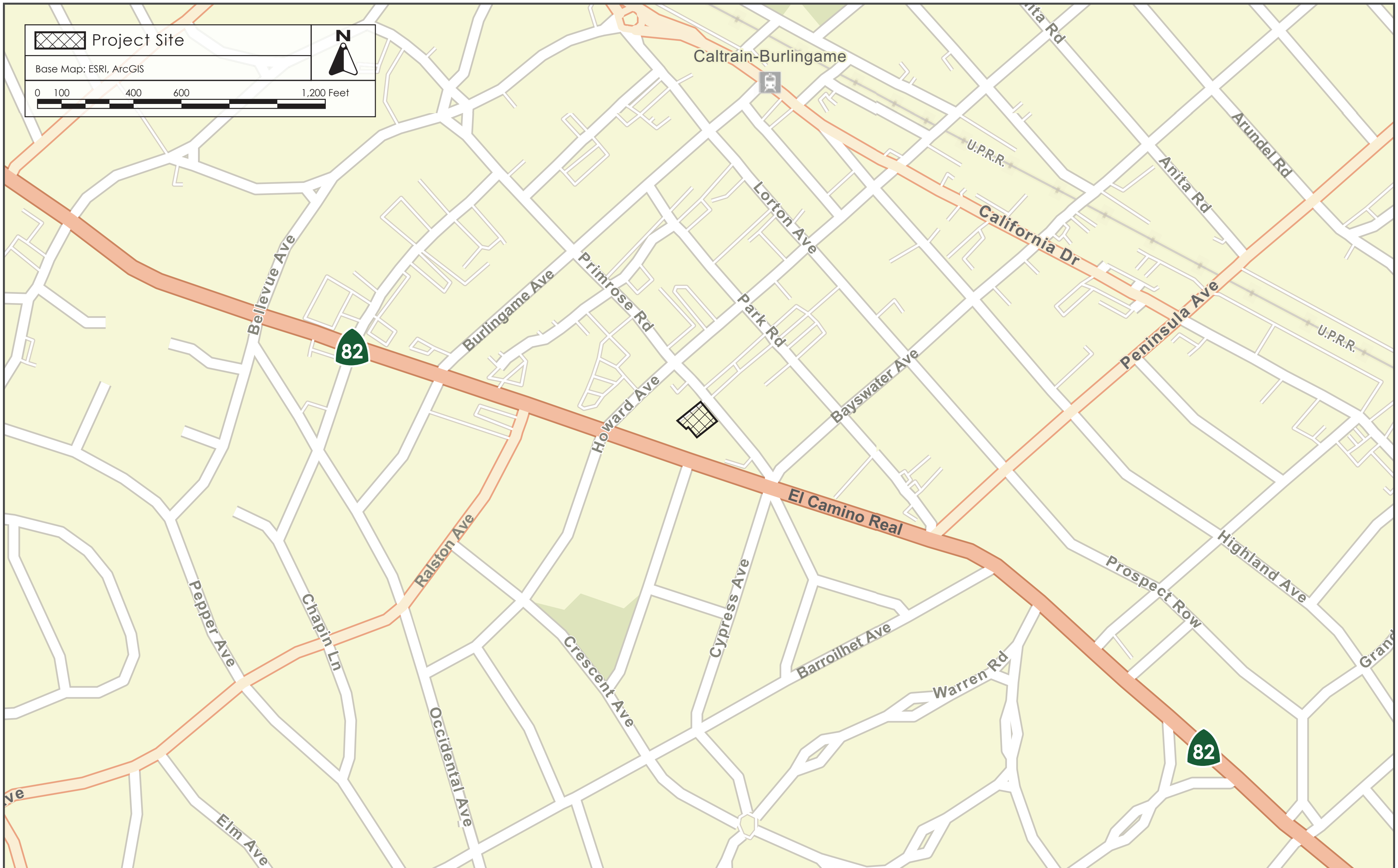
Project Location and Overview

The project site is located at 123-135 Primrose Road in the City of Burlingame (Accessor's Parcel Numbers [APN] 029-221-040 and 029-221-050). Assuming a north-south alignment, the project site is bounded by Primrose Road to the north, residential uses to the east and south, and a church and institutional uses to the west. The project site is approximately 10,716 square-feet (or 0.25-acres) in size and is currently developed with an approximately 1,414 square-foot commercial building and a parking lot. The project site is located within the City's Downtown Specific Plan area. The site is within the Downtown Specific Plan's Howard Mixed Use (HMU) District and is zoned HMU by the City. The site is within 0.5 miles of the Burlingame Caltrain Station and within 0.1 miles of north and southbound SamTrans bus stops on the El Camino Real high quality transit corridor. Figure 1, Figure 2, and Figure 3 show regional, vicinity, aerial maps of the project site, respectively.



REGIONAL MAP

FIGURE 1



VICINITY MAP

FIGURE 2

AERIAL PHOTOGRAPH AND SURROUNDING LAND USES

FIGURE 3

The project proposes to demolish the existing building on-site and merge the two lots to construct a new, four-story, approximately 29,151 square-foot residential building. The proposed building would consist of a parking garage and lobby on the first floor and three levels of residential uses containing 14 multi-unit residential apartments.

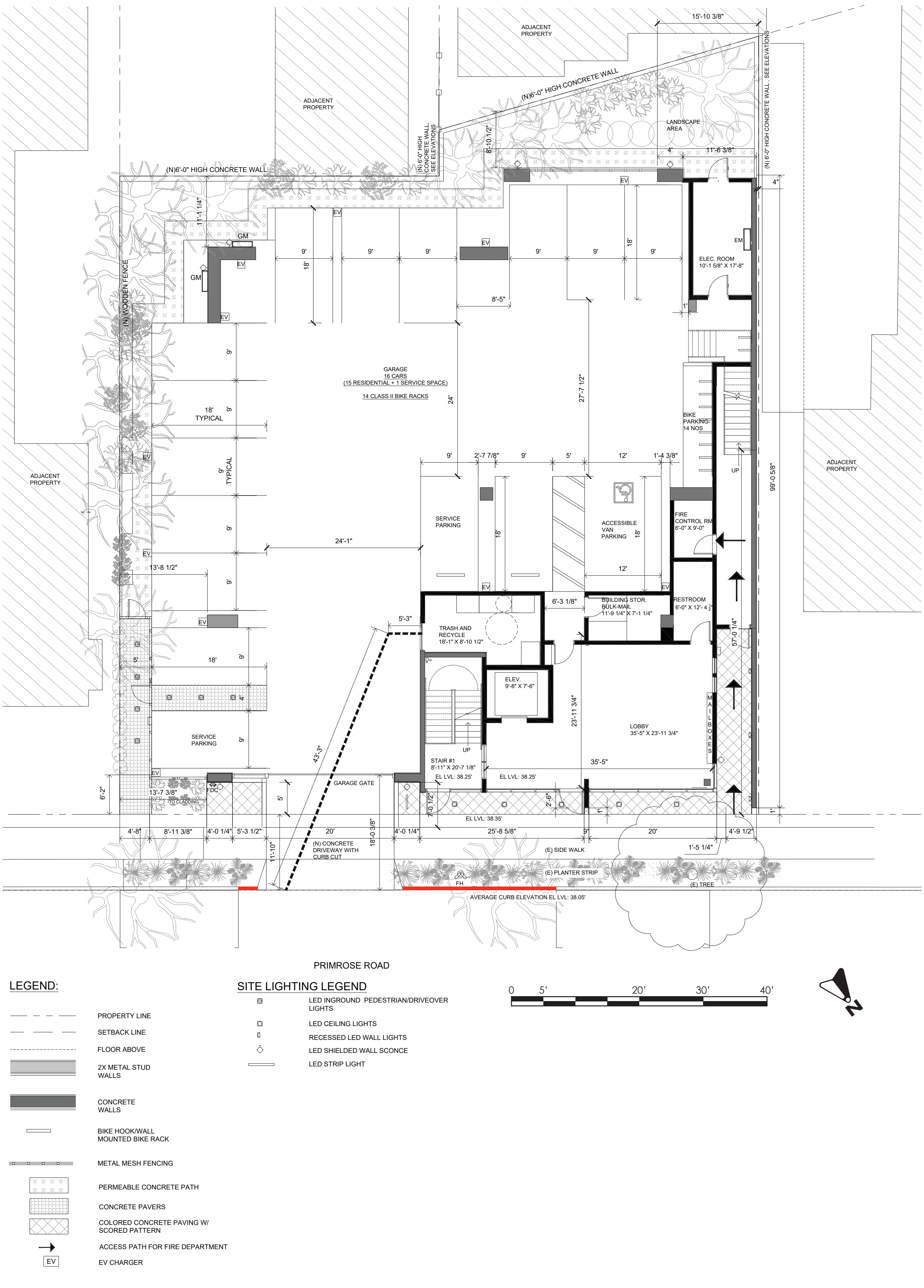
Project Components

Multi-Unit Residential Building

The project proposes to construct a new, four-story, approximately 29,151 square-foot residential building. The proposed building would contain seven one-bedroom units, six two-bedroom units, and one three-bedroom unit for a total of 14 units. The first floor of the proposed building would include approximately 5,749 square-feet of covered parking area and an approximately 1,323 square-foot lobby. The residential units would be located on the second through fourth floors. The project would include a rooftop terrace garden area. The proposed building would reach a height of approximately 54 feet from the average top of curb and would reach a maximum height of approximately 63 feet at the top of the elevator enclosure. The project proposes a front setback ranging from 0 to one foot, depending on the floor, an east side setback ranging from 10 feet to approximately 13'-8" feet, a west side setback ranging from four inches to approximately five feet, and a rear setback ranging from approximately 8'-10" to 11'-1" feet. Proposed floor plans and building elevations are shown in Figure 4 through Figure 10.

Landscaping and Open Space

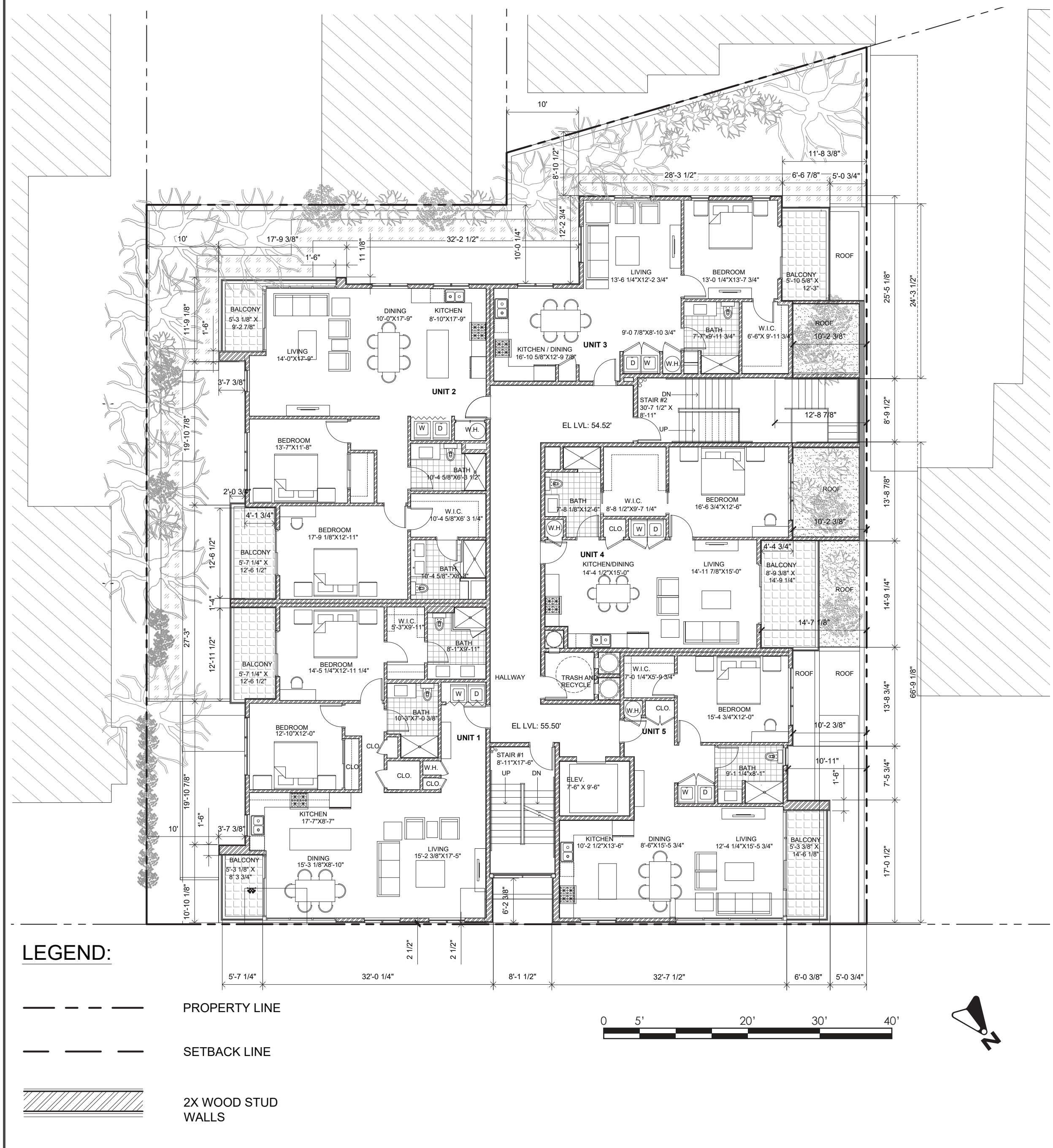
The project would include approximately 2,890 square feet of common open space. Common open space would be provided via a rear yard landscaped area and the rooftop terrace garden. The rooftop terrace garden would include garden areas, an open trellis, seating, and outdoor dining tables. Additionally, each unit would include at least one private balcony. Landscaping would be provided in the common open spaces as well as along the site boundaries and frontage. The project proposes to remove seven out of eight existing trees, all of which are located in the right-of-way in the planter strip in front of the site. The protected-size sycamore in the planter strip at the front, right side of the site will be retained and protection measures will be installed during demolition and construction. The project would plant 11 new trees, nine on the property and two in the planter strip, for a net increase of four trees and a total of 12 trees associated with the site.



Source: Carrasco & Associates, May 3, 2023.

FIRST FLOOR PLAN

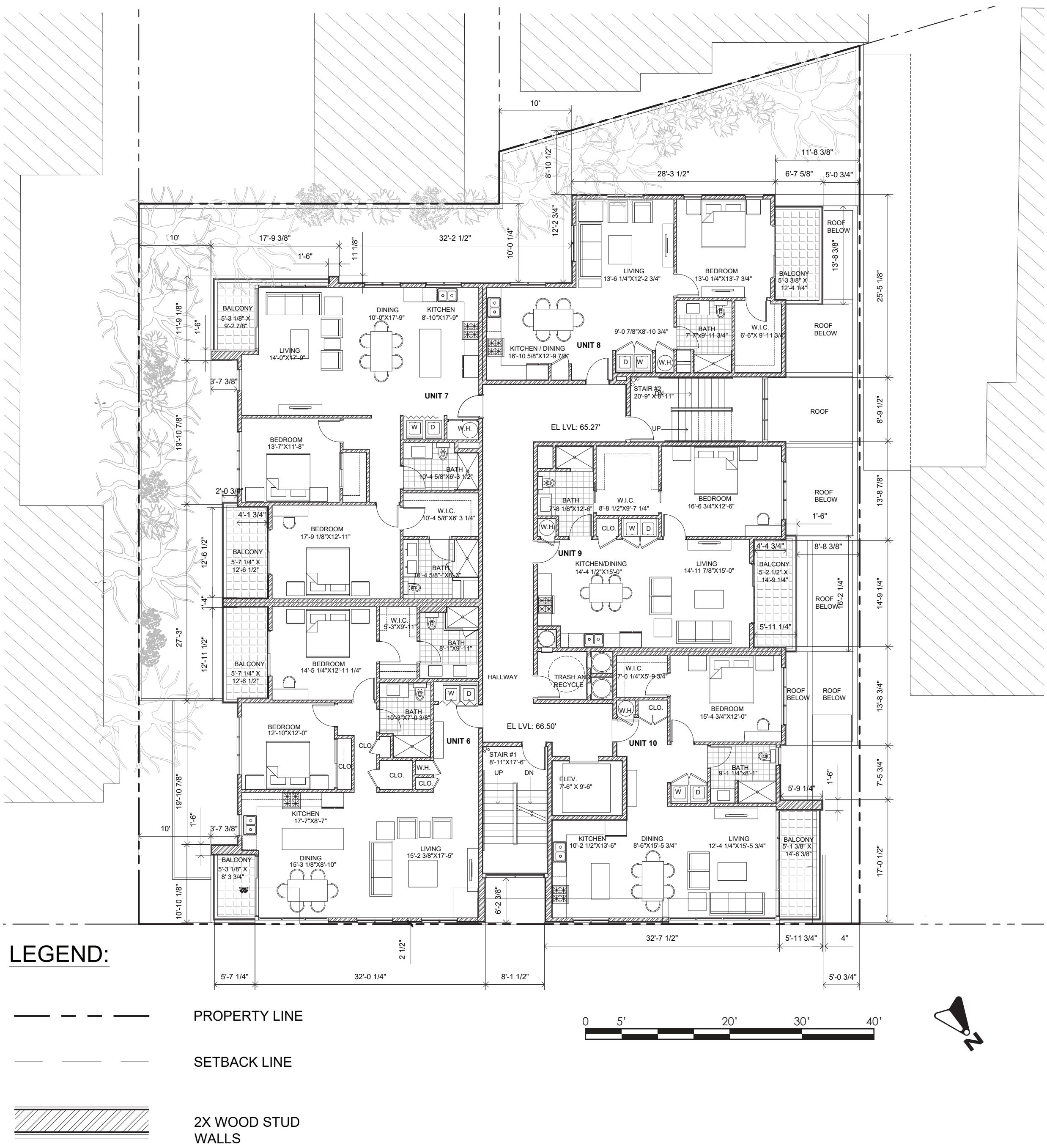
FIGURE 4



Source: Carrasco & Associates, April 26, 2023.

SECOND FLOOR PLAN

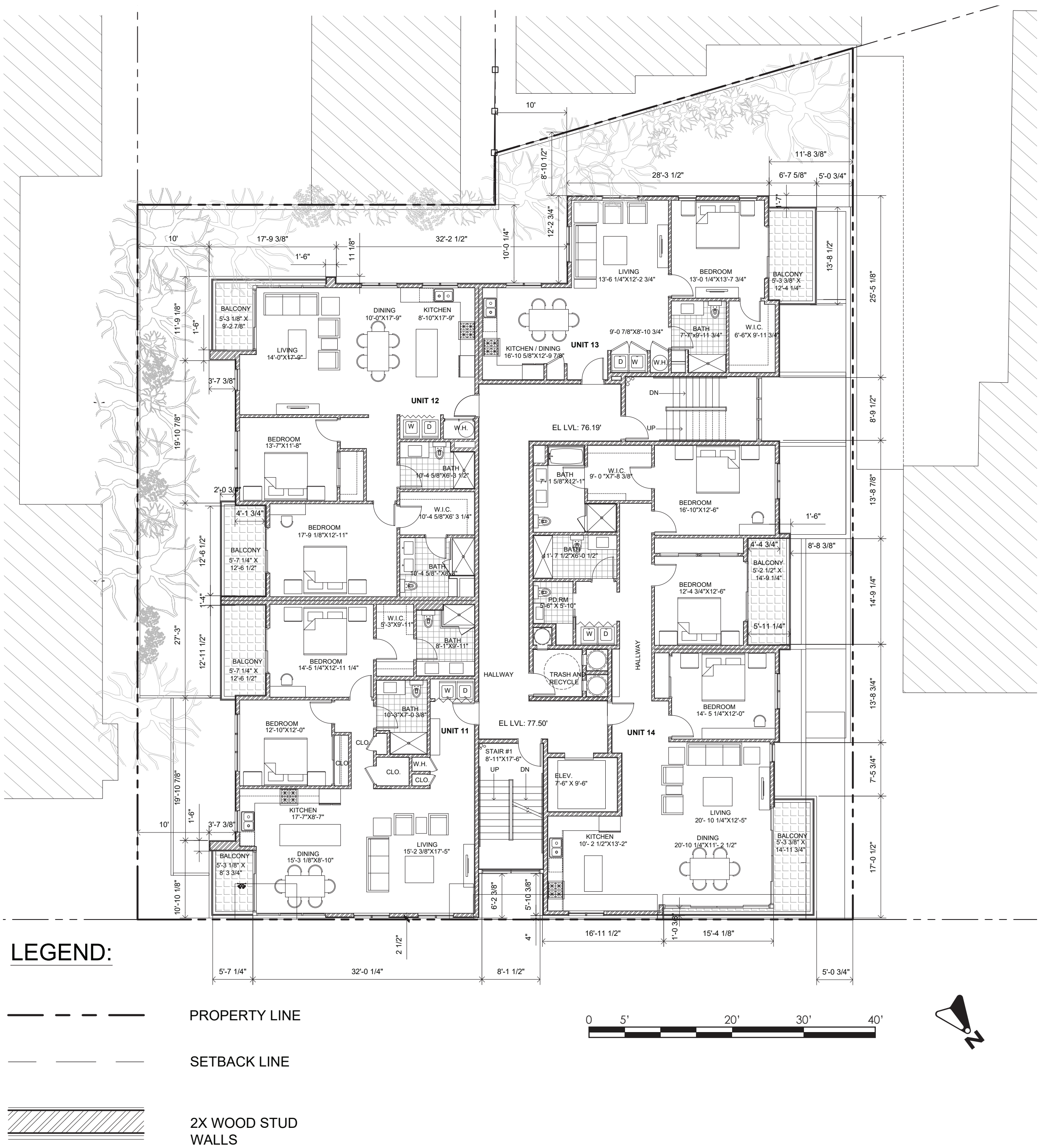
FIGURE 5



Source: Carrasco & Associates, April 26, 2023.

THIRD FLOOR PLAN

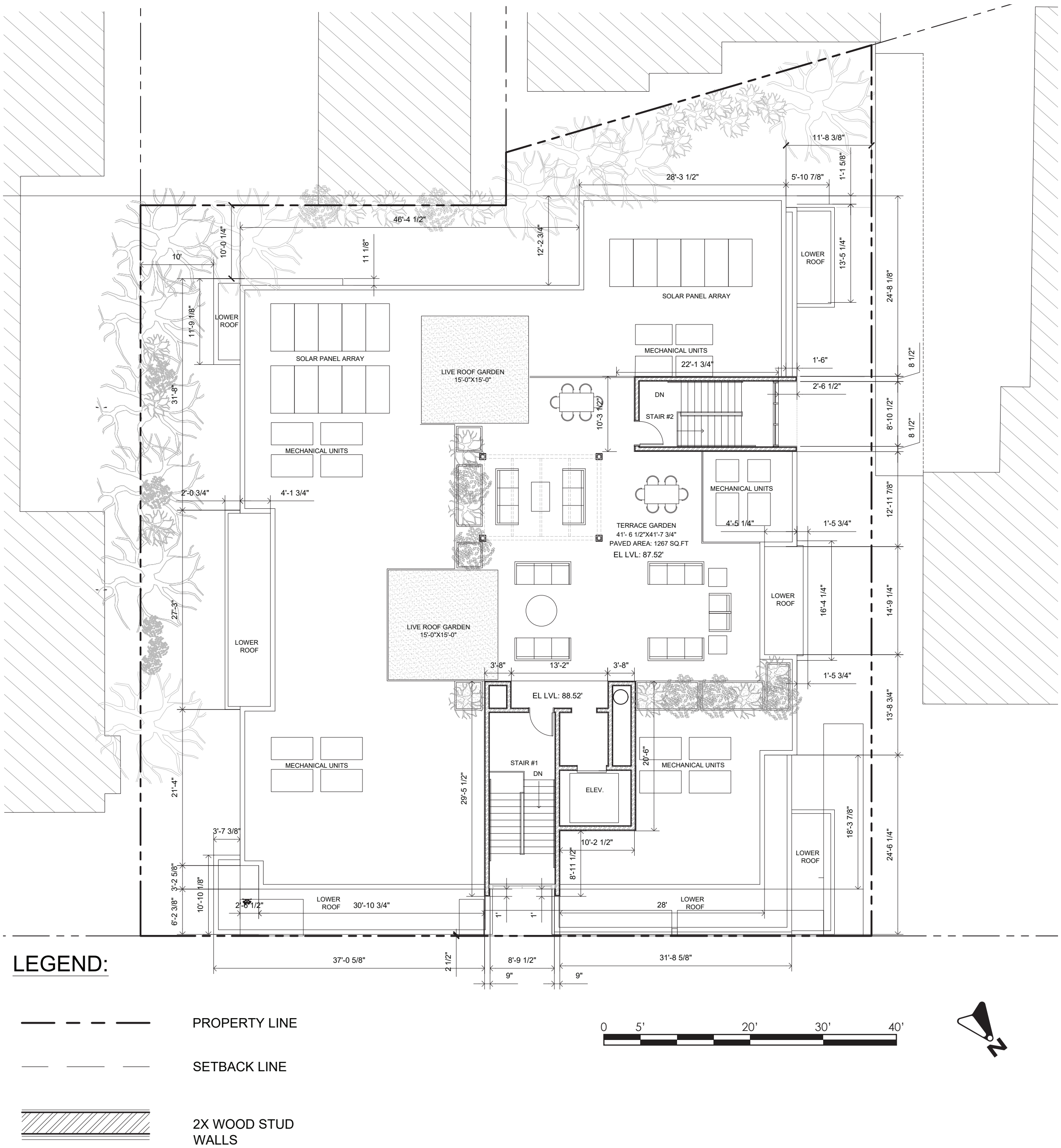
FIGURE 6



Source: Carrasco & Associates, April 26, 2023.

FOURTH FLOOR PLAN

FIGURE 7



Source: Carrasco & Associates, April 26, 2023.

ROOF PLAN

FIGURE 8

Source: Carrasco & Associates, April 26, 2023.

NORTH AND WEST ELEVATIONS

FIGURE 9

Source: Carrasco & Associates, May 3, 2023.

SOUTH AND EAST ELEVATIONS

FIGURE 10

Parking and Site Access

The project would provide 16 covered parking spaces at ground-level. All proposed parking spaces are grade level and no mechanical parking lifts are proposed. The project would also provide 14 bicycle storage spaces for residents in the covered parking garage and one bicycle rack for two guest bicycles in front of the building. Site access would be provided via a new driveway along Primrose Road leading directly into the proposed parking garage area. Pedestrian access would also be provided to the parking garage area and the lobby via the existing sidewalks along Primrose Road. A pedestrian walkway would be provided from the parking garage area to the sidewalk east of the proposed driveway.

Grading and Construction

Project construction assumes a net zero soil use (the project would neither import nor export soil) from the project site. Construction is anticipated to require approximately 15 months to complete.

Green Building Measures

The project will incorporate the following green building measures:
- Rooftop solar panels
- Pervious pedestrian walkway

I. EXCEPTIONS TO CATEGORICAL EXEMPTIONS

This section documents that none of the exceptions in CEQA Guidelines Section 15300.2 would disqualify the project from being found categorically exempt.

<u>CEQA Guidelines Section 15300.2 – Exceptions</u>

(a) Location: Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply in all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

This exception only applies to Class 3, 4, 5, 6, and 11 exemptions. The proposed project is categorically exempt under Class 32, therefore the exception under CEQA Guidelines Section 15300.2(a) is not applicable.

(b) Cumulative Impact: All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

There are no other projects of the same type in the same place currently under construction or that are anticipated to be under construction at the same time as the proposed project. Most of the project's impacts would be limited to the project site. However, there is a proposed mixed-use project located at 1200 Howard Avenue, a proposed office project located at 1430 Chapin Avenue, and an office project at 220 Park Road that is under construction. The Howard Avenue and Park Road projects are approximately 0.18 miles from the project site and the Chapin Avenue project is approximately 0.3 miles from the project site. It is possible that construction of these four projects could occur at the same time, resulting in the potential for construction-related impacts to combine into cumulative impacts. However, it is unlikely that the projects would be in the same phase of construction at the same time or substantially affect the same receptors. Certain phases of construction, such as demolition and grading, have greater potential for air quality and noise impacts than the other phases. The projects would be subject to the City's construction air quality and noise control requirements, as discussed further in this memo. While most of the project's impacts would be limited to the project site, emissions of greenhouse gas emissions and regional criteria pollutants would have potential to have a broader impact. The cumulative impacts of greenhouse gas emissions and regional criteria pollutants are discussed below. The projects potential to contribute to a cumulative community health risk impact is discussed later in this memorandum (memo), see II. Infill Criteria, Table 4.

Greenhouse Gas Emissions

Global climate change is by its very nature a cumulative impact. In April 2022, the Bay Area Air Quality Management District (BAAQMD) adopted new thresholds for assessing the impacts that projects and plans would have on climate change. BAAQMD provided a justification report that described these new qualitative thresholds that are recommended for lead agencies to consider when approving projects or plans through the CEQA process. BAAQMD has determined that projects meeting the following requirements would contribute their fair share to the goal of carbon neutrality by 2045:

- The project will not include natural gas plumbing or appliances,
- The project will not result in wasteful, inefficient, or unnecessary energy usage,
- Complies with SB 743 vehicle miles traveled (VMT) targets, and
- Complies with off-street electric vehicle (EV) requirements in the City of Burlingame 2022 Reach Code.

The City of Burlingame adopted a Reach Code in 2022 that requires multi-unit residential projects to be 100% electric, and to provide for EV charging and readiness with a mix of Level 1 and Level 2 EV parking spaces. The project would comply with the required building standards including the 2022 Energy code section 170.02 for the provision of rooftop solar panels to avoid wasteful, inefficient, and unnecessary energy usage. The project would also meet VMT reduction targets as discussed in Section II(d) of this memo. Therefore, the project would not result in a significant contribution to cumulative GHG impacts.

Regional Criteria Pollutants

In its CEQA Air Quality Guidelines, BAAQMD developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a proposed project could result in potentially significant air quality impacts. If the size of the project is below the BAAQMD screening criteria, then the lead agency does not need to perform a detailed air quality assessment to compare the project's emissions to the BAAQMD significance thresholds. Project construction and operations would generate regional criteria pollutants that would contribute to cumulative regional air quality impacts. BAAQMD has adopted thresholds for screening levels for land uses to indicate whether a project would contribute a significant cumulative regional air quality impact. The project would not exceed the operational criteria pollutant screening threshold of 451 dwelling units or the construction-related screening size threshold of 240 apartment units. The project, therefore, would not contribute to a significant cumulative impact to regional criteria pollutants.

(c) Significant Effect: A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

The proposed project and project site do not contain any features that are unique or that would constitute 'unusual' circumstances for a residential project in the San Francisco Bay Area. The proposed apartment building at 14 units and four stories is not unusually large or tall. The proposed lot merger is not an uncommon process and the resulting site at approximately 0.25-acres is not large nor is it unusually small. The surrounding land uses (residential, commercial, and institutional) do not make for an unusual location for a multi-unit residential building. The proposed building would not include any unusual operational features or characteristics.

Other environmental resources are discussed further in this memo, none of which present unusual circumstances for the project site or proposed apartment building. Standard measures that are required by local, State, and federal law would be implemented as part of the project to minimize and avoid construction-related impacts. Therefore, there are no unusual circumstances related to the project or the project site that might cause significant effects.

(d) Scenic Highways: A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.

Interstate 280 (I-280) is the nearest officially designated state scenic highway.[1] The project site is approximately 2.25 miles northeast of the nearest officially designated segment of I-280. The proposed multi-unit residential building would not be visible from I-280 at this distance. El Camino Real, which is designated by the Burlingame General Plan and the County of San Mateo as a County Scenic Roadway, is located approximately 130 feet south of the project site. El Camino Real has a range of one- to three-story buildings in the vicinity of the project site and is lined by large Eucalyptus trees. Given the developed nature of the project site and the surrounding vicinity, views of the proposed building would be intermittent along the roadway and would not adversely impact scenic views from El Camino Real. Therefore, the project would not result in any damage to scenic resources within a highway officially designated as a state scenic highway.

(e) Hazardous Waste Sites: A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

The project site is not included on any lists compiled pursuant to Section 65962.5 of the Government Code,[2] therefore, no exceptions to the exemption apply under 15300.2(e).

(f) Historical Resources: A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

There is currently a commercial building located at 123 Primrose Road that is not considered to be a historic resource. While the existing building is over 50 years old, it was evaluated in the City's Downtown Specific Plan Inventory of Historic Resources[3] and determined ineligible for listing as a historic resource. However, the United Methodist Church at 1443 Howard Avenue, located directly east of the project site, and St. Catherine of Siena Catholic Church at 1330 Bayswater Avenue were

[1] California Department of Transportation. "State Scenic Highway Map". Accessed June 7, 2022. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways
[2] California Environmental Protection Agency. "Cortese List Data Resources". Accessed June 7, 2022. https://calepa.ca.gov/sitecleanup/corteselist/
[3] Carey & Co., Inc. *Inventory of Historic Resources – Burlingame Downtown Specific Plan*. October 6, 2008.

listed as being potentially eligible for local, state, and federal listing as a historical resource in the 2008 Inventory of Historic Resources prepared for the City by Carey & Co. Inc. These churches are considered to be historic resources by the City of Burlingame and may be eligible for listing in the California and National Registers. The project would not impact any of the character-defining features of these historic resources. The project's only other potential to adversely affect the significance of nearby historic structures would come from construction vibration. However, the project would have a less than significant impact due to construction vibration, as discussed further in the Noise Section of this memo. Therefore, the project would not cause an adverse change in the significance of a historical resource.

Conclusion

Based on the analysis above, none of the exceptions to categorical exemptions detailed in CEQA Guidelines Section 15300.2 apply to the proposed project.

II. INFILL CRITERIA

This section documents that the proposed project qualifies for a Class 32 In-Fill Development exemption because it meets the criteria set forth in CEQA Guidelines Section 15332(a) – 15332(e).

CEQA Guidelines Section 15332 – In-Fill Development Projects

Class 32 consists of projects characterized as in-fill development meeting the conditions described in this section.

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

Specific Plan

The project site is located within the City's Downtown Specific Plan area. The site is within the Downtown Specific Plan's Howard Avenue Mixed Use District. The Howard Avenue Mixed Use District consists of a mix of uses, including retail and office along Howard Avenue, and multi-unit residential uses between Howard and Peninsula Avenues.

Section 5.4.2 of the Burlingame Downtown Specific Plan requires that all development proposed to be taller than existing surrounding structures should be evaluated for potential to create new shadows/shade on public and/or quasi-public open spaces and major pedestrian routes. A shadow study was prepared for the project and is included in the project plan set. The project would not create new shade on any public open spaces or major pedestrian routes given the absence of such spaces in the immediate vicinity.

Zoning

The project site is zoned HMU, Howard Mixed-Use. The HMU zoning district applies to properties south of Burlingame Avenue in the Downtown Area. While the HMU District is primarily intended for ground-floor commercial uses, multi-unit dwellings are also a permitted use within the district. The City's Zoning Code contains several development requirements for the HMU zoning district. The maximum allowable building height is 55 feet, or 65 feet with a special permit. Projects within the HMU District are also required to provide 100 square feet of landscaping per dwelling unit.

The project would be required to have a minimum rear setback of eight feet from the adjacent residential property but would have no rear setback requirement from the property line with the adjacent church/daycare property. The HMU Zoning District does not have side setback requirements. However, R-3 Zoning District upper story side setback standards shall apply to property lines with an existing residential use on the abutting property. Therefore, the project would have a required left side (east) setback of eight feet. The project, which proposes a left side setback ranging from 10 to 13'-8", would meet this requirement.

Project Consistency

The building would reach a height of approximately 52 feet at the top of the parapet. The top of the two proposed stair enclosures would reach approximately 58.5 feet above top of curb. The project would obtain a special permit to be in compliance with the City's Zoning Code requirements for the proposed heights to the top of the stair enclosures that do not extend more than 10 feet above the maximum height and that have been integrated into the overall building design as an architectural feature. The project proposes to include a total of 2,890 square feet of common open space, meeting the total required amount of 1,400 square feet of common open space (14 units requiring 100 square feet each). The project proposes a front setback ranging from 0 to one foot, depending on the floor, an east side setback ranging from 10 feet to approximately 13'-8"feet, a west side setback ranging from four inches to approximately five feet, and a rear setback ranging from 8'-10" to 11'-1" feet.

With the approval of the special permit, the project would be in compliance with the Downtown Specific Plan and the City's HMU zoning standards.

(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

The project site is located within Burlingame city limits and would be 0.25 acres after the lot merger. The project site is along Primrose Road and is surrounded by urban uses such as residences, commercial buildings, and churches.

(c) The project site has no value as habitat for endangered, rare or threatened species.

The City's General Plan EIR states that important biological resources are almost entirely associated with the undeveloped areas of the City and are protected from future development by existing land use designations (i.e., parks and open space, creek corridors, etc.). The project site is currently developed with a commercial building and parking lot. Therefore, the project site does not have value as habitat for endangered, rare, or threatened species.

There are eight existing street trees along the project frontage. These trees consist of two sycamores (*Platanus sp.*), one ash (*Fraxinus sp.*), four crape myrtles (*Lagerstroemia sp.*), and one maple (*Acer sp.*). The project proposes to retain one existing sycamore tree and remove the other seven trees. The project would plant 11 new trees, resulting in a net increase of four trees.

If construction of the proposed project occurs during the bird nesting season (February 1 to August 15), construction activities have the potential to impact nesting birds that are protected under the Migratory Bird Treaty Act (MBTA). In compliance with the MBTA and the California Fish and Game Code, the proposed project shall implement the following standard measures to avoid construction-related impacts to nesting raptors and their nests:

- General construction activities and the removal of trees could impact nesting birds. To the extent practicable, vegetation removal shall be performed from August 16 through January 31 to avoid the general nesting period for birds. If tree removal cannot be performed during this period, preconstruction surveys for nesting birds shall be conducted by a qualified wildlife biologist no more than 14 days prior to the start of vegetation removal grading or other construction activities.

- If vegetation removal or other construction or operational activities are not started within 14 days of the survey, another survey shall be required. The survey area shall include all of the construction site and staging areas as well as areas within 150 feet of the project site. In the event that an active nest is discovered in the areas to be cleared and or developed or in habitats within 150 feet of the proposed activities vegetation removal and construction shall be postponed for at least two weeks or until a wildlife biologist has determined that the young have fledged, and the nest is vacated and there is no evidence of a second nesting attempt.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

Traffic

A Transportation Study was prepared for the project by Hexagon Transportation Consultants, Inc. (Hexagon), in May 2023. A copy of this analysis is provided in Appendix A.

Trip Generation

The Institute of Transportation Engineers (ITE) publication, Trip Generation, 11th Edition was used as a standard reference to estimate trips generated by the project. Table 1 below, summarizes the trip generation estimates for the proposed project.

Table 1: Trip Generation Estimates

Land Use	ITE Land Use Code	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trip	Rate	Trip			Rate	Trip		
						In	Out	Total		In	Out	Total
Multi-unit Housing (Mid-Rise)	221	14 units	4.54	64	0.37	1	4	5	0.39	3	2	5
Source: ITE Trip Generation Manual, 11th Edition 2021.												

As shown in Table 1, above, the project is estimated to generate 64 new daily trips, with five new trips during the AM peak hour and five new trips during the PM peak hour.

Vehicle Miles Traveled Screening

The City has not yet adopted any analysis methodology or significance thresholds related to VMT. Thus, the VMT thresholds used for this project are based on the Governor's Office of Planning and Research (OPR)'s recommendations and San Mateo County VMT policy guidelines. Per OPR guidelines, projects that generate or attract fewer than 110 trips per day may be assumed to cause a less than significant transportation impact. Hexagon estimated that the project would generate approximately 64 new daily trips. Therefore, the project can be screened out from a VMT analysis and is considered to have a less than significant impact on transportation.

Vehicular Access and Circulation

Access to the project site would be provided via a driveway along Primrose Road. According to the Burlingame Municipal Code Section 25.70, the minimum driveway width for parking areas with 1 to 30 vehicle spaces should be a minimum of 12 feet. As shown on the site plan, the proposed driveway would be 20 feet wide and would exceed the requirement. The minimum acceptable sight distance is based on the Caltrans recommended stopping sight distance. Sight distance requirements vary depending on roadway speeds. For driveways on Primrose Road, which has an implied speed limit of 25 miles per hour (mph), the Caltrans stopping sight distance is 200 feet (based on a design speed of 30 mph). Thus, a driver must be able to see 200 feet in both directions on Primrose Road to locate a sufficient gap to turn out of the driveway. There are no roadway curves on Primrose Road that would obstruct the vision of exiting drivers. Thus, vehicles at the site driveway would be expected to have adequate sight distance. On-street parking is allowed on Primrose Road near the proposed driveway and could obstruct the vision of exiting drivers if there were cars parked next to the driveway. As shown on the project plans, the project shall paint red curb on both sides of the project driveway to ensure adequate sight distance for exiting drivers on Primrose Road. Due to the low number of project-generated trips, operational issues related to vehicle queuing and/or vehicle delay are not expected to occur at the project driveway.

The project driveway would connect to a gated ground-level parking garage. As measured on the site plan, the length of the driveway between the street and the gate would be approximately 18 feet. Therefore, vehicles waiting within the driveway for the gate to open would block the sidewalk and potentially block the street. Therefore, as a condition of approval, the gate shall be open during daylight hours when pedestrians are more likely to be present.

Within the parking garage, two-way drive aisles would provide access to 90-degree standard parking spaces and stacked parking spaces. According to the Burlingame Municipal Code Table 25.40-2, drive aisles for 90-degree parking stalls should have a width of 24 feet. All drive aisles are shown to be 24 to 26 feet wide and would meet the City's requirements for drive aisle widths.

Non-CEQA Issue: Vehicle Parking

Projects are not required to evaluate the number of proposed parking spaces under CEQA; however, the City of Burlingame Municipal Code contains several requirements that the project must meet to be in compliance with City standards. According to the Burlingame Municipal Code 25.70, residential uses located in the Downtown Specific Plan zoning districts (including the project site), require a minimum of one space for one-bedroom units, 1.5 spaces for two-bedroom units, and two spaces for three-bedroom units. No additional guest parking spaces are required, but one delivery space is required on site per Municipal Code Section 26.30.070(a)(3). The project would have seven one-bedroom units, six two-bedroom units, and one three-bedroom unit. Therefore, the proposed project would be required to provide a total of 19 vehicle parking spaces. The project is making application under AB 2097 and would provide a total of 16 parking spaces. Under AB 2097, which was approved in September 2022, public agencies may not impose any minimum parking requirements on any residential development project that is located with a half-mile of public transit. Given the project is located approximately 0.4 miles from the Burlingame Caltrain Station, AB 2097 is applicable to the project and it is not required to comply with the City's minimum parking requirement.

Electric Vehicle Parking

According to Section 25.40.060 of the Municipal Code, parking spaces for electric vehicles (EV) shall be provided in accordance with the requirements of the CalGreen Building Standards Code or the Burlingame Reach Code, whichever is greater. CalGreen Building Standards Code Section 4.106.4.2, requires 10 percent of the total number of parking spaces shall be EV charging spaces. Since the project would provide 16 parking spaces, this regulation would require two parking spaces to be EV charging spaces. According to the 2022 Burlingame Reach Code, multi-unit uses are required to provide 40 percent of the parking spaces Level 2 EV Ready Spaces[4] and 60 percent of the parking spaces as Level 1 EV Ready Spaces.[5] A total of 11 free standing single and dual EV charging stations are shown throughout the site plan. The proposed EV parking, therefore, would meet the Burlingame Reach Code requirements.

Bicycle Parking

According to Section 25.40.050(A) of the Municipal Code, bicycle parking shall be provided in accordance with the requirements of the CalGreen Building Standards Code. The CalGreen Building Standards include only voluntary measures for short and long-term bicycle parking at residential uses, but these requirements apply because the Municipal Code states that parking shall be provided. As shown on the site plan, the project would exceed the CalGreen requirement by providing 14 bicycle parking spaces via bike racks along the northwestern edge of the ground level parking garage, where Section A4.106.9.2 requires at least one bicycle for every two dwelling units, or seven bicycle spaces for the proposed development. Since the bike racks would be inside a secured garage, they would be suitable for long-term parking for residents. The project also meets short-term bicycle parking requirements by providing a single, two-bicycle rack at the front of the building, within property lines and to the right of the garage entry, where the Section A4.106.9.1 requires a minimum of one two-bike capacity rack.

Noise

The project would result in temporary increases in ambient noise during construction and would result in a permanent ambient noise increase during operation. The following discussion is based, in

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[4] EV Level 2 Ready Circuit: A parking space equipped with raceway, wiring, receptacle, and electrical capacity to EV charging station. A minimum 208V/240V, 40-amp circuit with receptacle labeled "EV Vehicle Outlet" or electrical vehicle supply equipment with a minimum output of 30 amps.

[5] EV Level 1 Ready Space: A parking space equipped with raceway, wiring, receptacle, and electrical capacity to EV charging station. A minimum 110V, 20-amp circuit with receptacle labeled "EV Vehicle Outlet" or electrical vehicle supply equipment.

part, on a Construction Noise and Vibration Assessment prepared by Illingworth & Rodkin, Inc. (I&R) in September 2022. A copy of this report is included in Appendix B.

Significance Criteria

The following criteria were used to evaluate the significance of construction noise and vibration resulting from the project:

- During daytime hours, an exterior threshold of 80 dBA[6] L_{eq}[7] shall be enforced at residential land uses and 90 dBA L_{eq} shall be enforced at commercial and industrial land uses.

- A significant impact would be identified if the construction of the project would generate excessive vibration levels surrounding receptors. Groundborne vibration levels exceeding 0.3 in/sec peak particle velocity (PPV) would have the potential to result in cosmetic damage to normal buildings.

Construction Noise

Construction activities associated with implementation of the proposed project would temporarily increase noise levels in the project area. Construction is anticipated to take approximately 15 months. The construction of the proposed project would involve demolition, site preparation, grading and excavation, trenching, building erection, and paving. The hauling of excavated materials and construction materials would generate truck trips on local roadways as well. The typical range of maximum instantaneous noise levels for the proposed project, based on the equipment list provided, would be 70 to 90 dBA L_{max}[8] at a distance of 50 feet. Project construction noise levels during the various phases of construction are summarized below in Table 2.

Table 2: Construction Noise Levels at Nearby Receptors

Phase	Construction Equipment (Quantity)	Calculated Hourly Average L_{eq} (dBA) From Operation of Two Loudest Pieces of Construction

[6] dBA = A-weighted sound level. The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
[7] L_{eq} = Equivalent noise level. The average A-weighted noise level during the measurement period.
[8] L_{max} = The maximum A-weighted noise level during the measurement period.

		Equipment at Acoustic Center of Project Site	
		Noise Level at 50 feet (North, West, and South)	**Noise Level at 100 feet (East)**
Demolition	Concrete/Industrial Saw (4),* Excavator (1), Rubber-Tired Dozer (1), Tractor/Loader/Backhoe (1)	86	80
Site Preparation	Grader (1),* Rubber-Tired Dozer (1), Tractor/Loader/Backhoe (1)*	84	78
Grading/Excavation	Grader (1),* Rubber Tired Dozer (1), Tractor/Loader/Backhoe (1)*	84	78
Trenching/Foundation	Tractor/Loader/Backhoe (1)*	80	74
Building – Exterior	Crane (1), Forklift (3), Air Compressor (3), Tractor/Loader/Backhoe (3),* Welder (3), Off Highway Truck (1), Other Construction Equipment (2)	81	76
Building – Interior	Air Compressor (3)*	77	71
Paving	Cement and Mortar Mixer (2),* Tractor/Loader/Backhoe (3)*	82	76
*Denotes two loudest pieces of construction equipment per phase.			

Construction noise levels would at times exceed 80 dBA L_{eq} at existing residential land uses to the southwest and southeast, and at the Burlingame United Methodist Church and Preschool adjacent to the west that are located within 100 feet of the acoustic center of the project site. Construction noise levels would not exceed 80 dBA L_{eq} at the Saint Catherine of Siena Parish Center and Gymnasium to the east, or 90 dBA L_{eq} at the food bank office to the northwest. Therefore, project construction would have the potential to result in a temporary significant impact. However, the City of Burlingame has several policies that would require the project to use noise control measures that would ensure impacts are less than significant. These policies and measures are described below.

Standard Conditions of Approval

Section 8.9.19 of the Downtown Specific Plan includes BMPs to reduce construction noise. These BMPs are required for all projects within the Downtown Specific Plan area:

- Maximize the physical separation between noise generators and noise receptors. Such separation includes, but is not limited to, the following measures:
    - Use heavy-duty mufflers for stationary equipment and barriers around particularly noisy areas of the site or around the entire site;

- Use shields, impervious fences, or other physical sound barriers to inhibit transmission of noise to sensitive receptors;
  - Locate stationary equipment to minimize noise impacts on the community; and
  - Minimize backing movements of equipment.
- Use quiet construction equipment whenever possible.

The project shall also implement the following measures in order to achieve the goals of the Downtown Specific Plan Section 8.9.19 to maximize the physical separation between noise-generators and noise receptors and to use quiet construction equipment whenever possible.

- Construct a temporary noise barrier along the adjacent residential and preschool property lines to reduce noise levels at these noise-sensitive uses. An eight-foot plywood noise barrier could reduce noise levels by at least five dBA;
- Construct temporary noise barriers to shield concrete sawing activities from nearby residences;
- Construction equipment shall be well-maintained and used judiciously to be as quiet as practical;
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;
- Utilize "quiet" models of air compressors and other stationary noise sources where technology exists;
- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, away from noise-sensitive receptors;
- Ensure that generators, compressors, and pumps are housed in acoustical enclosures;
- Locate cranes as far from adjoining noise-sensitive receptors as possible;
- Locate staging areas and construction material areas away from noise-sensitive receptors;
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Additionally, Chapter 18.07.110 of the Municipal Code requires all construction activities, including truck traffic coming to and from the construction site for any purpose, to be limited to the hours between 8:00 a.m. and 7:00 p.m., Monday through Friday, Saturdays between 9:00 a.m. and 6:00 p.m., unless permission is granted with a development permit or other planning approval. As described further in the air quality discussion below, project construction would minimize equipment idling times to keep noise from construction vehicles to a minimum.

Implementation of the above best management practices would reduce construction noise levels generated by project construction, limit construction hours, and minimize disturbance to nearby sensitive receptors. With the implementation of these measures temporary construction noise would be reduced by a minimum of five dBA, resulting in a less than significant impact.

Construction Vibration

The construction of the project may generate perceptible vibration when heavy equipment or impact tools (e.g., jackhammers, hoe rams) are used. Pile-driving, often one of the largest sources of construction vibration, is not proposed for this project.

The City of Burlingame does not specify a construction vibration limit. For structural damage, the California Department of Transportation recommends a vibration limit of 0.5 in/sec PPV for new residential and modern/commercial structures, 0.3 in/sec PPV older residential structures, and a limit of 0.25 in/sec PPV for historic and some old buildings. The existing churches at 1443 Howard Avenue (Burlingame United Methodist) and 1300 Bayswater Avenue (Saint Catherine of Siena) were determined to be potentially eligible for the California Historic Resources List in a 2008 City Historic Resources Inventory,[9] so the 0.25 in/sec PPV vibration limit would be applicable at these buildings. The 0.3 in/sec PPV vibration limit would be applicable at the remaining buildings in the project vicinity.

The Burlingame United Methodist Church complex and the nearest residential buildings adjoining the project site are located approximately 10 feet from the project boundary. The nearest building to the east, the Saint Catherine of Siena Parish Center and Gymnasium, is approximately 60 feet from the project boundary. The project's anticipated construction vibration levels at these locations are summarized in Table 3, below.

Table 3: Construction Equipment Vibration Levels		
Equipment		**Vibration at Nearest Buildings (in/sec PPV)**

[9] Carey & Co. Architecture, Inc. *Draft Inventory of Historic Resources: Burlingame Downtown Specific Plan*. February 19, 2008.

		PPV at 25 ft. (in/sec)	Northwest, West, Southwest, and Southeast (10 ft)	East (60 ft)
Clam shovel drop		0.202	**0.553**	0.077
Hydromill (slurry wall)	In soil	0.008	0.022	0.003
	In rock	0.017	0.047	0.006
Vibratory Roller		0.210	**0.575**	0.080
Hoe Ram		0.089	0.244	0.034
Large bulldozer		0.089	0.244	0.034
Caisson drilling		0.089	0.244	0.034
Loaded trucks		0.076	0.208	0.029
Jackhammer		0.035	0.096	0.013
Small bulldozer		0.003	0.008	0.001
Small Vibratory Roller (CAT CP433E 8-ton vibratory compactor)		0.087	0.238	0.033
Pavement Grinder		0.089	0.244	0.034
Source: Transit Noise and Vibration Impact Assessment Manual, Federal Transit Administration, Office of Planning and Environment, U.S. Department of Transportation, FTA Report No. 0123, September 2018, as modified by Illingworth & Rodkin, Inc., September 2022.				

The use of a vibratory roller, or the dropping of heavy equipment, within 25 feet of the Burlingame United Methodist Church complex could result in vibration levels exceeding the 0.25 in/sec PPV limit recommended by the California Department of Transportation. Additionally, these same activities could result in vibration levels exceeding the 0.3 in/sec PPV limit within 20 feet of the remaining buildings, resulting in a significant impact. However, the following standard conditions of approval would ensure the levels of construction vibration generated by the project are minimized.

Standard Condition of Approval

Section 8.9.20 of the Downtown Specific Plan requires that all loaded trucks and other vibration-generating equipment avoid areas of the project site that are located near existing residential uses to the maximum extent compatible with project construction goals. To achieve this requirement, the project would implement the following control measures:

- Place operating equipment on the construction site as far as possible from vibration-sensitive receptors.
- Use smaller vibratory rolling equipment, for example the Caterpillar model CP433E vibratory compactor, within 20 feet of the adjacent buildings to reduce vibration levels to

0.25 in/sec PPV or less.

- Select demolition methods not involving impact tools.

- Avoid dropping heavy equipment, such as a clam shovel drop, within 25 feet of the adjacent buildings south of the site, and use alternative methods for breaking up existing pavement, such as a pavement grinder.

- Designate a person responsible for registering and investigating claims of excessive vibration. The contact information of such person shall be clearly posted on the construction site.

Implementation of these measures would ensure the project's construction vibration impacts are less than significant.

<u>Air Quality</u>

As previously discussed, the project is considered to have a less than significant impact due to criteria air pollutant and GHG emissions because the project is below the applicable BAAQMD Screening Thresholds. The primary concern associated with air quality would be the temporary emissions of toxic air contaminants (TACs) during project construction in proximity to existing sensitive receptors in the vicinity. The following discussion is based, in part, on a Construction Community Risk Assessment prepared by I&R in September 2022. A copy of this report is included in Appendix C.

Project construction would generate diesel particulate matter (DPM), a known TAC, from construction equipment and increased traffic due to worker and vendor trips. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to fine particulate matter ($PM_{2.5}$).[10] Sensitive receptors within the project vicinity include residences to the east, west, and south of the project site as well as the Burlingame United Methodist Church Preschool (adjacent to the west of the project site) and the Saint Catherine of Siena Elementary School (east of the project site). The maximally exposed individual (MEI) for annual $PM_{2.5}$ concentration was determined to be located on the first floor of a multi-unit residence southeast of the project site and the MEI for cancer risk was determined to be located at an adjacent receptor on the second floor of the same building (refer to Figure 11).

The project's construction TAC emissions were modeled using construction equipment data provided by the applicant and trip generation estimates prepared by Hexagon. Cumulative sources of TACs within 1,000 feet of the project site were also identified and considered in the health risk assessment. Cumulative sources included traffic on El Camino Real, a diesel generator in the vicinity, and a sub-slab depressurization system in the vicinity (refer to Figure 12). The results of the health risk assessment are summarized below in Table 4.

---

[10] $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less.

Table 4: Construction Health Risk Impacts at the Off-Site MEI			
Source	**Cancer Risk (per million)[1]**	**Annual $PM_{2.5}$ ($\mu g/m^3$)**	**Hazard Index**
Project construction (unmitigated)	**77.09**	**0.66**	0.09
Project construction (mitigated)	4.01	0.28	0.01
BAAQMD Single-Source Threshold	**10.0**	**0.3**	**1.0**
Exceed Threshold? (unmitigated)	**Yes**	**Yes**	No
Exceed Threshold? (mitigated)	No	No	No
Cumulative Sources			
El Camino Real[2]	1.17	0.16	<0.01
Pacific Bell diesel generator (MEI at 1,000+ feet)	1.09	<0.01	<0.01
Former Caine Cleaners, sub-slab depressurization system (MEI at 300 feet)	1.00	--	<0.01
Combined Sources (unmitigated)	80.35	**<0.83**	<0.12
Combined Sources (mitigated)	7.27	<0.45	<0.04
BAAQMD Cumulative Sources Threshold	**100**	**0.8**	**10.0**
Exceed Threshold? (unmitigated)	No	**Yes**	No
Exceed Threshold? (mitigated)	No	No	No

Notes: [1]The MEI was assumed to be an infant to give the most conservative estimate of cancer risk impacts.
[2]Assuming 20,971 average daily vehicles.

Source: Illingworth & Rodkin, Inc., September 9, 2022.

LOCATIONS OF SENSITIVE RECEPTORS AND MEIS

FIGURE 11

Source: Illingworth & Rodkin, Inc., September 9, 2022.

LOCATIONS OF EXISTING TAC AND $PM_{2.5}$ SOURCES

FIGURE 12

As shown in Table 4, project construction would exceed BAAQMD's significance threshold for single-source and cumulative emitters. However, pursuant to Policy HP-3.11 and HP-3.12 of the General Plan, the project would be required to include dust abatement measures and BAAQMD's best management practices during construction.

Standard Condition of Approval:

The project shall implement the following best management practices that are required of all projects in Burlingame:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.\

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

- Post a publicly visible sign with the telephone number and person to contact at the City of Burlingame regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Consistent with the City's goal of minimizing exposure of residents and employees of local businesses to harmful air pollutants (General Plan Goal HP-3), the project shall implement the following standard control measure to ensure potential impacts from increased cancer risk and annual $PM_{2.5}$ concentrations from project construction are minimized. The use of TAC emission controls is a standard measure for urban development throughout the Bay Area that is located in close proximity to sensitive receptors.

- All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 emission standards for particulate matter (PM_{10} and $PM_{2.5}$), or, alternatively, the following equipment could also be used on its own or in combination:

- Equipment that meets U.S. EPA emission standards for Tier 3 engines and include particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve an 88 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment.
- Electrical or non-diesel fueled equipment.

- Stationary cranes shall be powered by electricity.

With implementation of the standard measures described above, the cancer risk from project construction would be below the BAAQMD single-source and cumulative-source thresholds. Therefore, the project would have a less than significant impact on air quality.

Non-CEQA Impact: Community Health Risk Impacts On-Site

Per California Building Industry Association v. Bay Area Air Quality Management District, 62 Cal. 4th 369 (BIA v. BAAQMD), effects of the environment on the project are not considered CEQA impacts. However, the City of Burlingame has policies that address the effect of existing air quality conditions on a proposed project, such as General Plan policies HP-3.3 and HP-3.8. Therefore, the following discussion is provided for information purposes only and does not have a bearing on the project's eligibility for exemption.

The project would introduce new sensitive receptors to the project site. The impact of existing TAC sources on the proposed residences was evaluated. The same TAC sources identified in Table 4 were used in this analysis. The results of this analysis are summarized below in Table 5.

Table 5: Community Risk Impacts on the Proposed On-Site Sensitive Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
El Camino Real[1]	1.90	0.12	<0.01
Pacific Bell diesel generator (MEI at 1,000+ feet)	1.09	<0.01	<0.01
Former Caine Cleaners, sub-slab depressurization system (MEI at 300 feet)	1.18	--	<0.01
BAAQMD Single-Source Threshold	**>10.0**	**>0.3**	**>1.0**
Exceed Threshold?	No	No	No
Cumulative Total	4.17	<0.13	<0.03
BAAQMD Cumulative Source Threshold	**>100**	**>0.8**	**>10.0**
Exceed Threshold?	No	No	No

[1]Assuming 21,383 average daily vehicles.

As shown in Table 5, the existing sources of TACs would not exceed the BAAQMD single-source or cumulative source thresholds at the project site. Therefore, the project would not expose new sensitive receptors to substantial existing health risks.

Hydrology and Water Quality

The proposed multi-unit residential building would replace an existing commercial building and parking lot. The proposed building site is approximately 10,716 square feet (after the proposed lot merger). The project site currently contains approximately 5,495 square feet of impervious surface area. The project would result in 9,353 square feet of impervious surface area on-site, a net increase of approximately 3,858 square feet. Pervious surfaces would be provided in the landscaping areas along the project boundaries, the pervious pedestrian walkway, and the rooftop planters. The proposed project would connect to the existing stormwater drainage facilities.

The proposed project would replace impervious surfaces on the project site; therefore, the project would be subject to the requirements of the Municipal Regional Stormwater Permit (MRP) for the San Francisco Bay Area. Additionally, the project would be subject to Chapter 15.14 of the City's Municipal Code, as applicable. Given that the project site is less than one acre in size, the project would not be subject to the Statewide Construction General Permit. However, the project is considered a Class II project (multi-unit dwellings) and is required to obtain a Stormwater Construction Pollution Prevention Permit from the City. Therefore, the project would be required to implement the City's Construction Best Management Practices (BMPs).

Standard Condition of Approval:

Construction BMPs to be implemented by the project would include, but not be limited to, the following measures that would prevent stormwater pollution during project construction:

- Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.

- Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down any streets to clean up tracking.

- Schedule grading and excavation work during dry weather.

- Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.

- Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Implementation of the City's BMPs and Municipal Code would avoid construction and post-construction water quality impacts. Project operation would not create any substantial stormwater pollution risks. Therefore, the project would have a less than significant impact on water quality.

(e) The site can be adequately served by all required utilities and public services.

Public Services

New residents generated by the project would result in a nominal increase in calls for police and fire services. The use of public services by future residents would not be substantial enough to warrant modification of existing or construction of new public service facilities. Based on the Downtown Specific Plan Initial Study (IS), buildout of the Downtown Specific Plan would result in an increase in demand for police and fire services, however, the increase in demand would not be considered a significant impact that requires construction or alteration of facilities. Local school districts would have capacity to accommodate new students and existing park facilities would be adequate to provide recreational facilities to new residents. The project, therefore, would have a less than significant impact on public services.

Utilities and Service Systems

Water

According to the City's 2020 Urban Water Management Plan (UWMP), the City is expected to have adequate potable water supplies during normal years to meet its projected demands through 2045. While the City is projected to have supply shortfalls during single and multiple dry years, the City has been and is implementing demand management measures to conserve potable water. The City has a Water Shortage Contingency Plan in place to meet water demand during single and multiple dry years. The proposed 14 apartment units would not affect supply reliability within the City's service area beyond what has been projected. The project would connect to the existing water main in Primrose Road. The Downtown Specific Plan IS states that the minimum diameter for public mains is eight inches or larger. Therefore, existing water supply can adequately serve the project.

Sanitary Sewer

According to the Downtown Specific Plan IS, the City's wastewater treatment plant was projected to be operating at 80 percent capacity in 2020. This projection included residential development expected to occur under the Downtown Specific Plan. The proposed 14-unit apartment building would result in an incremental increase in wastewater treatment demand. Therefore, existing sanitary sewer services would adequately serve the project.

Storm Drainage

As previously stated, the project would increase the amount of impervious surface area on the project site. This would result in an increase in stormwater runoff from the project site. However, the increased runoff due to the project would not be substantial given the site is primarily paved under existing conditions. Additionally, the project would be required to pay an annual fee contributing to the City's Storm Drain Capital Improvement Project (SDCIP). The SDCIP was approved by Burlingame residents in 2009 and consists of several City-wide storm drainage improvements that have been and will continue to increase the system's capacity and reduce flood risk. The project would not substantially increase the amount of runoff at the project site and would be contributing its fair share towards the SDCIP. Therefore, the project would have a less than significant impact on the City's storm drainage system.

Solid Waste

Operation of the proposed apartment units would result in an increase of solid waste generation. According to the Downtown Specific Plan IS, Ox Mountain Landfill is the landfill used for final disposal of solid waste generated by the City. As of 2015, Ox Mountain Landfill had 22,180,000 cubic yards of capacity remaining and is expected to continue operating until 2034.[11] Solid waste generated by the proposed 14 units would be an incremental increase in the City's solid waste generation. Solid waste generated during project construction would be subject to the City's Construction and Demolition Waste Recycling Requirement, which would require the project to submit a waste reduction plan that demonstrates that at least 60 percent of the construction and demolition waste can be recycled. Thus, project construction would also not result in a substantial amount of solid waste. Therefore, the project would have a less than significant impact on solid waste generation.

CONCLUSION

With incorporation of the standard development measures detailed in this memorandum into the project, the proposed project meets the criteria for a Class 32 In-fill Development exemption and none of the exceptions to the exemptions set forth in CEQA Guidelines Section 15300.2 apply to the project.

[11] CalRecycle. SWIS Facility/Site Activity Details - Corinda Los Trancos Landfill (Ox Mtn) (41-AA-0002). Accessed June 7, 2022. https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223

Appendix A – Transportation Study

HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: May 9, 2023

To: Connor Tutino, David J. Powers & Associates, Inc.

From: Gary Black, Katie Riutta

Subject: Transportation Study for the Proposed Residential Development Located at 123-135 Primrose Road in Burlingame, CA

Hexagon Transportation Consultants, Inc. has completed a transportation study for the proposed residential development located at 123-135 Primrose Road in Burlingame, California. The project site is located on the southwest side of Primrose Road between Howard Avenue and Bayswater Avenue (see Figure 1). The project would merge the three existing lots containing an existing office building and surface parking lot and redevelop the site with a new 4-story, 14-unit apartment building. Parking would be provided via 16 ground-level parking spaces within a gated parking garage. Access to the site is provided via Primrose Road (see Figure 2).

Scope of Study

This transportation study was conducted for the purpose of identifying the potential transportation impacts related to the proposed development. The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Burlingame and the City/County Association of Governments (C/CAG) of San Mateo County. This study includes an analysis of project trip generation, distribution, and assignment, an analysis of vehicle miles traveled (VMT), and a site access, on-site circulation, and parking analysis.

Project Trip Generation

Through empirical research, data have been collected that quantify the amount of traffic produced by many types of land uses. These data are compiled in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 11th Edition (*2021). The magnitude of traffic added to the roadway system by a development is estimated by multiplying the applicable trip generation rates by the size of the development. The proposed project would replace an existing office building with 14 residential dwelling units. The existing office building appears to be vacant or underutilized. Therefore, the gross project trips are presented. The average trip generation rates for Multifamily Housing (Mid-Rise) for general urban/suburban settings (ITE Land Use 221) were applied to the project.

As shown in Table 1, the project would generate an estimated 64 daily trips, including 5 trips (1 inbound and 4 outbound) during the AM peak hour and 5 trips (3 inbound and 2 outbound) during the PM peak hour.

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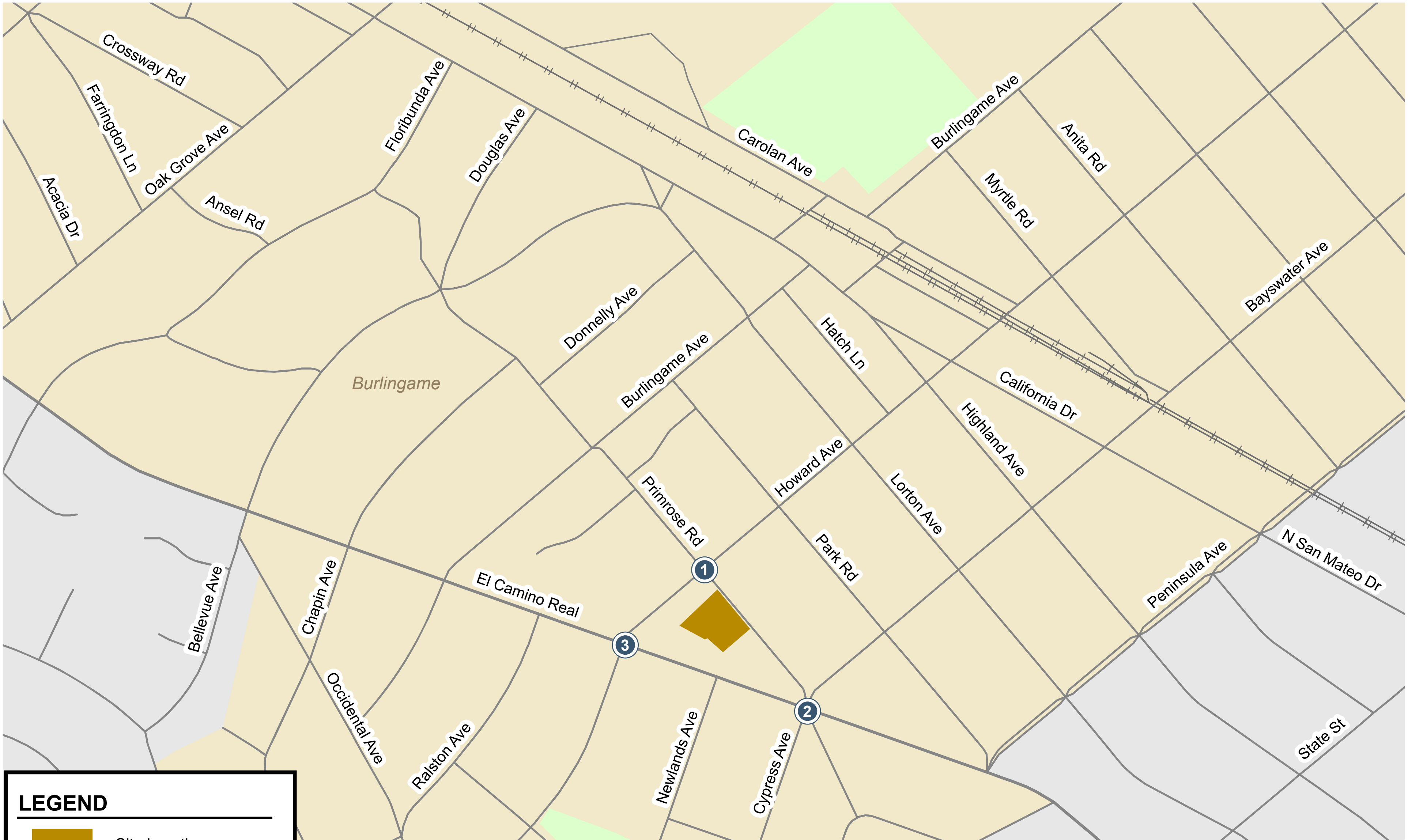

LEGEND

= Site Location

= Study Intersection

Figure 1
Site Location and Study Intersections

HEXAGON

NORTH
Not to Scale

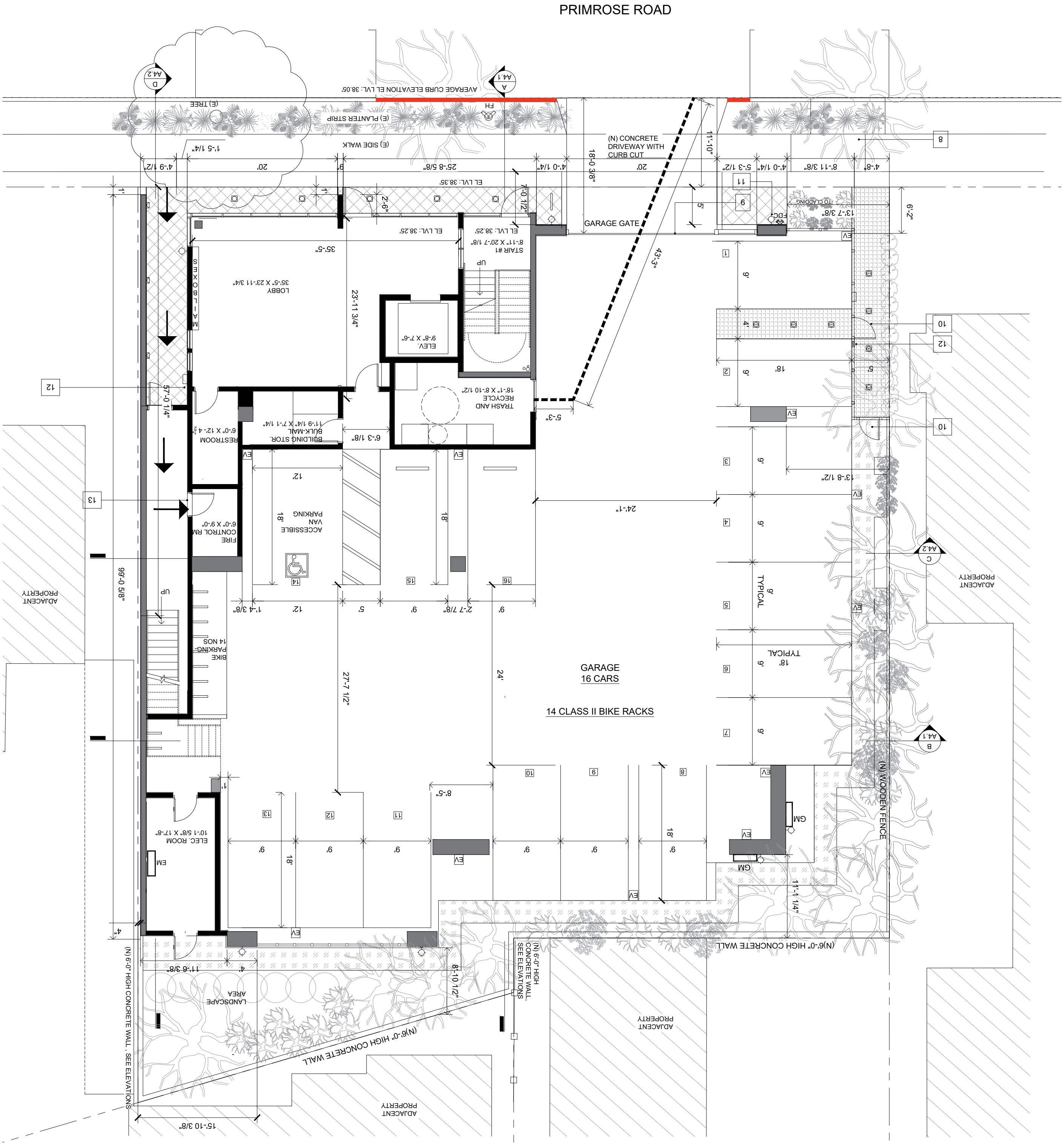

Figure 2
Site Plan

NORTH
Not to Scale

Table 1
Project Trip Generation Estimates

			Daily		AM Peak Hour					PM Peak Hour				
Land Use	Size	Unit	Trip Rate	Trips	Trip Rate	% in	Trips In	Trips Out	Total Trips	Trip Rate	% in	Trips In	Trips Out	Total Trips
Multifamily Housing[1]	14	du	4.54	64	0.37	23%	1	4	5	0.39	61%	3	2	5

Source: ITE Trip Generation Manual, 11th Edition, 2021

1. Average trip rates, in trips per dwelling unit (du), for Multifamily Housing (Mid-Rise) for General Urban/Suburban (Land Use 221) are used.

Trip Distribution Pattern and Trip Assignment

The trip distribution pattern for the project was estimated based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses. The peak hour vehicle trips generated by the project were assigned to the roadway network in accordance with the trip distribution pattern. Figure 3 shows the trip distribution pattern for the proposed residential use and the trip assignment of project traffic on the local transportation network. The project trips were assigned to the following study intersections:

1. Primrose Road and Howard Avenue
2. El Camino Real and Cypress Avenue/Primrose Road/Bayswater Avenue
3. El Camino Real and Howard Avenue

CEQA Vehicle Miles Traveled (VMT) Analysis

At the time of writing this memo, Burlingame has not yet adopted any analysis methodology or significance thresholds related to VMT. Thus, the VMT thresholds used for this project are based on the Governor's Office of Planning and Research (OPR)'s recommendations and San Mateo County VMT policy guidelines.

San Mateo County VMT policy guidelines specify procedures for determining project impacts on VMT based on the project description, characteristics, and location. The VMT methodology also includes screening criteria that are used to identify types, characteristics, and locations of projects that would not exceed the VMT thresholds of significance. If a project or a component of a mixed-use project meets the screening criteria, it is then presumed that the project or the component would result in a less-than-significant VMT impact, and a detailed VMT analysis is not required.

Screening for VMT Analysis

Land use projects that meet at least one of the following screening criteria are presumed to have a less than significant impact on VMT and do not require CEQA transportation analysis:

(1) located in a transit priority area (TPA): within ½ mile of a high-quality transit stop / rail station
(2) affordable housing
(3) small projects generating 110 or fewer daily vehicle trips
(4) existing low VMT area
(5) local and regional serving retail (<50,000 s.f.)

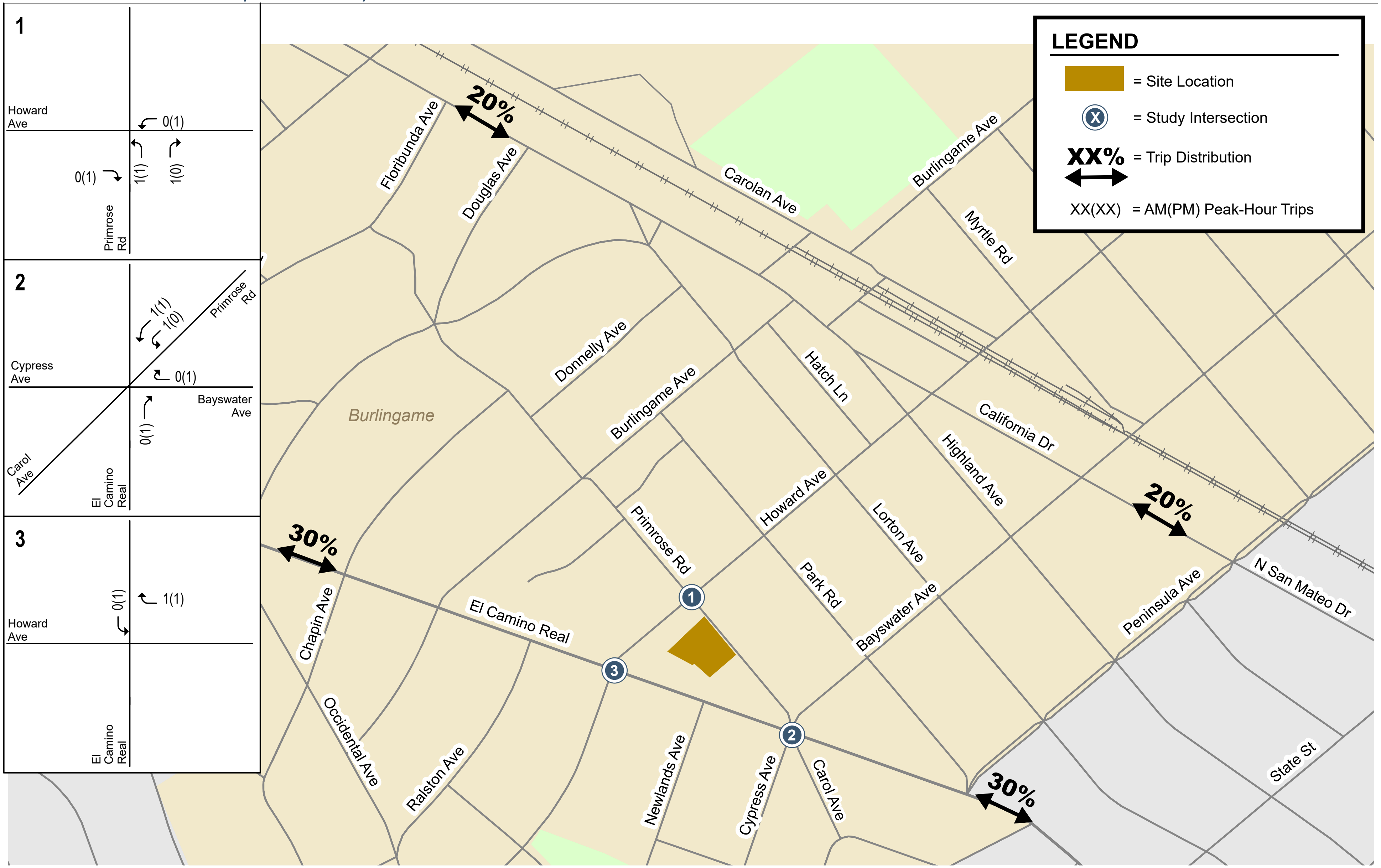

Figure 3
Project Trip Distribution and Assignment

The proposed residential development would be a small project. As shown in Table 1, the project would be expected to generate an estimated 64 trips per day, which is less than 110 daily vehicle trips. To be considered to have a less-than-significant VMT impact, the project also must meet the following criteria:

- Be consistent with General Plan; and
- Not result in a potentially significant level of VMT

The project meets these criteria by being located within the Howard Avenue Mixed Use District, which permits multifamily residential uses between Howard Avenue and Peninsula Avenue, according to the *Burlingame Downtown Specific Plan*. Since the project is expected to generate a low number of trips, it is not likely that a significant level of VMT would result.

Vehicular Access and Circulation

The site access and circulation evaluations are based on the May 3, 2023, site plan prepared by Carrasco & Associates. Site access and on-site vehicular circulation were reviewed in accordance with generally accepted traffic engineering standards.

Site Access

The project generated traffic would access the site via a full-access driveway on Primrose Road. The parking garage would be located on the ground level of the building. Currently, the project site has two full-access driveways on Primrose Road, one of which connects to a surface parking lot.

Driveway Design

According to the Burlingame Municipal Code Section 25.40.070(C)(2), the minimum driveway width for parking areas with 1 to 30 vehicle spaces should be a minimum of 12 feet. As shown on the site plan, the driveway would be 20 feet wide. Therefore, the project would exceed the requirement.

Truck Access

Emergency response vehicles would access the project site from along Primrose Road. The site plan shows a trash room located along the northwest side of the project driveway. Garbage truck access would not be provided to the trash room. Therefore, the trash and recycling bins would be moved to the curb on designated collection days. For loading and unloading, on-street parking is permitted along Primrose Road; thus, rideshare vehicles and delivery and service trucks may be able to park on the street, subject to the availability of spaces.

Sight Distance at Project Driveway

The project driveway should be free and clear of any obstructions to provide adequate sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and vehicles and bicycles traveling on Primrose Road. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site. Providing the appropriate sight distance reduces the likelihood of a collision at a driveway and provides drivers with the ability to locate sufficient gaps in traffic and exit a driveway.

The minimum acceptable sight distance is based on the Caltrans recommended stopping sight distance. Sight distance requirements vary depending on roadway speeds. For driveways on Primrose Road, which has an implied speed limit of 25 mph, the Caltrans stopping sight distance is 200 feet (based on a design speed of 30 mph). Thus, a driver must be able to see 200 feet in both directions on Primrose Road to locate a sufficient gap to turn out of the driveway. There are no roadway curves on Primrose Road that would obstruct the vision of exiting drivers. Thus, vehicles at the site driveway would be expected to have adequate sight distance.

According to the site plan, a planter strip and street tree would be added along the project frontage on Primrose Road. The type and location of the landscaping would be determined by the City of Burlingame at the implementation stage. Note that street trees have a high canopy and would not obstruct the view of drivers exiting the project driveway.

On-street parking is allowed on Primrose Road near the proposed driveway and could obstruct the vision of exiting drivers if there were cars parked next to the driveway. Based on the site plan, the project would provide 24 feet of red curb northwest of the driveway, which would provide adequate sight distance for a design speed of about 10 mph. The project would provide 3 feet of red curb southeast of the driveway, which would provide adequate sight distance for a design speed of less than 10 mph. This is expected to be adequate for the project site's downtown location, as vehicles tend to drive well below the speed limit. The proposed red curb is consistent with other driveways in the project vicinity.

Traffic Operations at Project Driveway

As shown in Table 1, the project trips that are estimated to occur at the driveway are one inbound trip and four outbound trips during the AM peak hour and three inbound trips and two outbound trips during the PM peak hour. Due to the low number of project-generated trips, operational issues related to vehicle queuing and/or vehicle delay are not expected to occur at the driveway. Some minor vehicle queuing could occur along northbound Primrose Road and on-site due to a combination of the timing of the garage gate, the inherent unpredictability of vehicle arrivals at the driveway, and the random occurrence of gaps in traffic along Primrose Road. The estimated 4 outbound trips during the AM peak hour calculate to about 1 trip every 15 minutes, and 3 inbound trips during the PM peak hour calculate to about 1 trip every 20 minutes. Therefore, the probability of two or more inbound and outbound vehicles entering and exiting the site, respectively, at the same time would be low. The maximum queue is not expected to affect northbound traffic on Primrose Road or on-site circulation.

On-Site Circulation

On-site vehicular circulation was reviewed in accordance with generally accepted traffic engineering standards. The project would have a full-access driveway on Primrose Road that would connect to a gated ground level parking garage. Within the parking garage, two-way drive aisles would provide access to 90-degree standard parking spaces. According to the Burlingame Municipal Code Table 25.40-2, drive aisles for 90-degree parking stalls should have a width of 24 feet. All drive aisles are shown to be 24 – 27 feet wide. Therefore, the drive aisle widths would meet the requirement.

As shown on the site plan, the length of the driveway between the street and the gate would be approximately 18 feet. Therefore, vehicles waiting within the driveway for the gate to open would block the sidewalk and potentially block the street.

> **Recommendation:** Hexagon recommends providing adequate storage space for one inbound vehicle (20 to 25 feet) between the sidewalk and the garage entry gate or keeping the garage gate open during the day when pedestrians would be present.

On-site vehicle circulation was also evaluated to identify whether there would be dead-end aisles within the parking garage. Dead-end aisles are undesirable because drivers can enter the aisle, and upon discovering that there is no available parking, must back out or conduct three-point turns. The parking garage would have one dead-end aisle. However, it is assumed that all parking spaces will be assigned to residents, so backing out would likely not occur.

Parking Stall Dimensions

The Burlingame Municipal Code Table 25.40-2 requires that 90-degree parking spaces be a minimum of 8.5 feet wide by 17 feet long. Based on the site plan, the standard parking spaces would be 9 feet wide and 18 feet long, which would exceed the requirements.

The Americans with Disabilities Act (ADA) standard for parking stall dimensions is 18 feet long and 8 feet wide, or 11 feet wide for van-accessible spaces, with 5-foot-wide access aisles. Van-accessible spaces may be 8 feet wide if adjacent access aisles are also 8 feet wide. The site plan shows the accessible parking stall to be 12 feet wide and 18 feet long, with an access aisle that is 5 feet wide, which would meet the requirement.

Bicycle and Pedestrian Circulation

Bicycle parking would be provided in bike racks along the northwestern edge of the parking garage. The bike racks would be accessible through the garage gate and drive aisle or the lobby and 5-foot-wide access aisle. The project would remove two existing driveways and add one new driveway. The existing sidewalk would remain. Pedestrian access to the project site would be provided via the lobby or two stairwells accessible from Primrose Road.

Parking

Vehicle Parking

According to the Burlingame Municipal Code Table 25.40 -1, residential uses located in the Downtown Specific Plan zoning districts (including Howard Avenue Mixed Use District), require a minimum of 1 space for one-bedroom units, 1.5 spaces for two-bedroom units, and 2 spaces for three-bedroom units. No additional guest parking spaces are required. The project would have seven one-bedroom units, six two-bedroom units, and one three-bedroom unit. Therefore, based on the Municipal Code, the proposed project would be required to provide a total of 18 vehicle parking spaces. However, under AB 2097, which was approved in September of 2022, public agencies may not impose any minimum automobile parking requirement on any residential development project that is located within ½ mile of public transit. Since the project site is located 0.4 mile from the Burlingame Caltrain Station, the project requests a parking reduction using AB 2097. The project would provide a total of 16 parking spaces. Since guest parking spaces are not required and would not be provided, guests would need to park on the street.

Electric Vehicle Parking Requirement

According to Section 25.40.060 of the Municipal Code, parking spaces for electric vehicles (EV) shall be provided in accordance with the requirements of the *CalGreen Building Standards Code* or the *Burlingame Reach Code*, whichever is greater. According to the *CalGreen Building Standards Code* Section 4.106.4.2, 10 percent of the total number of parking spaces shall be electric vehicle charging spaces. Since the project would provide 16 parking spaces, two parking spaces should be electric vehicle charging spaces. According to the *2020 Burlingame Reach Codes*, multifamily uses are required to provide Level 2 EV Ready Spaces for 10 percent of dwelling units and one Level 1 EV Ready Space for each remaining unit with a parking space. Since the project would provide 14 dwelling units, two Level 2 EV Ready Spaces and 12 Level 1 EV Ready Spaces should be provided. Based on the site plan, the project would provide 40% of the parking spaces to be Level 2 EV Ready and 60% to be Level 1 EV Ready. A total of 11 free standing single and dual EV charging stations are shown throughout the site plan. Therefore, the proposed EV parking would meet the requirement.

Accessible Parking Requirement

Based on the *2019 California Building Code* (Table 11B-208.2), projects that would provide a total of 1-25 parking spaces are required to provide a minimum of 1 accessible parking space. Since the project would provide 16 parking spaces, 1 accessible parking space is required. In addition, 1 in every 6, or fraction of 6, accessible spaces shall be 12 feet wide and shall be designated as "van accessible". It should be noted that the accessible parking spaces are not additional parking spaces but are part of the minimum parking spaces required. Based on the site plan, the project would provide 1 accessible parking space that is 12 feet wide and 18 feet long, with an adjacent access aisle that is 5 feet wide, which would meet the requirement.

Bicycle Parking

According to Section 25.40.050(A) of the Municipal Code, bicycle parking shall be provided in accordance with the requirements of the *CalGreen Building Standards Code.* The CalGreen Building Standards do not include any requirements for bicycle parking at residential uses. As shown on the site plan, the project would provide 14 Class II bike racks along the northwestern edge of the ground level parking garage. Since the bike racks would be inside a secured garage, they would be suitable for long-term parking for residents. The site plan also shows one dual bicycle rack near the front entrance for guests.

Conclusions

Based on the San Mateo County VMT screening criteria, the proposed residential development would be a small project. The project would be expected to generate an estimated 64 trips per day, which is less than 110 daily vehicle trips. The project would be located within the Howard Avenue Mixed Use District, which permits multifamily residential uses between Howard Avenue and Peninsula Avenue, according to the *Burlingame Downtown Specific Plan*. Since the project is expected to generate a low number of trips, it would have a less-than-significant impact on VMT.

Hexagon has the following recommendation resulting from the site access and circulation evaluation:

- Hexagon recommends providing adequate storage space for one inbound vehicle (20 to 25 feet) between the sidewalk and the garage entry gate or keeping the garage gate open during the day when pedestrians would be present.

Appendix B – Construction Noise and Vibration Assessment

123-135 PRIMROSE ROAD CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

Burlingame, California

September 8, 2022

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INTRODUCTION

This report summarizes the assessment of potential construction noise and vibration impacts resulting from the development of the 123-135 Primrose Road project in Burlingame, California. A summary of the proposed project, a setting section that includes fundamentals of environmental noise and groundborne vibration, definitions of the technical terms used in the assessment, the applicable regulatory criteria used in the assessment, and an evaluation of construction related noise and vibration impacts is presented in the sections below.

PROJECT DESCRIPTION

The 123-135 Primrose Road project will merge three existing lots containing an office building and surface parking lot and redevelop the site with a new 5-story, 14-unit apartment building and 20 parking spaces provided on the ground/first floor of the building. Construction is expected to begin in January 2024 and be completed by March 2025.

Figure 1 shows the proposed project overlay on an aerial image of site vicinity. The site is bounded by a mix of land uses including residences to the southwest and southeast, an office to the northwest, a church and preschool to the west, and a church and gymnasium to the east.

FIGURE 1 Aerial Image Showing the Project Site and Adjacent Land Uses

Source: Google Earth, 2022

SETTING

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (*frequency*) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA).* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level* (*CNEL*) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 p.m. to 10:00 p.m.) and a 10 dB addition to nocturnal (10:00 p.m. to 7:00 a.m.) noise levels. The *Day/Night Average Sound Level* (*DNL* or L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA CNEL. Typically, the highest steady traffic noise level during the daytime is about equal to the CNEL and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA CNEL with open windows and 65-70 dBA CNEL if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The CNEL as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA CNEL. At a CNEL of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the CNEL increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a CNEL of 60-70 dBA. Between a CNEL of 70-80 dBA, each decibel increase increases by about 3 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the CNEL is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

TABLE 1 Definition of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous or frequent intermittent vibration levels produce. The guidelines in Table 3 represent syntheses of vibration criteria for human response and potential damage to buildings resulting from construction vibration.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to cause damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as paint flaking or minimal extension of cracks in building surfaces; minor, including limited surface cracking; or major, that may threaten the structural integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher. The damage criteria presented in Table 3 include several categories for ancient, fragile, and historic structures, the types of structures most at risk to damage. Most buildings are included within the categories ranging from "Historic and some old buildings" to "Modern industrial/commercial buildings." Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

TABLE 3 Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings.
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020.

REGULATORY BACKGROUND

City of Burlingame Municipal Code. The Building Construction Section of the Municipal Code establishes allowable hours of construction in the City of Burlingame. Chapter 18.07.110 states:

> *"No person shall erect (including excavation and grading), demolish, alter or repair any building or structure other than between the hours of eight a.m. and seven p.m. on weekdays, and nine a.m. and six p.m. on Saturdays, except in circumstances where continuing work beyond legal hours is necessary to building or site integrity, including (but not limited to) large concrete pours, environmental considerations, state or federal requirements, or in cases where it is in the interest of public health and safety, and then only with written approval from the building official, which shall be granted for no longer than necessary to complete the portion of the project for which the exception was granted. No person shall erect (including excavation and grading), demolish, alter or repair any building* or *structure on Sundays or on holidays, except in the circumstances described earlier in this paragraph, and then only with written approval from the building official, which shall be granted for no longer than necessary to complete the portion of the project for which the exception was granted. For the purpose of this section, holidays are the days set forth in Section 13.04.100 of this code. The restrictions stated in this section shall not apply to work that does not require a permit under any applicable law or regulation, or to work that takes place inside a completely enclosed building and does not exceed the exterior ambient noise level per the BMC 25.58.050."*

NOISE IMPACTS AND MITIGATION MEASURES

Construction Noise

Noise impacts resulting from construction depend upon the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive areas. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction lasts over extended periods of time.

However, the City of Burlingame does not establish noise level thresholds for construction activities. As an alternative, this analysis uses the noise limits established by the Federal Transit Administration (FTA) to identify the potential for impacts due to substantial temporary construction noise. The FTA identifies construction noise limits in the *Transit Noise and Vibration Impact Assessment Manual*.[1] During daytime hours, an exterior threshold of 80 dBA L_{eq} shall be enforced at residential land uses and 90 dBA L_{eq} shall be enforced at commercial and industrial land uses.

Construction activities generate considerable amounts of noise, especially during earth-moving activities when heavy equipment is used. The typical range of maximum instantaneous noise levels for the proposed project would be 70 to 90 dBA L_{max} at a distance of 50 feet (see Table 4). Table 5 shows typical hourly average construction-generated noise levels measured at a distance of 50 feet from the center of the site during busy construction periods (e.g., earth moving equipment, impact tools, etc.). As shown in Table 5, construction noise levels produced by domestic housing projects generate noise levels ranging from 65 to 88 dBA L_{eq} at a distance of 50 feet from the center of the active site. Construction-generated noise levels drop off at a rate of about 6 dBA per doubling of the distance between the source and receptor. Shielding by buildings or terrain often results in lower construction noise levels at distant receptors; however, for purposes of assessing a worst-case scenario, construction noise levels in this report are estimated assuming no attenuation due to intervening buildings or structures.

Construction activities for the proposed project would be completed in seven phases: Demolition, Site Preparation, Grading/Excavation, Trenching/Foundation, Building–Exterior, Building-Interior/Architectural Coating, and Paving. Construction is expected to start in January 2024 and end in early March 2025, lasting approximately 15 months. During each phase of construction, there would be a different mix of equipment operating, and noise levels would vary by phase and vary within phases, based on the amount of equipment in operation and the location at which the equipment is operating. Equipment expected to be used in each construction phase are summarized in Table 6 along with the quantity of each type of equipment, the reference noise level at 50 feet assuming the operation of the two loudest pieces of construction equipment, and the estimated noise levels at the nearest residential buildings projected from the center of the construction activity by phase.

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[1] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, September 2018.

The Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM) was used to calculate the hourly average noise levels anticipated for the worst-case scenario for each construction phase based on the equipment list provided by the applicant at the time of this study. RCNM includes representative sound levels for the most common types of construction equipment and the approximate usage factors of such equipment that were developed based on an extensive database of information gathered during the construction of the Central Artery/Tunnel Project in Boston, Massachusetts (CA/T Project or "Big Dig"). The usage factors represent the percentage of time that the equipment would be operating at full power.

The predicted construction noise levels in Table 6 indicates that project construction activities would generate noise levels exceeding 80 dBA L_{eq} at existing noise-sensitive residential land uses to the southwest and southeast, and at church and preschool land uses to the west that are located within 100 feet of the acoustic center of the project site. Construction noise levels would not exceed 80 dBA L_{eq} at the church and gymnasium to the east, or 90 dBA L_{eq} at office to the northwest. Figure 2 shows the 80 dBA L_{eq} noise contour as measured from the acoustic center of the project site. Therefore, extended exposure to excessive construction noise would be expected at existing residences to the southwest and southeast, and at the church and preschool land uses to the west, resulting a significant, temporary noise impact.

TABLE 4 Construction Equipment 50-foot Noise Emission Limits

Equipment Category	L_{max} Level (dBA)1,2	Impact/Continuous
Arc Welder	73	Continuous
Auger Drill Rig	85	Continuous
Backhoe	80	Continuous
Bar Bender	80	Continuous
Boring Jack Power Unit	80	Continuous
Chain Saw	85	Continuous
Compressor[3]	70	Continuous
Compressor (other)	80	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Crane	85	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Generator	82	Continuous
Generator (25 KVA or less)	70	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Hydra Break Ram	90	Impact
Impact Pile Driver	105	Impact
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Mounted Impact Hammer (hoe ram)	90	Impact
Paver	85	Continuous

Equipment Category	L_{max} Level (dBA)1,2	Impact/Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
Vibratory Pile Driver	95	Continuous
All other equipment with engines larger than 5 HP	85	Continuous

Notes:

1 Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant.

2 Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.

3 Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.

Source: Mitigation of Nighttime Construction Noise, Vibrations and Other Nuisances, National Cooperative Highway Research Program, 1999.

TABLE 5 Typical Ranges of Construction Noise Levels at 50 Feet, L_{eq} (dBA)

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	**II**	**I**	**II**	**I**	**II**	**I**	**II**
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.

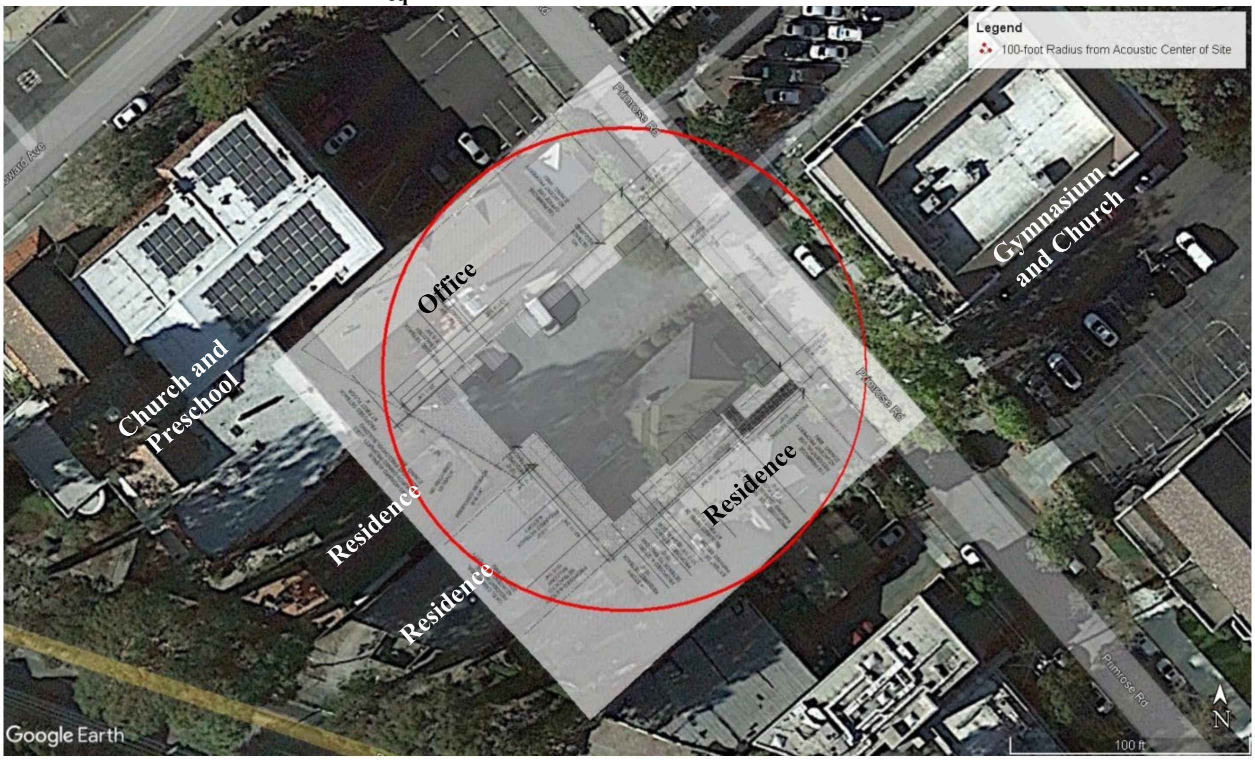
Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

TABLE 6 Construction Noise Levels at Nearby Receptors

Phase	Construction Equipment (Quantity)	Calculated Hourly Average L_{eq} (dBA) From Operation of Two Loudest Pieces of Construction Equipment at Acoustic Center of Project Site	
		Noise Level at 50 feet (North, West, and South)	Noise Level at 100 feet (East)
Demolition	Concrete/Industrial Saw (4)* Excavator (1) Rubber-Tired Dozer (1) Tractor/Loader/Backhoe (1)	86	80
Site Preparation	Grader (1)* Rubber-Tired Dozer (1) Tractor/Loader/Backhoe (1)*	84	78
Grading/ Excavation	Grader (1)* Rubber Tired Dozer (1) Tractor/Loader/Backhoe (1)*	84	78
Trenching/ Foundation	Tractor/Loader/Backhoe (1)*	80	74
Building - Exterior	Crane (1) Forklift (3) Air Compressor (3) Tractor/Loader/Backhoe (3)* Welder (3) Off Highway Truck (1) Other Construction Equipment (2)	81	76
Building – Interior	Air Compressor (3)*	77	71
Paving	Cement and Mortar Mixer (2)* Tractor/Loader/Backhoe (3)*	82	76

*Denotes two loudest pieces of construction equipment per phase.

FIGURE 2 Aerial Image Showing the Project Site, Adjacent Land Uses, and 80 dBA L_{eq} Construction Noise Contour



Source: Google Earth, 2022

Mitigation Measure 1:

A Construction Noise Management Plan will be prepared by the construction contractor and implemented prior to the start of and throughout construction to reduce noise impacts on the adjacent residences to the west and south. The plan will establish the procedures the contractor will take to reasonably minimize construction noise at the nearby existing land uses. The plan would include, but not be limited to, the following measures to reduce construction noise levels as low as practical:

- Per Chapter 18.07.110 of the City of Burlingame Municipal Code, limit construction to the hours of 8:00 a.m. to 7:00 p.m. Monday through Friday and between 9:00 a.m. and 6:00 p.m. on Saturdays. No construction shall occur on Sundays or holidays;

- Construct a temporary noise barrier along the west and south boundaries of the site to reduce noise levels at the adjacent residences. An eight-foot plywood noise barrier could reduce noise levels by at least 5 dBA;

- Construct temporary noise barriers to shield concrete sawing activities from nearby residences;

- Construction equipment shall be well-maintained and used judiciously to be as quiet as practical;

- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;

- Prohibit all unnecessary idling of internal combustion engines;

- Utilize "quiet" models of air compressors and other stationary noise sources where technology exists;

- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, away from noise-sensitive receptors;

- Ensure that generators, compressors, and pumps are housed in acoustical enclosures;

- Locate cranes as far from adjoining noise-sensitive receptors as possible;

- Locate staging areas and construction material areas away from noise-sensitive receptors;

- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Implementation of the above mitigation measures would reduce constriction noise levels by a minimum of 5 dBA. Resultant noise levels would not be substantially increased over a temporary basis resulting in a less-than-significant impact.

Construction Vibration

The construction of the project may generate perceptible vibration when heavy equipment or impact tools are used. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Table 7 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Project construction activities, such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.), may generate substantial vibration in the immediate vicinity. Jackhammers typically generate vibration levels of 0.035 in/sec PPV, and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet.

The City of Burlingame does not specify a construction vibration limit that should be used to regulate vibration produced by construction equipment. This analysis uses the vibration limits established by the California Department of Transportation (Caltrans) to identify the potential for substantial vibration levels. Caltrans establishes vibration limits of 0.5 in/sec PPV at new residential and modern/commercial structures, 0.3 in/sec PPV at older residential structures, and a conservative limit of 0.25 in/sec PPV at historic and some old buildings (see Table 3). The existing church at 1443 Howard Avenue (Burlingame United Methodist) was determined to be potentially eligible for the California Historic Resources List in a 2008 City Historic Resources Inventory, so the 0.25 in/sec PPV vibration limit would be applicable at this building. The 0.3 in/sec PPV vibration limit would be applicable at the remaining buildings in the project vicinity.

Using the reference vibration levels at 25 feet, Table 7 also shows the vibration levels calculated at various distances representing nearby buildings. Vibration levels are highest close to the source, and then attenuate with increasing distance at the rate $(D_{ref}/D)^{1.1}$, where D is the distance from the source in feet and D_{ref} is the reference distance of 25 feet. Construction vibration levels due to heavy construction are conservatively calculated to reach 0.575 in/sec PPV at 10 feet, representing the nearest structures to the northwest, west, southwest, and southeast, and 0.080 in/sec PPV at 60 feet, representing the nearest structure to the east. The use of a vibratory roller, or the dropping of heavy equipment, within 25 feet of the Burlingame United Methodist could result in vibration levels exceeding the 0.25 in/sec PPV limit recommended by the California Department of Transportation. Additionally, these same activities could result in vibration levels exceeding the 0.3 in/sec PPV limit within 20 feet of the remaining buildings, resulting in a significant impact.

At these locations and in other surrounding areas where vibration would not be expected to cause damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and would not be considered significant, given the intermittent and short duration of the phases that have the highest potential of producing vibration.

TABLE 7 Construction Equipment Vibration Levels

Equipment		PPV at 25 ft. (in/sec)	Vibration Levels at Nearest Buildings (in/sec PPV)	
			Northwest, West, Southwest, and Southeast (10 ft)	East (60 ft)
Clam shovel drop		0.202	**0.553**	0.077
Hydromill (slurry wall)	In soil	0.008	0.022	0.003
	In rock	0.017	0.047	0.006
Vibratory Roller		0.210	**0.575**	0.080
Hoe Ram		0.089	0.244	0.034
Large bulldozer		0.089	0.244	0.034
Caisson drilling		0.089	0.244	0.034
Loaded trucks		0.076	0.208	0.029
Jackhammer		0.035	0.096	0.013
Small bulldozer		0.003	0.008	0.001
Small Vibratory Roller (CAT CP433E 8-ton vibratory compactor)		0.087	0.238	0.033
Pavement Grinder		0.089	0.244	0.034

Source: Transit Noise and Vibration Impact Assessment Manual, Federal Transit Administration, Office of Planning and Environment, U.S. Department of Transportation, FTA Report No. 0123, September 2018, as modified by Illingworth & Rodkin, Inc., September 2022.

Mitigation Measure 2:

The following measures shall be implemented during all phases of demolition and construction to reduce vibration levels to less than 0.25 in/sec PPV at adjacent buildings.

- Place operating equipment on the construction site as far as possible from vibration-sensitive receptors.

- Use smaller vibratory rolling equipment, for example the Caterpillar model CP433E vibratory compactor, within 25 feet of the adjacent buildings to reduce vibration levels to 0.25 in/sec PPV or less.

- Select demolition methods not involving impact tools.

- Avoid dropping heavy equipment, such as a clam shovel drop, within 25 feet of the adjacent commercial/industrial buildings south of the site, and use alternative methods for breaking up existing pavement, such as a pavement grinder.

- Designate a person responsible for registering and investigating claims of excessive vibration. The contact information of such person shall be clearly posted on the construction site.

The implementation of these measures would reduce the impact to a less-than-significant level.

Appendix C – Construction Community Risk Assessment

123 PRIMROSE ROAD RESIDENTIAL DEVELOPMENT CONSTRUCTION COMMUNITY RISK ASSESSMENT

Burlingame, California

September 9, 2022

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Introduction

The purpose of this report is to address the potential community risk impacts associated with the construction of a proposed residential development located at 123 – 135 Primrose Road in Burlingame, California. The air quality impacts from this project would be associated with construction of the residential building. Air pollutant emissions associated with construction of the project were predicted using appropriate computer models. In addition, the potential health risk impacts from existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1] BAAQMD recommends using a 1,000-foot screening radius around the project site for purposes of identifying community health risk from existing sources of TACs.

Project Description

The project site encompasses three existing lots, totaling 0.25 acres, that contain an office building and a surface parking lot. The project proposes to demolish the existing use to construct a new 5-story, 14-unit, 23,402 square foot (sf) apartment building with 20 parking spaces provided on the ground/first floor of the building. Construction is expected to begin in January 2024 and be completed by March 2025.

Setting

The project is located in San Mateo County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_X). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

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[1] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the residents in the multi-family homes adjacent to the southern side of the project. There is also the Burlingame United Methodist Church Preschool located along the southwestern border of the project site and the St. Catherine of Siena Elementary School to the northeast of the project site. This project would introduce new sensitive receptors (i.e., residents) to the area.

Regulatory Setting

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[2]

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD), is currently required for use by all vehicles in the U.S.

All of the above federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.[3] In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and $PM_{2.5}$ emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on

[2] USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.
[3] California Air Resources Board, 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October.

the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO_X emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_X.

Bay Area Air Quality Management District (BAAQMD)

BAAQMD has jurisdiction over an approximately 5,600-square mile area, commonly referred to as the San Francisco Bay Area (Bay Area). The District's boundary encompasses the nine San Francisco Bay Area counties, including Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, Napa County, southwestern Solano County, and southern Sonoma County.

BAAQMD is the lead agency in developing plans to address attainment and maintenance of the National Ambient Air Quality Standards and California Ambient Air Quality Standards. The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[4] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000

[4] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.

feet of any such census tract.[5] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a CARE area and not within a BAAQMD overburdened area as identified by the BAAQMD Overburdened Communities Map.[6]

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[7] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

Envision Burlingame 2040 General Plan

In January 2019, the City of Burlingame adopted their Envision Burlingame Updated Draft 2040 General Plan,[8] which includes goals to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants, and greenhouse gases. The following goals are applicable to the proposed project:

Goal HP-3: Minimize exposure of residents and employees of local business to harmful air pollutants.

HP-3.2 *Local Air Quality Standards.* Work with local business, industries, and developers to reduce the impact of stationary and mobile sources of pollution. Ensure that new development does not create cumulative net increases in air pollution, and require Transportation Demand Management Techniques when air quality impacts are unavoidable.

HP-3.3 *Indoor Air Quality Standards.* Require that developers mitigate impacts on indoor air quality for new residential and commercial developments, particularly along higher-density corridors, near industrial uses, and along the freeway and rail line, such as in North Burlingame, along Rollins Road, and in Downtown. Potential mitigation strategies include installing air filters (MERV 13 or higher), building sound walls, and planting vegetation and trees as pollution buffers.

HP-3.5 *Woodstove and Fireplace Replacement.* Encourage residents to replaces wood-burning fireplaces and stoves with cleaner electric heat pumps, natural gas, or

[5] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.
[6] BAAQMD Interactive Data Maps, URL: https://www.baaqmd.gov/about-air-quality/interactive-data-maps
[7] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.
[8] City of Burlingame, 2019. "Chapter 9 Healthy People and Healthy Places", *Envision Burlingame General Plan*. January. Web: https://www.burlingame.org/document_center/Planning/General%20and%20Specific%20Plans/BurlingameGP_Adopted_Jan2019_Chapter9%20(Health).pdf

propane stoves. Educate the public about financial assistance options through the BAAQMD's fireplace and wood stove replacement incentive program.

HP-3.6 *Caltrain Electrification.* Encourage the electrification of Caltrain to eliminate emissions from the rail line.

HP-3.7 *Proximity to Sensitive Locations.* Avoid locating stationary and mobile sources of air pollution near sensitive uses such as residences, schools, childcare facilities, healthcare facilities, and senior living facilities. Where adjacent exist, include site planning and building features that minimize potential conflicts and impacts.

HP-3.8 *Proximity to Emissions Sources.* Avoid locating residential developments and other sensitive uses near significant pollution sources such as freeways and large stationary source emitters. Require BAAQMD recommended procedures for air modeling and health risk assessment for new sensitive land uses located near sources of toxic air contaminants.

HP-3.9 *Building Site Design and Operations.* Place sensitive uses within development projects (e.g. residences, daycares, medical clinics) as far away from emissions sources (including loading docks, busy roads, stationary sources) as possible. Design open space, commercial buildings, or parking garages between sensitive land use and air pollution sources as a buffer. Locate operable windows, balconies, and building sir intakes far away from emissions sources.

HP-3.11 *Dust Abatement.* Require dust abatement actions for all new construction and redevelopment projects.

HP-3.12 *Construction Best Practices.* Require construction projects to implement the Bay Area Air Quality Management District's Best Practices for Construction to reduce pollution from dust and exhaust as feasible.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 CEQA Air Quality Guidelines. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD updated the CEQA Air Quality Guidelines in 2017 to include the latest significance thresholds, which were used in this analysis and are summarized in Table 1. Impacts above these thresholds are considered potentially significant.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**
Excess Cancer Risk	10 per one million	100 per one million
Hazard Index	1.0	10.0
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3
Note: PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less.		

Construction Impacts and Mitigation Measures

Project impacts related to increased community risk can occur either by generating emissions of TACs and air pollutants and by introducing a new sensitive receptor in proximity to an existing source of TACs. Temporary project construction activity would generate emissions of DPM from equipment and trucks and also generate dust on a temporary basis that could affect nearby sensitive receptors.

A community health risk assessment was prepared to address project construction impacts on the surrounding off-site sensitive receptors. Additionally, the project could introduce new residents that are sensitive receptors, who would be exposed to existing sources of TACs and localized air pollutants in the vicinity of the project. Therefore, the impact of the existing sources of TAC upon the existing sensitive receptors and new incoming sensitive receptors was assessed.

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations, and computing the Hazard Index (HI) for non-cancer health risks. Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust emissions pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[9] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated. The methodology for computing community risks impacts is contained in *Attachment 1.*

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict

[9] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[10] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

<u>CalEEMod Modeling</u>

Land Use Inputs

The proposed project land uses were entered into CalEEMod as described in Table 2.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Apartments Mid Rise	14	Dwelling Unit	23,402	0.25
Enclosed Parking with Elevator	20	Parking Space	5,749	

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario, including equipment list and schedule, were based on project-specific construction information provided by the project applicant.

The project construction equipment worksheet provided by the applicant included the schedule for each phase (included in *Attachment 2*). Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays were based on provided information. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be January 2024 and would be primarily built out over a period of approximately 15 months, or 368 construction workdays. The earliest year of full operation was assumed to be 2026.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, soil material imported and/or exported to the site, and the estimate of concrete and asphalt truck trips. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for demolition and grading were estimated from provided grading volumes by assuming each truck could carry 10 tons per load. The number of concrete and asphalt total

[10] See CARB's EMFAC2021 Emissions Inventory at https://arb.ca.gov/emfac/emissions-inventory.

round haul trips were estimated for the project and converted to total one-way trips, assuming two trips per delivery.

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. Therefore, the construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including concrete trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (soil import/export). Since CalEEMod does not address concrete trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in San Mateo County for the year 2024 - 2025 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Concrete/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Demolition	540	-	10	1,960-sf building and 6 tons pavement demolition. CalEEMod default worker trips.
Site Preparation	224	-	-	CalEEMod default worker trips.
Grading	288	-	-	CalEEMod default worker trips.
Trenching	147	-	-	CalEEMod default worker trips.
Building Construction	2,844	474	20	10 concrete round trips. CalEEMod default worker and vendor trips.
Architectural Coating	118	-	-	CalEEMod default worker trips.
Paving	168	-	-	CalEEMod default worker trips.

Notes: [1] Based on 2024 – 2025 EMFAC2021 light-duty vehicle fleet mix for San Mateo County.

Community Health Risk from Project Construction

Construction Emissions

The CalEEMod model and EMFAC2021 emissions provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.04 tons (72 pounds). The on-road emissions are a result of haul truck travel during grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as less than 0.02 tons (40 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[11] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Construction Sources

Combustion equipment DPM exhaust emissions were modeled as a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 23 feet (7 meter) intervals throughout the construction site. This resulted in 21 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. In addition, the following stack parameters were used: a vertical release, a stack diameter of 2.5 inches, an exhaust temperature of 918˚F, and an exit velocity of 309 feet per second. Since these are point sources, plume rise is calculated by the AERMOD dispersion model. Emissions from vehicle travel on- and off-site were also distributed among the point sources throughout the site. The locations of the point sources used for the modeling are identified in Figure 1.

For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 7 feet (2 meters) was used for the area source. Fugitive dust emissions at construction sites come from a variety of sources, including truck and equipment travel, grading activities, truck loading (with loaders) and unloading (rear or bottom dumping), loaders and excavators moving and transferring soil and other materials, etc. All of these activities result in fugitive dust emissions at various heights at the point(s) of generation. Once generated, the dust plume will tend to rise as it moves downwind across the site and exit the site at a higher elevation than when it was generated. For all these reasons, a 7-foot release height was used as the average release height across the

[11] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

construction site. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources.

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013 – 2017) of hourly meteorological data from San Francisco International Airport prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring daily between 8:00 a.m. to 5:00 p.m., when the majority of construction activity is expected to occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2024 – 2025 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters), 15 feet (4.5 meters), and 25 feet (7.6 meters) were used to represent the breathing height on the first, second, and third floors of nearby residences.[12] A receptor height of 3 feet (1 meter) was used to represent the breathing height of children at the Burlingame United Methodist Church Preschool and the St. Catherine of Siena Elementary School.

<u>Summary of Construction Community Risk Impacts</u>

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with the Office of Environmental Health Hazard Assessment (OEHHA) guidance for age sensitivity factors and exposure parameters as recommended by BAAQMD (see *Attachment 1)*. Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated and identified. Age-sensitivity factors reflect the greater sensitivity of infants and children to cancer causing TACs. Third-trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period, while child exposures were assumed to occur at the schools.

The maximum modeled annual $PM_{2.5}$ concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI value was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation reference exposure level of 5 $\mu g/m^3$.

The maximum-modeled annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEI). Results of this assessment indicated that the construction MEIs were located in two places. The annual $PM_{2.5}$ concentration construction MEI was located at the first floor (1.5 meters) of a multi-family residence southeast of the project site and the cancer risk MEI was located at an adjacent receptor but on the second floor (4.5 meters) of the same building. Table 4 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities affecting the construction MEI. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

[12] Bay Area Air Quality Management District, 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0. May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

Additionally, modeling was conducted to predict the cancer risks, non-cancer health hazards, and maximum $PM_{2.5}$ concentrations associated with construction activities at the nearby schools. The maximum increased cancer risks were adjusted using child exposure parameters. The uncontrolled cancer risk, $PM_{2.5}$ concentration, and HI at the nearby schools would not exceed their respective BAAQMD single-source significance thresholds, as shown in Table 4.

<u>Summary of Project-Related Community Risks at the Off-Site Sensitive Receptors</u>

As shown in Table 4, the unmitigated maximum cancer risks and annual $PM_{2.5}$ concentration from construction activities at the MEI locations would exceed the BAAQMD single-source significance threshold. However, with the incorporation of the *Envision Burlingame 2040 General Plan Policy HP-3.11 Dust Abatement and Policy HP-3.12 Construction Best Practices* to apply BAAQMD-recommended best management practices and *Mitigation Measure AQ-1*, the mitigated risk and hazard values would reduce emissions such that the cancer risk and $PM_{2.5}$ concentration caused by construction would no longer exceed the BAAQMD single-source significance thresholds. The unmitigated HI at the MEI does not exceed its respective BAAQMD single-source significance threshold.

Table 4. Construction Risk Impacts at the Off-Site MEIs and School Receptors

Source		Cancer Risk[1] (per million)	Annual $PM_{2.5}$[1] ($\mu g/m^3$)	Hazard Index
Project Impact – Off=Site MEIs				
Project Construction	Unmitigated	**77.09 (infant)**	**0.66**	0.09
	Mitigated[2]	4.01 (infant)	0.28	0.01
	BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated[2]	*No*	*No*	*No*
Most Affected School Receptor – Burlingame United Methodist Church Preschool				
Project Construction	Unmitigated	0.74 (child)	**0.56**	<0.01
	Mitigated	0.04 (child)	0.25	<0.01
	BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	***Yes***	*No*
	Mitigated	*No*	*No*	*No*

[1] Cancer risk MEI and $PM_{2.5}$ concentration MEI are located at different receptors.
[2] Construction equipment with Tier 4 engines, electric cranes, electric welders, and BMPs as Mitigation.

Figure 1. Locations of Project Construction Site, Off-Site Sensitive Receptors, and Maximum TAC Impacts (MEIs)

Cumulative Community Risks of all TAC Sources at the Off-Site Project MEIs

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site (i.e., influence area). These sources include rail lines, highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area and based on provided traffic information indicated that one roadway within the influence area, El Camino Real, would have traffic exceeding 10,000 vehicles per day. Other nearby streets would have less than 10,000 vehicles per day. A review of BAAQMD's stationary source geographic information systems (GIS) map tool identified four stationary sources with the potential to affect the project site and MEIs. Figure 2 shows the project area included within the influence area and the location of the MEIs. Community risk impacts from these sources upon the MEIs reported in Table 5. Details of the modeling and community risk calculations are included in *Attachment 5.*

Figure 2. Project Site, Project MEIs, and Nearby TAC and $PM_{2.5}$ Sources

Nearby Roadways – El Camino Real

A refined analysis of potential health impacts from vehicle traffic on El Camino Real was conducted. This analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadway near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks were then computed based on the modeled exposures. *Attachment 1* includes a description of how community risk impacts, including cancer risk are computed.

Emission Rates

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on El Camino Real using the Caltrans version of the CARB EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce $PM_{2.5}$. Additionally, $PM_{2.5}$ emissions from vehicle tire and brake wear and from re-entrained roadway dust were included in the emissions estimate. DPM emissions are projected to decrease in the future as reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (San Mateo County), type of road (major/collector), truck percentage for non-state highways in San Mateo County (3.13 percent),[13] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2024 – construction start year), and season (annual).

Average hourly traffic distributions for San Mateo County roadways were developed using the EMFAC model,[14] which were then applied to the average daily traffic (ADT) volumes to obtain estimated hourly traffic volumes and emissions for the roadway. The ADT for El Camino Real was calculated based on traffic data obtained from the traffic consultant.[15] The estimated ADT for El Camino Real was 20,971 vehicles based on a 1% increase per year from a measured ADT of 20,560 vehicles in 2022. An average travel speed of 35 miles per hour (mph) on El Camion Real was used for all hours of the day based on posted speed limit signs.

To estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEI, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2024 (project construction year). Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC2017. Year 2024 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.[16] TAC and $PM_{2.5}$ emissions from traffic on El Camino Real within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using volume sources along a line (line volume sources); with line segments used for opposing travel directions on the roadway. The same meteorological data and off-site sensitive receptors used in the previous dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations. Annual TAC and $PM_{2.5}$ concentrations for 2024 from traffic on the roadway was calculated using the model.

[13] Bay Area Air Quality Management District, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

[14] The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2021 does not include Burden type output with hour by hour traffic volume information.

[15] Email correspondence with Connor Tutino, Associate Project Manager, David J. Powers & Associates, Inc., July 28, 2022. Attachments: *Cypress Ave & El Camino Real AM.pdf, Cypress Ave & El Camino Real PM.pdf, El Camino Real & Howard Ave AM.pdf,* and *El Camino Real & Howard Ave PM.pdf.*

[16] BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012

Concentrations were calculated at the project MEIs with receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) to represent the breathing heights on the first and second floor of residents in the multi-family residences.

Figure 2 shows the roadway segments modeled and residential receptor locations used in the modeling. Table 5 lists the risks and hazards from the roadway. The emission rates and roadway calculations used in the analysis are shown in *Attachment 5*.

<u>BAAQMD Permitted Stationary Sources</u>

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2020* geographic information system (GIS) map website.[17] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. Four sources were identified using this tool. A stationary source information request was required as the BAAQMD GIS website did not provide screening risks and hazards for all sources. BAAQMD identified one source that was shutdown in 2020, leaving three operational stationary sources within 1,000 feet of the project site. Of the remaining three sources identified as operational by BAAQMD, one was found to be located nearly 2,000 feet away from the project site, leaving two permitted stationary sources within 1,000 feet of the project site.

The screening level risks and hazards provided by BAAQMD for the remaining stationary sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines and Generic Equipment*. Community risk impacts from the stationary sources upon the project MEI are reported in Table 5.

<u>Summary of Cumulative Health Risk Impact at Construction MEIs</u>

Table 5 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEIs). The project would have an exceedance with respect to community risk caused by project construction since the unmitigated maximum cancer risk and annual $PM_{2.5}$ concentration exceeds the BAAQMD single-source thresholds. The combined $PM_{2.5}$ concentration would also exceed its cumulative-source threshold. With the implementation of *Envision Burlingame 2040 General Plan Policy HP-3.11 Dust Abatement and Policy HP-3.12 Construction Best Practices* to apply BAAQMD-recommended best management practices and *Mitigation Measure AQ-1*, the project's cancer risk and annual $PM_{2.5}$ concentration would be lowered to a level below the single-source and cumulative-source thresholds. The annual HI, unmitigated and mitigated, does not exceed its single-source or cumulative-source thresholds.

[17] BAAQMD, *Stationary Source Screening Map*, 2022. Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3

Table 5. Impacts from Combined Sources at Project MEIs

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	**77.09 (infant)**	**0.66**	0.09
	Mitigated	4.01 (infant)	0.28	0.01
	BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*
Cumulative Sources				
El Camino Real, ADT 20,971		1.17	0.16	<0.01
Pacific Bell (Facility ID #13454, Generator), MEI at 1,000+ feet		1.09	<0.01	<0.01
Former Caine Cleaners (Facility ID #20929, Sub-Slab Depressurization System), MEI at 300 feet		1.00	-	<0.01
Combined Sources	Unmitigated	80.35	**<0.83**	<0.12
	Mitigated	7.27	<0.45	<0.04
	BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	*No*	***Yes***	*No*
	Mitigated	*No*	*No*	*No*

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. General Plan Policy HP-3.11 requires the project to follow dust abatement measures, while General Plan Policy HP-3.12 requires the project to adhere to BAAQMD's best management practices during construction. Adherence to these existing General Plan Policies ensures that the project's construction period emissions would be less than significant.

BAAQMD Best Management Practices to be included during construction.

Note that the *Envision Burlingame 2040 General Plan* Policy HP-3.11 *Dust Abatement* and Policy HP-3.12 *Construction Best Practices* requires that projects apply BAAQMD-recommended best management practices to control dust from construction projects. Therefore, in accordance with this policy, during any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. Additional measures are identified to reduce construction equipment exhaust emissions. The contractor shall implement the following best management practices that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Effectiveness of Best Management Practices

The measures above are consistent with BAAQMD-recommended basic control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air Quality Guidelines.

Mitigation Measure AQ-1: Use construction equipment that has low diesel particulate matter exhaust emissions.

Implement a feasible plan to reduce DPM emissions by 88 percent such that increased cancer risk and annual $PM_{2.5}$ concentrations from construction would be reduced below TAC significance levels as follows:

1. All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 emission standards for PM (PM_{10} and $PM_{2.5}$), if feasible, otherwise,

    a. If use of Tier 4 equipment is not available, alternatively use equipment that meets U.S. EPA emission standards for Tier 2 or 3 engines and include particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve an 88 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment; alternatively (or in combination).

2. Stationary cranes and welders shall be powered by electricity.

3. Alternatively, the applicant may develop another construction operations plan demonstrating that the construction equipment used on-site would achieve a reduction in construction diesel particulate matter emissions by 88 percent or greater. Elements of the plan could include a combination of some of the following measures:
    - Implementation of No. 1 above to use Tier 4 engines with electric cranes and welders or other alternatively fueled equipment,
    - Installation of electric power lines during early construction phases to avoid use of diesel generators and compressors,
    - Use of electrically-powered equipment,
    - Forklifts and aerial lifts used for exterior and interior building construction shall be electric or propane/natural gas powered,
    - Change in construction build-out plans to lengthen phases, and
    - Implementation of different building techniques that result in less diesel equipment usage.

Such a construction operations plan would be subject to review by an air quality expert and approved by the City prior to construction.

Effectiveness of Mitigation Measure AQ-1

CalEEMod was used to compute emissions associated with this mitigation measure assuming that all equipment met U.S. EPA Tier 4 Interim engine standards, electric cranes and welders, and BAAQMD best management practices for construction were included. With these implemented, the project's construction cancer risk levels (assuming infant exposure) would be reduced by 95 percent to 4.0 chances per million and the annual $PM_{2.5}$ concentration would be reduced by 58 percent to 0.28 ug/m^3. The combined $PM_{2.5}$ concentration would be reduced to 0.45 ug/m^3. Assuming a lesser level of mitigation that achieves an 88-percent cancer risk reduction while maintaining the current $PM_{2.5}$ mitigation level, increased cancer risks would be reduced to below 9.25 chances per million. As a result, the project's construction risks would be reduced below the BAAQMD single-source and cumulative-source thresholds.

Non-CEQA: On-site Community Risk Assessment for TAC Sources - New Project Residences

The City's General Plan Policy HP-3.3 requires new residential development projects mitigate impacts on indoor air quality by incorporating effective mitigation into project designs to avoid significant risks to health and safety required when new residential are proposed near existing sources of TACs. BAAQMD's recommended thresholds for health risks and hazards, shown in Table 1, are used to evaluate on-site exposure. A health risk assessment was completed to determine the impact that existing TAC sources would have on the new proposed sensitive receptors (residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[18]

Nearby Roadways – El Camino Real

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site MEIs. However, year 2026 (operational year) were conservatively assumed as being representative of future conditions, instead of 2024 (construction year). An analysis based on 2026 resulted in an increased ADT on El Camino Real of 21,383 vehicles. On-site receptors were placed throughout the project site with a spacing of 7 meters (23 feet). Roadway impacts were modeled at receptor heights of 19 feet (5.8 meters) and 30 feet (9.1 meters) representing sensitive receptors on the second and third floors of the residential building. The first floor of the residential building will not contain any dwelling units and was omitted from modeling. The portions of each roadway included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include third trimester pregnancy and infants/children and were assumed to be in the new homes for 24 hours per day for 350 days per year. The highest impacts from El Camino Real occurred at a receptor on the second floor in the southeastern portion of the project site. Cancer risks associated with the roadway are greatest closest to the roadway and decrease with distance from the road. The roadway community risk impacts at the project site are shown in Table 6. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5.*

Stationary Sources

The stationary source screening analysis for the new project sensitive receptors was conducted in the same manner as described above for the construction MEIs. Table 6 includes the health risk assessment results from the stationary sources.

Summary of Cumulative Community Risks at the Project Site

Community risk impacts from the existing and TAC sources upon the project site are reported in Table 6. The risks from the singular TAC sources are compared against the BAAQMD single-source threshold. The risks from all the sources are then combined and compared against the BAAQMD cumulative-source threshold. As shown, none of the sources exceed the single-source or cumulative-source thresholds.

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[18] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473, which confirm that the impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts.

Table 6. Impacts from Combined Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
El Camino Real, ADT 21.383	1.90	0.12	<0.01
Pacific Bell (Facility ID #13454, Generator), MEI at 1,000+ feet	1.09	<0.01	<0.01
Former Caine Cleaners (Facility ID #20929, Sub-Slab Depressurization System), MEI at 220 feet	1.18	-	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	4.17	<0.13	<0.03
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

Figure 3. Locations of Project Site, On-Site Residential Receptors, Roadway Models, Stationary Sources, and Maximum TAC Impacts

Supporting Documentation

Attachment 1 is the methodology used to compute community risk impacts, including the methods to compute lifetime cancer risk from exposure to project emissions.

Attachment 2 includes the CalEEMod output for project construction emissions. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2021 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

Attachment 4 is the construction health risk assessment. This includes the summary of the dispersion modeling and the cancer risk calculations for construction. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format

Attachment 5 includes the cumulative community risk calculations, modeling results, and health risk calculations from sources affecting the construction MEIs and project site receptors.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[19] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[20] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[21] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

<u>Cancer Risk</u>

Potential increased cancer risk from inhalation of TACs is calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of worker or school child exposures. As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a

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[19] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

[20] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

[21] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

Functionally, cancer risk is calculated using the following parameters and formulas:

Cancer Risk (per million) = $CPF \times Inhalation\ Dose \times ASF \times ED/AT \times FAH \times 10^6$

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} \times DBR^* \times A \times (EF/365) \times 10^{-6}$

Where:

C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

Parameter	***Exposure Type →***	**Infant**		**Child**	**Adult**
	Age Range →	**3rd Trimester**	**0<2**	**2 < 16**	**16 - 30**
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95th Percentile Rate		-	1,200	520	240
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14*
Exposure Frequency (days/year)		350	350	350	350*
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home (FAH)		0.85-1.0	0.85-1.0	0.72-1.0	0.73*
* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures.					

Non-Cancer Hazards

Non-cancer health risk is usually determined by comparing the predicted level of exposure to a chemical to the level of exposure that is not expected to cause any adverse effects (reference exposure level), even to the most susceptible people. Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu g/m^3$).

Annual $PM_{2.5}$ Concentrations

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for $PM_{2.5}$ (project level and cumulative) are in terms of an increase in the annual average concentration. When considering $PM_{2.5}$ impacts, the contribution from all sources of $PM_{2.5}$ emissions should be included. For projects with potential impacts from nearby local roadways, the $PM_{2.5}$ impacts should include those from vehicle exhaust emissions, $PM_{2.5}$ generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: **123-135 PRIMROSE**

See Equipment Type TAB for type, horsepower and load factor

Project Size
- 14 Dwelling Units — 0.40 total project acres disturbed
- 23402 s.f. residential
- NONE s.f. retail
- NONE s.f. office/commercial
- ______ s.f. other, specify:
- 5749 s.f. parking garage — 20 spaces
- NONE s.f. parking lot — ______ spaces

Construction Hours 8AM am to 5PM pm

Pile Driving? Y/N? NO

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? NO

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower:

Fuel Type:

Location in project (Plans Desired if Available): ___

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition	Start Date:	1/1/2024	Total phase:	30			**Overall Import/Export Volumes**
		End Date:	2/4/2024					
4	Concrete/Industrial Saws	81	0.73	6	15	3.00	360	**Demolition Volume**
1	Excavators	158	0.38	2	14	0.93	28	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	4	15	2.00	60	(*or* total tons to be hauled)
1	Tractors/Loaders/Backhoes	97	0.37	2	20	1.33	40	__1960__ square feet *or*
								_20_ Hauling volume (tons)
								Any pavement demolished and hauled? _6_ tons
	Site Preparation	Start Date:	1/31/2024	Total phase:	28			
		End Date:	3/2/2024					
1	Graders	187	0.41	4	14	2.00	56	
1	Rubber Tired Dozers	247	0.4	2	14	1.00	28	
1	Tractors/Loaders/Backhoes	97	0.37	2	14	1.00	28	
	Grading / Excavation	Start Date:	3/1/2024	Total phase:	36			
		End Date:	4/11/2024					**Soil Hauling Volume**
1	Graders	187	0.41	4	10	1.11	40	Export volume = _0_ cubic yards?
1	Rubber Tired Dozers	247	0.4	4	16	1.78	64	Import volume = _0_ cubic yards?
1	Tractors/Loaders/Backhoes	97	0.37	8	20	4.44	160	This project Assumes a Net Zero soil use
	Trenching/Foundation	Start Date:	4/7/2024	Total phase:	49			
		End Date:	6/3/2024					
1	Tractor/Loader/Backhoe	97	0.37	8	25	4.08	200	
	Building - Exterior	Start Date:	3/16/2024	Total phase:	237			**Cement Trucks? _10_ Total Round-Trips**
		End Date:	12/17/2024					
1	Cranes	231	0.29	5	60	1.27	300	Electric? (Y/N) _Y_ Otherwise assumed diesel
3	Forklifts	89	0.2	4	100	1.69	1200	Liquid Propane (LPG)? (Y/N)
3	Air Compressors	78	0.48	4	100	1.69	1200	Or temporary line power? (Y/N) Yes
3	Tractors/Loaders/Backhoes	97	0.37	6	80	2.03	1440	
3	Welders	46	0.45	6	110	2.78	1980	
1	Off Highway Truck	402	0.38	2	10	0.08	20	
2	Other Construction Equipment	172	0.42	2	10	0.08		
Building - Interior/Architectural Coating		Start Date:	12/10/2024	Total phase:	59			
		End Date:	2/15/2025					
3	Air Compressors	78	0.48	5	30	2.54	450	
	Paving	Start Date:	2/7/2025	Total phase:	21			
		Start Date:	3/3/2025					
2	Cement and Mortar Mixers	9	0.56	8	6	2.29	96	
1	Tractors/Loaders/Backhoes	97	0.37	3	2	0.29	6	**Asphalt? 0___ cubic yards or __N/A__ round trips?**
						0.00	0	
						0.00	0	
						0.00	0	
	Other Equipment?							
	MEP	Start Date:		Total phase:				
		Start Date:						

Equipment types listed in "Equipment Types" worksheet tab.

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

123-135 Primose Rd, Burlingame
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	20.00	Space	0.00	5,749.00	0
Apartments Mid Rise	14.00	Dwelling Unit	0.25	23,402.00	40

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 70

Climate Zone 5 **Operational Year** 2026

Utility Company Peninsula Clean Energy

CO2 Intensity (lb/MWhr) 0 **CH4 Intensity (lb/MWhr)** 0 **N2O Intensity (lb/MWhr)** 0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Square footage provided in construction sheet. Lot acreage from project plans.

Construction Phase - Provided in revised 6 day/wk construction schedule.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Off-road Equipment - Construction equipment/hrs - Provided by construction sheet.

Trips and VMT - EMFAC2021 adjustment 0 trips. demolition- 1 trip, building - 10 cement round trips.

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition - Existing building demo = 1960 sqft

Grading -

Construction Off-road Equipment Mitigation - BMP, tier 4 interim mitigation, electric welders

Energy Use - Burlingame reach code bans natural gas.

Water And Wastewater - 100% aerobic

Woodstoves - No hearths/fireplaces.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	59.00
tblConstructionPhase	NumDays	100.00	237.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	2.00	36.00
tblConstructionPhase	NumDays	5.00	21.00
tblConstructionPhase	NumDays	1.00	28.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	NT24E	3,054.10	3,820.30
tblEnergyUse	NT24NG	2,615.00	0.00
tblEnergyUse	T24E	90.83	1,798.44
tblEnergyUse	T24NG	5,828.01	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	2.10	0.00
tblFireplaces	NumberNoFireplace	0.56	0.00
tblFireplaces	NumberWood	2.38	0.00

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblLandUse	LandUseSquareFeet	8,000.00	5,749.00
tblLandUse	LandUseSquareFeet	14,000.00	23,402.00
tblLandUse	LotAcreage	0.18	0.00
tblLandUse	LotAcreage	0.37	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	2.50
tblOffRoadEquipment	UsageHours	6.00	2.30
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	4.00	1.30
tblOffRoadEquipment	UsageHours	6.00	1.70
tblOffRoadEquipment	UsageHours	6.00	1.10
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	1.80
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	1.30
tblOffRoadEquipment	UsageHours	7.00	4.40
tblOffRoadEquipment	UsageHours	7.00	0.30
tblOffRoadEquipment	UsageHours	8.00	1.00
tblTripsAndVMT	HaulingTripNumber	9.00	0.00

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	12.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.28	0.00
tblWoodstoves	NumberNoncatalytic	0.28	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2024	0.1511	0.7746	0.9335	1.5500e-003	0.0421	0.0343	0.0764	0.0200	0.0327	0.0528	0.0000	130.5277	130.5277	0.0260	0.0000	131.1781
2025	0.1172	0.0314	0.0480	8.0000e-005	0.0000	1.4000e-003	1.4000e-003	0.0000	1.3900e-003	1.3900e-003	0.0000	6.7677	6.7677	4.1000e-004	0.0000	6.7780
Maximum	**0.1511**	**0.7746**	**0.9335**	**1.5500e-003**	**0.0421**	**0.0343**	**0.0764**	**0.0200**	**0.0327**	**0.0528**	**0.0000**	**130.5277**	**130.5277**	**0.0260**	**0.0000**	**131.1781**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0754	0.4258	0.7467	1.1200e-003	0.0190	1.6800e-003	0.0207	9.0100e-003	1.6800e-003	0.0107	0.0000	97.3465	97.3465	0.0205	0.0000	97.8581
2025	0.1139	0.0270	0.0467	8.0000e-005	0.0000	1.0000e-004	1.0000e-004	0.0000	1.0000e-004	1.0000e-004	0.0000	6.7677	6.7677	4.1000e-004	0.0000	6.7780
Maximum	**0.1139**	**0.4258**	**0.7467**	**1.1200e-003**	**0.0190**	**1.6800e-003**	**0.0207**	**9.0100e-003**	**1.6800e-003**	**0.0107**	**0.0000**	**97.3465**	**97.3465**	**0.0205**	**0.0000**	**97.8581**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**29.43**	**43.82**	**19.16**	**26.38**	**55.01**	**95.01**	**73.33**	**55.00**	**94.78**	**80.07**	**0.00**	**24.17**	**24.17**	**20.97**	**0.00**	**24.15**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**1-1-2024**	**3-31-2024**	0.2096	0.1207
2	**4-1-2024**	**6-30-2024**	0.2487	0.1263
3	**7-1-2024**	**9-30-2024**	0.2154	0.1018
4	**10-1-2024**	**12-31-2024**	0.2522	0.1525
5	**1-1-2025**	**3-31-2025**	0.1465	0.1389

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

		Highest	0.2522	0.1525

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1115	1.2000e-003	0.1040	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1702	0.1702	1.6000e-004	0.0000	0.1743
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0263	0.0237	0.2525	5.2000e-004	0.0613	3.4000e-004	0.0617	0.0164	3.1000e-004	0.0167	0.0000	48.2834	48.2834	3.2700e-003	2.1300e-003	48.9994
Waste						0.0000	0.0000		0.0000	0.0000	1.3073	0.0000	1.3073	0.0773	0.0000	3.2387
Water						0.0000	0.0000		0.0000	0.0000	0.3227	0.0000	0.3227	1.1100e-003	7.0000e-004	0.5596
Total	**0.1378**	**0.0249**	**0.3566**	**5.3000e-004**	**0.0613**	**9.2000e-004**	**0.0622**	**0.0164**	**8.9000e-004**	**0.0173**	**1.6300**	**48.4536**	**50.0836**	**0.0818**	**2.8300e-003**	**52.9719**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1115	1.2000e-003	0.1040	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1702	0.1702	1.6000e-004	0.0000	0.1743

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0263	0.0237	0.2525	5.2000e-004	0.0613	3.4000e-004	0.0617	0.0164	3.1000e-004	0.0167	0.0000	48.2834	48.2834	3.2700e-003	2.1300e-003	48.9994
Waste						0.0000	0.0000		0.0000	0.0000	1.3073	0.0000	1.3073	0.0773	0.0000	3.2387
Water						0.0000	0.0000		0.0000	0.0000	0.3227	0.0000	0.3227	1.1100e-003	7.0000e-004	0.5596
Total	**0.1378**	**0.0249**	**0.3566**	**5.3000e-004**	**0.0613**	**9.2000e-004**	**0.0622**	**0.0164**	**8.9000e-004**	**0.0173**	**1.6300**	**48.4536**	**50.0836**	**0.0818**	**2.8300e-003**	**52.9719**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2024	2/4/2024	6	30	
2	Site Preparation	Site Preparation	1/31/2024	3/2/2024	6	28	
3	Grading	Grading	3/1/2024	4/11/2024	6	36	
4	Building Construction	Building Construction	3/16/2024	12/17/2024	6	237	
5	Trenching	Trenching	4/7/2024	6/3/2024	6	49	
6	Architectural Coating	Architectural Coating	12/10/2024	2/15/2025	6	59	
7	Paving	Paving	2/7/2025	3/3/2025	6	21	

Acres of Grading (Site Preparation Phase): 5.25

Acres of Grading (Grading Phase): 6.53

Acres of Paving: 0

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Residential Indoor: 47,389; Residential Outdoor: 15,796; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 345

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	4	3.00	81	0.73
Demolition	Excavators	1	0.90	158	0.38
Demolition	Rubber Tired Dozers	1	2.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	1.30	97	0.37
Site Preparation	Graders	1	2.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	1.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Grading	Graders	1	1.10	187	0.41
Grading	Rubber Tired Dozers	1	1.80	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.40	97	0.37
Building Construction	Air Compressors	3	1.70	78	0.48
Building Construction	Cranes	1	1.30	231	0.29
Building Construction	Forklifts	3	1.70	89	0.20
Building Construction	Off-Highway Trucks	1	0.10	402	0.38
Building Construction	Other Construction Equipment	2	0.10	172	0.42
Building Construction	Tractors/Loaders/Backhoes	3	2.00	97	0.37
Building Construction	Welders	3	2.80	46	0.45
Trenching	Tractors/Loaders/Backhoes	1	4.10	97	0.37
Architectural Coating	Air Compressors	3	2.50	78	0.48
Paving	Cement and Mortar Mixers	2	2.30	9	0.56
Paving	Pavers	0	0.00	130	0.42
Paving	Rollers	0	0.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	0.30	97	0.37

Trips and VMT

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	16	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.6000e-004	0.0000	9.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0870	0.1048	1.9000e-004		3.9700e-003	3.9700e-003		3.8500e-003	3.8500e-003	0.0000	16.3437	16.3437	1.9500e-003	0.0000	16.3924
Total	**0.0103**	**0.0870**	**0.1048**	**1.9000e-004**	**9.6000e-004**	**3.9700e-003**	**4.9300e-003**	**1.5000e-004**	**3.8500e-003**	**4.0000e-003**	**0.0000**	**16.3437**	**16.3437**	**1.9500e-003**	**0.0000**	**16.3924**

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.3000e-004	0.0000	4.3000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3800e-003	0.0658	0.1161	1.9000e-004		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	16.3437	16.3437	1.9500e-003	0.0000	16.3924
Total	**3.3800e-003**	**0.0658**	**0.1161**	**1.9000e-004**	**4.3000e-004**	**2.7000e-004**	**7.0000e-004**	**7.0000e-005**	**2.7000e-004**	**3.4000e-004**	**0.0000**	**16.3437**	**16.3437**	**1.9500e-003**	**0.0000**	**16.3924**

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0133	0.0000	0.0133	6.0900e-003	0.0000	6.0900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0296	0.0152	4.0000e-005		1.1500e-003	1.1500e-003		1.0600e-003	1.0600e-003	0.0000	3.8257	3.8257	1.2400e-003	0.0000	3.8566
Total	**2.7100e-003**	**0.0296**	**0.0152**	**4.0000e-005**	**0.0133**	**1.1500e-003**	**0.0145**	**6.0900e-003**	**1.0600e-003**	**7.1500e-003**	**0.0000**	**3.8257**	**3.8257**	**1.2400e-003**	**0.0000**	**3.8566**

Unmitigated Construction Off-Site

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.0000e-003	0.0000	6.0000e-003	2.7400e-003	0.0000	2.7400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4000e-004	0.0124	0.0243	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.8257	3.8257	1.2400e-003	0.0000	3.8566
Total	**7.4000e-004**	**0.0124**	**0.0243**	**4.0000e-005**	**6.0000e-003**	**7.0000e-005**	**6.0700e-003**	**2.7400e-003**	**7.0000e-005**	**2.8100e-003**	**0.0000**	**3.8257**	**3.8257**	**1.2400e-003**	**0.0000**	**3.8566**

Mitigated Construction Off-Site

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0279	0.0000	0.0279	0.0138	0.0000	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1200e-003	0.0535	0.0389	8.0000e-005		2.2900e-003	2.2900e-003		2.1100e-003	2.1100e-003	0.0000	7.1867	7.1867	2.3200e-003	0.0000	7.2448
Total	**5.1200e-003**	**0.0535**	**0.0389**	**8.0000e-005**	**0.0279**	**2.2900e-003**	**0.0301**	**0.0138**	**2.1100e-003**	**0.0159**	**0.0000**	**7.1867**	**7.1867**	**2.3200e-003**	**0.0000**	**7.2448**

Unmitigated Construction Off-Site

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0125	0.0000	0.0125	6.2000e-003	0.0000	6.2000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5200e-003	0.0268	0.0502	8.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	7.1867	7.1867	2.3200e-003	0.0000	7.2448
Total	**1.5200e-003**	**0.0268**	**0.0502**	**8.0000e-005**	**0.0125**	**1.3000e-004**	**0.0127**	**6.2000e-003**	**1.3000e-004**	**6.3300e-003**	**0.0000**	**7.1867**	**7.1867**	**2.3200e-003**	**0.0000**	**7.2448**

Mitigated Construction Off-Site

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0756	0.5719	0.7250	1.1600e-003		0.0253	0.0253		0.0242	0.0242	0.0000	96.7022	96.7022	0.0192	0.0000	97.1828
Total	**0.0756**	**0.5719**	**0.7250**	**1.1600e-003**		**0.0253**	**0.0253**		**0.0242**	**0.0242**	**0.0000**	**96.7022**	**96.7022**	**0.0192**	**0.0000**	**97.1828**

Unmitigated Construction Off-Site

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0148	0.2912	0.5048	7.3000e-004		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	63.5210	63.5210	0.0137	0.0000	63.8629
Total	**0.0148**	**0.2912**	**0.5048**	**7.3000e-004**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**63.5210**	**63.5210**	**0.0137**	**0.0000**	**63.8629**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8100e-003	0.0182	0.0281	4.0000e-005		8.3000e-004	8.3000e-004		7.7000e-004	7.7000e-004	0.0000	3.4374	3.4374	1.1100e-003	0.0000	3.4652
Total	**1.8100e-003**	**0.0182**	**0.0281**	**4.0000e-005**		**8.3000e-004**	**8.3000e-004**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**3.4374**	**3.4374**	**1.1100e-003**	**0.0000**	**3.4652**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.7000e-004	0.0170	0.0294	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.4374	3.4374	1.1100e-003	0.0000	3.4652
Total	**8.7000e-004**	**0.0170**	**0.0294**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.4374**	**3.4374**	**1.1100e-003**	**0.0000**	**3.4652**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0534					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1500e-003	0.0145	0.0215	4.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	3.0320	3.0320	1.7000e-004	0.0000	3.0363
Total	**0.0556**	**0.0145**	**0.0215**	**4.0000e-005**		**7.2000e-004**	**7.2000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**3.0320**	**3.0320**	**1.7000e-004**	**0.0000**	**3.0363**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0534					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5000e-004	0.0126	0.0218	4.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	3.0320	3.0320	1.7000e-004	0.0000	3.0363
Total	**0.0541**	**0.0126**	**0.0218**	**4.0000e-005**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**3.0320**	**3.0320**	**1.7000e-004**	**0.0000**	**3.0363**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1125					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2700e-003	0.0286	0.0452	7.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	6.3831	6.3831	3.5000e-004	0.0000	6.3918
Total	**0.1168**	**0.0286**	**0.0452**	**7.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**6.3831**	**6.3831**	**3.5000e-004**	**0.0000**	**6.3918**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1125					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3600e-003	0.0265	0.0458	7.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	6.3831	6.3831	3.5000e-004	0.0000	6.3918
Total	**0.1139**	**0.0265**	**0.0458**	**7.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**6.3831**	**6.3831**	**3.5000e-004**	**0.0000**	**6.3918**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1000e-004	2.7500e-003	2.7400e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.3846	0.3846	6.0000e-005	0.0000	0.3862
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.1000e-004**	**2.7500e-003**	**2.7400e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.3846**	**0.3846**	**6.0000e-005**	**0.0000**	**0.3862**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0000e-005	5.3000e-004	9.2000e-004	1.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	0.3846	0.3846	6.0000e-005	0.0000	0.3862
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0000e-005**	**5.3000e-004**	**9.2000e-004**	**1.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.3846**	**0.3846**	**6.0000e-005**	**0.0000**	**0.3862**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0263	0.0237	0.2525	5.2000e-004	0.0613	3.4000e-004	0.0617	0.0164	3.1000e-004	0.0167	0.0000	48.2834	48.2834	3.2700e-003	2.1300e-003	48.9994
Unmitigated	0.0263	0.0237	0.2525	5.2000e-004	0.0613	3.4000e-004	0.0617	0.0164	3.1000e-004	0.0167	0.0000	48.2834	48.2834	3.2700e-003	2.1300e-003	48.9994

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	76.16	68.74	57.26	167,216	167,216
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	76.16	68.74	57.26	167,216	167,216

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.457911	0.074699	0.239011	0.149017	0.025897	0.006576	0.010546	0.001994	0.001422	0.000553	0.029236	0.000429	0.002710
Enclosed Parking with Elevator	0.457911	0.074699	0.239011	0.149017	0.025897	0.006576	0.010546	0.001994	0.001422	0.000553	0.029236	0.000429	0.002710

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	89042.5	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	31274.6	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	89042.5	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	31274.6	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1115	1.2000e-003	0.1040	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1702	0.1702	1.6000e-004	0.0000	0.1743
Unmitigated	0.1115	1.2000e-003	0.1040	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1702	0.1702	1.6000e-004	0.0000	0.1743

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0918					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.1400e-003	1.2000e-003	0.1040	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1702	0.1702	1.6000e-004	0.0000	0.1743
Total	**0.1115**	**1.2000e-003**	**0.1040**	**1.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**0.1702**	**0.1702**	**1.6000e-004**	**0.0000**	**0.1743**

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0918					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.1400e-003	1.2000e-003	0.1040	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1702	0.1702	1.6000e-004	0.0000	0.1743
Total	**0.1115**	**1.2000e-003**	**0.1040**	**1.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**	**0.1702**	**0.1702**	**1.6000e-004**	**0.0000**	**0.1743**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated	0.3227	1.1100e-003	7.0000e-004	0.5596
Unmitigated	0.3227	1.1100e-003	7.0000e-004	0.5596

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	0.912156 / 0.575055	0.3227	1.1100e-003	7.0000e-004	0.5596
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.3227**	**1.1100e-003**	**7.0000e-004**	**0.5596**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	0.912156 / 0.575055	0.3227	1.1100e-003	7.0000e-004	0.5596
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.3227**	**1.1100e-003**	**7.0000e-004**	**0.5596**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.3073	0.0773	0.0000	3.2387
Unmitigated	1.3073	0.0773	0.0000	3.2387

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	6.44	1.3073	0.0773	0.0000	3.2387
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total		**1.3073**	**0.0773**	**0.0000**	**3.2387**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	6.44	1.3073	0.0773	0.0000	3.2387
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**1.3073**	**0.0773**	**0.0000**	**3.2387**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

123-135 Primose Rd, Burlingame - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
	Tons										*Metric Tons*			
Criteria Pollutants														
2024-2025	0.0053	0.0155	0.0602	0.0002	0.0167	0.0014	0.0181	0.0025	0.0005	0.0031	20.0696	0.0011	0.0013	20.4953
Toxic Air Contaminants (0.5 Mile Trip Length)														
2024-2025	0.0047	0.0045	0.0202	0.0000	0.0008	0.0001	0.0009	0.0001	0.0000	0.0002	1.5604	0.0004	0.0002	1.6438

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	18	0	540	0	10	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	5832	0	200
Site Preparation	8	0	224	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2419.2	0	0
Grading	8	0	288	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3110.4	0	0
Building Construction	12	2	2844	474	20	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	30715.2	3460.2	400
Trenching	3	0	147	0	0	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	1587.6	0	0
Architectural Coating	2	0	118	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1274.4	0	0
Paving	8	0	168	0	0	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	1814.4	0	0

Number of Days Per Year					
2024-2025	1/1/24	3/3/25	428	368	
			428	**368**	***Total Workdays***

Phase	**Start Date**	**End Date**	**Days/Week**	**Workdays**
Demolition	1/1/2024	2/4/2024	6	30
Site Preparation	1/31/2024	3/2/2024	6	28
Grading	3/1/2024	4/11/2024	6	36
Building Construction	3/16/2024	12/17/2024	6	237
Trenching	4/7/2024	6/3/2024	6	49
Architectural Coating	12/10/2024	2/15/2025	6	59
Paving	2/7/2025	3/3/2025	6	21

Attachment 4: Project Construction Emissions and Health Risk Calculations

123 Primrose Road, Burlingame, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2024 + 2025	Construction	0.0358	Point	21	71.6	0.02179	2.74E-03	1.31E-04
Total		***0.0358***			***71.6***	***0.0218***	***0.0027***	

Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(8am -5pm)
days/yr =	365	
hours/year =	3285	

123 Primrose Road, Burlingame, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2024 + 2025	Construction	CON_FUG	0.0201	40.2	0.01225	1.54E-03	1049.8	1.47E-06
Total			***0.0201***	***40.2***	***0.0122***	***0.0015***		

Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(8am -5pm)
days/yr =	365	
hours/year =	3285	

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2024 + 2025	Construction	0.0019	Point	21	3.7	0.00113	1.43E-04	6.81E-06
Total		***0.0019***			***3.7***	***0.0011***	***0.0001***	

Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(8am -5pm)
days/yr =	365	
hours/year =	3285	

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Mitigation

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2024 + 2025	Construction	CON_FUG	0.0091	18.3	0.00556	7.00E-04	1049.8	6.67E-07
Total			***0.0091***	***18.3***	***0.0056***	***0.0007***		

Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(8am -5pm)
days/yr =	365	
hours/year =	3285	

123 Primrose Road, Burlingame, CA
Construction Health Impact Summary

Maximum Impacts at MEI Location - Without Mitigation

Emissions Year	Maximum Concentrations Exhaust PM10/DPM (μg/m^3)	Maximum Concentrations Fugitive PM2.5 (μg/m^3)	Cancer Risk (per million) Infant/Child	Cancer Risk (per million) Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration (μg/m^3)
2024 + 2025	0.4334	0.6128	77.09	1.24	0.09	0.66
Total	-	-	**77.09**	**1.24**		-
Maximum	0.4334	0.6128	**-**	**-**	**0.09**	**0.66**

Maximum Impacts at MEI Location - With Mitigation

Emissions Year	Maximum Concentrations Exhaust PM10/DPM (μg/m^3)	Maximum Concentrations Fugitive PM2.5 (μg/m^3)	Cancer Risk (per million) Infant/Child	Cancer Risk (per million) Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration (μg/m^3)
2024 + 2025	0.0226	0.2781	4.01	0.06	0.00	0.28
Total	-	-	**4.01**	**0.06**	-	-
Maximum	0.0226	0.2781	**-**	**-**	**0.00**	**0.28**

- Tier 4 Interim Engine, BMP Mitigation, electric cranes, and electric welders as mitigation

Maximum Impacts at Burlingame United Methodist Church Preschool

Construction Year	Mitigated Emissions: Maximum Concentrations Exhaust PM10/DPM (μg/m^3)	Maximum Concentrations Fugitive PM2.5 (μg/m^3)	Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration (μg/m^3)
2024 + 2025	0.0006	0.2483	0.04	0.0001	0.25
Total	-		**0.04**	-	-
Maximum	0.0006	0.2483	**-**	**0.0001**	**0.25**

123 Primrose Road, Burlingame, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 7.6 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2024 + 2025	0.0221	10	0.30	2024 + 2025	0.0221	-	-			
1	1	0 - 1	2024 + 2025	0.0221	10	3.63	2024 + 2025	0.0221	1	0.06	0.004	0.02	0.04
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**3.93**				**0.06**			

* Third trimester of pregnancy

123 Primrose Road, Burlingame, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information DPM Conc (ug/m3) Year	Infant/Child DPM Conc (ug/m3) Annual	Infant/Child Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Adult Modeled DPM Conc (ug/m3) Annual	Adult Age Sensitivity Factor	Adult Cancer Risk (per million)	Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2024 + 2025	0.4334	10	5.89	2024 + 2025	0.4334	-	-			
1	1	0 - 1	2024 + 2025	0.4334	10	71.19	2024 + 2025	0.4334	1	1.24	0.087	0.154	0.57
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**77.09**				**1.24**			

* Third trimester of pregnancy

123 Primrose Road, Burlingame, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	Infant/Child: DPM Conc (ug/m3) Annual	Infant/Child: Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Adult: Modeled DPM Conc (ug/m3) Annual	Adult: Age Sensitivity Factor	Adult Cancer Risk (per million)	Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2024 + 2025	0.0714	10	0.97	2024 + 2025	0.0714	-	-			
1	1	0 - 1	2024 + 2025	0.0714	10	11.72	2024 + 2025	0.0714	1	0.20	0.01	0.613	0.66
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**12.69**				**0.20**			

* Third trimester of pregnancy

123 Primrose Road, Burlingame, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 7.6 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)
0	0.25	-0.25 - 0*	2024 + 2025	0.0012	10	0.02	2024 + 2025	0.0012	-	-
1	1	0 - 1	2024 + 2025	0.0012	10	0.19	2024 + 2025	0.0012	1	0.00
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00
Total Increased Cancer Risk						**0.20**				**0.00**

* Third trimester of pregnancy

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0002	0.009	0.01

123 Primrose Road, Burlingame, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	Infant/Child: DPM Conc (ug/m3) Annual	Infant/Child: Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Adult: Modeled DPM Conc (ug/m3) Annual	Adult: Age Sensitivity Factor	Adult Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2024 + 2025	0.0226	10	0.31	2024 + 2025	0.0226	-	-			
1	1	0 - 1	2024 + 2025	0.0226	10	3.71	2024 + 2025	0.0226	1	0.06	0.005	0.07	0.09
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**4.01**				**0.06**			

* Third trimester of pregnancy

123 Primrose Road, Burlingame, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	Infant/Child - Exposure Information: DPM Conc (ug/m3) Annual	Infant/Child - Exposure Information: Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Annual	Adult - Exposure Information: Age Sensitivity Factor	Adult Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2024 + 2025	0.0037	10	0.05	2024 + 2025	0.0037	-	-			
1	1	0 - 1	2024 + 2025	0.0037	10	0.61	2024 + 2025	0.0037	1	0.01	0.001	0.28	0.28
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**0.66**				**0.01**			

* Third trimester of pregnancy

123 Primrose Road, Burlingame, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Burlingame United Methodist Church Preschool - 1 meter - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	School Infant	School Child	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	3.73	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	2 - 3	2024 + 2025	0.0118	3	0.7
2	1			0.0000	3	0.0
3	1			0.0000	3	0.0
4	1			0.0000	3	0.0
5	1			0.0000	3	0.0
6	1			0.0000	3	0.0
7	1			0.0000	3	0.0
8	1			0.0000	3	0.0
9	1			0.0000	3	0.0
Total Increased Cancer Risk						**0.74**

* Children assumed to be 2 years of age or older with 15 months of Construction Exposure

Maximum: Hazard Index	Maximum: Fugitive PM2.5	Maximum: Total PM2.5
0.0024	0.55	0.56

123 Primrose Road, Burlingame, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Burlingame United Methodist Church Preschool - 1 meter - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	School Infant	**School Child**	**Adult**
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	3.73	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	**Exposure Duration (years)**	**Age**	**Child - Exposure Information** DPM Conc (ug/m3) Year	Annual	**Age* Sensitivity Factor**	**Child Cancer Risk (per million)**
1	1	2 - 3	2024 + 2025	0.0006	3	0.0
2	1			0.0000	3	0.0
3	1			0.0000	3	0.0
4	1			0.0000	3	0.0
5	1			0.0000	3	0.0
6	1			0.0000	3	0.0
7	1			0.0000	3	0.0
8	1			0.0000	3	0.0
9	1			0.0000	3	0.0
Total Increased Cancer Risk						**0.04**

* Children assumed to be 2 years of age or older with 15 months of Construction Exposure

Maximum Hazard Index	Fugitive PM2.5	Total PM2.5
0.0001	0.25	0.25

Attachment 5: Community Risk Modeling Information and Calculations

```
         File Name:   Local Roadways 2024.EF
CT-EMFAC2017 Version:   1.0.2.27401
          Run Date:   8/29/2022 12:24:59 PM
              Area:   San Mateo (SF)
     Analysis Year:   2024
            Season:   Annual

=======================================================================

Vehicle Category        VMT Fraction            Diesel VMT Fraction     Gas VMT Fraction
                        Across Category         Within Category         Within Category
         Truck 1             0.017                 0.491                     0.509
         Truck 2             0.014                 0.870                     0.113
       Non-Truck             0.969                 0.017                     0.957

=======================================================================

               Road Type:       Major/Collector
     Silt Loading Factor:                  CARB         0.032 g/m2
Precipitation Correction:                  CARB         P = 60 days      N = 365 days

=======================================================================

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

       Pollutant Name        35 mph
                PM2.5      0.001347
                  TOG      0.035830
            Diesel PM      0.000240

=======================================================================

Fleet Average Running Loss Emission Factors (grams/veh-hour)

       Pollutant Name    Emission Factor
                  TOG           1.148758

=======================================================================

Fleet Average Tire Wear Factors (grams/veh-mile)

       Pollutant Name    Emission Factor
                PM2.5           0.002045

=======================================================================

Fleet Average Brake Wear Factors (grams/veh-mile)

       Pollutant Name    Emission Factor
                PM2.5           0.016809

=======================================================================

Fleet Average Road Dust Factors (grams/veh-mile)

       Pollutant Name    Emission Factor
                PM2.5           0.014921

=============================END=======================================
```

```
           File Name:   Local Roadways 2026.EF
CT-EMFAC2017 Version:   1.0.2.27401
            Run Date:   8/29/2022 12:27:25 PM
                Area:   San Mateo (SF)
       Analysis Year:   2026
              Season:   Annual

=======================================================================

Vehicle Category        VMT Fraction            Diesel VMT Fraction     Gas VMT Fraction
                        Across Category         Within Category         Within Category
         Truck 1             0.017                  0.504                   0.496
         Truck 2             0.014                  0.870                   0.112
       Non-Truck             0.969                  0.017                   0.950

=======================================================================

               Road Type:       Major/Collector
     Silt Loading Factor:                  CARB          0.032 g/m2
Precipitation Correction:                  CARB          P = 60 days      N = 365 days

=======================================================================

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

       Pollutant Name        35 mph
                PM2.5      0.001239
                  TOG      0.034030
            Diesel PM      0.000225

=======================================================================

Fleet Average Running Loss Emission Factors (grams/veh-hour)

       Pollutant Name   Emission Factor
                  TOG          1.078348

=======================================================================

Fleet Average Tire Wear Factors (grams/veh-mile)

       Pollutant Name   Emission Factor
                PM2.5          0.002044

=======================================================================

Fleet Average Brake Wear Factors (grams/veh-mile)

       Pollutant Name   Emission Factor
                PM2.5          0.016815

=======================================================================

Fleet Average Road Dust Factors (grams/veh-mile)

       Pollutant Name   Emission Factor
                PM2.5          0.014999

=============================END=======================================
```

123 Primrose Road, Burlingame, CA - Off-Site Residential
Cumulative Operation - El Camino Real
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_EB_CAM	El Camino Real Eastbound	EB	2	643.6	0.40	13.3	43.7	3.4	30	10,486
DPM_WB_CAM	El Camino Real Westbound	WB	2	646.0	0.40	13.3	43.7	3.4	30	10,486
									Total	20,971

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00024			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_EB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.80%	399	1.06E-05	9	6.65%	697	1.86E-05	17	6.48%	680	1.81E-05
2	3.14%	329	8.78E-06	10	8.30%	870	2.32E-05	18	3.84%	402	1.07E-05
3	2.48%	260	6.93E-06	11	6.32%	662	1.77E-05	19	2.35%	246	6.57E-06
4	0.99%	104	2.77E-06	12	7.64%	801	2.14E-05	20	1.19%	125	3.33E-06
5	0.99%	104	2.77E-06	13	6.81%	714	1.90E-05	21	2.81%	295	7.86E-06
6	2.15%	225	6.01E-06	14	6.65%	697	1.86E-05	22	4.79%	503	1.34E-05
7	4.83%	506	1.35E-05	15	5.99%	628	1.67E-05	23	3.47%	364	9.70E-06
8	3.34%	350	9.34E-06	16	4.33%	454	1.21E-05	24	0.66%	69	1.85E-06
								Total		10,486	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.80%	399	1.07E-05	9	6.65%	697	1.87E-05	17	6.48%	680	1.82E-05
2	3.14%	329	8.81E-06	10	8.30%	870	2.33E-05	18	3.84%	402	1.08E-05
3	2.48%	260	6.96E-06	11	6.32%	662	1.77E-05	19	2.35%	246	6.59E-06
4	0.99%	104	2.78E-06	12	7.64%	801	2.14E-05	20	1.19%	125	3.35E-06
5	0.99%	104	2.78E-06	13	6.81%	714	1.91E-05	21	2.81%	295	7.88E-06
6	2.15%	225	6.03E-06	14	6.65%	697	1.87E-05	22	4.79%	503	1.35E-05
7	4.83%	506	1.35E-05	15	5.99%	628	1.68E-05	23	3.47%	364	9.74E-06
8	3.34%	350	9.38E-06	16	4.33%	454	1.22E-05	24	0.66%	69	1.86E-06
								Total		10,486	

123 Primrose Road, Burlingame, CA - Off-Site Residential
Cumulative Operation - El Camino Real
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_EB_CAM	El Camino Real Eastbound	EB	2	643.6	0.40	13.3	44	1.3	30	10,486
PM2.5_WB_CAM	El Camino Real Westbound	WB	2	646.0	0.40	13.3	44	1.3	30	10,486
									Total	20,971

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.001347			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_EB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	117	1.75E-05	9	7.12%	746	1.12E-04	17	7.43%	779	1.17E-04
2	0.42%	44	6.52E-06	10	4.38%	459	6.87E-05	18	8.23%	863	1.29E-04
3	0.38%	40	5.93E-06	11	4.65%	488	7.30E-05	19	5.73%	601	8.99E-05
4	0.18%	18	2.77E-06	12	5.90%	618	9.25E-05	20	4.30%	451	6.75E-05
5	0.46%	48	7.25E-06	13	6.17%	647	9.68E-05	21	3.25%	341	5.11E-05
6	0.85%	89	1.33E-05	14	6.05%	634	9.49E-05	22	3.31%	347	5.20E-05
7	3.73%	391	5.86E-05	15	7.05%	739	1.11E-04	23	2.48%	260	3.89E-05
8	7.76%	814	1.22E-04	16	7.18%	753	1.13E-04	24	1.88%	197	2.95E-05
								Total		10,486	

2024 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_WB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	117	1.76E-05	9	7.12%	746	1.12E-04	17	7.43%	779	1.17E-04
2	0.42%	44	6.55E-06	10	4.38%	459	6.89E-05	18	8.23%	863	1.30E-04
3	0.38%	40	5.95E-06	11	4.65%	488	7.33E-05	19	5.73%	601	9.03E-05
4	0.18%	18	2.78E-06	12	5.90%	618	9.28E-05	20	4.30%	451	6.77E-05
5	0.46%	48	7.27E-06	13	6.17%	647	9.72E-05	21	3.25%	341	5.13E-05
6	0.85%	89	1.34E-05	14	6.05%	634	9.52E-05	22	3.31%	347	5.22E-05
7	3.73%	391	5.88E-05	15	7.05%	739	1.11E-04	23	2.48%	260	3.91E-05
8	7.76%	814	1.22E-04	16	7.18%	753	1.13E-04	24	1.88%	197	2.96E-05
								Total		10,486	

123 Primrose Road, Burlingame, CA - Off-Site Residential
Cumulative Operation - El Camino Real
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_EB_CAM	El Camino Real Eastbound	EB	2	643.6	0.40	13.3	44	1.3	30	10,486
TEXH_WB_CAM	El Camino Real Westbound	WB	2	646.0	0.40	13.3	44	1.3	30	10,486
									Total	20,971

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.03583			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	117	4.66E-04	9	7.12%	746	2.97E-03	17	7.43%	779	3.10E-03
2	0.42%	44	1.73E-04	10	4.38%	459	1.83E-03	18	8.23%	863	3.43E-03
3	0.38%	40	1.58E-04	11	4.65%	488	1.94E-03	19	5.73%	601	2.39E-03
4	0.18%	18	7.36E-05	12	5.90%	618	2.46E-03	20	4.30%	451	1.79E-03
5	0.46%	48	1.93E-04	13	6.17%	647	2.58E-03	21	3.25%	341	1.36E-03
6	0.85%	89	3.54E-04	14	6.05%	634	2.52E-03	22	3.31%	347	1.38E-03
7	3.73%	391	1.56E-03	15	7.05%	739	2.94E-03	23	2.48%	260	1.04E-03
8	7.76%	814	3.24E-03	16	7.18%	753	3.00E-03	24	1.88%	197	7.83E-04
								Total		10,486	

2024 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	117	4.68E-04	9	7.12%	746	2.98E-03	17	7.43%	779	3.11E-03
2	0.42%	44	1.74E-04	10	4.38%	459	1.83E-03	18	8.23%	863	3.45E-03
3	0.38%	40	1.58E-04	11	4.65%	488	1.95E-03	19	5.73%	601	2.40E-03
4	0.18%	18	7.39E-05	12	5.90%	618	2.47E-03	20	4.30%	451	1.80E-03
5	0.46%	48	1.93E-04	13	6.17%	647	2.59E-03	21	3.25%	341	1.36E-03
6	0.85%	89	3.55E-04	14	6.05%	634	2.53E-03	22	3.31%	347	1.39E-03
7	3.73%	391	1.56E-03	15	7.05%	739	2.95E-03	23	2.48%	260	1.04E-03
8	7.76%	814	3.25E-03	16	7.18%	753	3.01E-03	24	1.88%	197	7.86E-04
								Total		10,486	

123 Primrose Road, Burlingame, CA - Off-Site Residential
Cumulative Operation - El Camino Real
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_EB_CAM	El Camino Real Eastbound	EB	2	643.6	0.40	13.3	44	1.3	30	10,486
TEVAP_WB_CAM	El Camino Real Westbound	WB	2	646.0	0.40	13.3	44	1.3	30	10,486
									Total	20,971

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	1.14876			
Emissions per Vehicle per Mile (g/VMT)	0.03282			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	117	4.27E-04	9	7.12%	746	2.72E-03	17	7.43%	779	2.84E-03
2	0.42%	44	1.59E-04	10	4.38%	459	1.67E-03	18	8.23%	863	3.15E-03
3	0.38%	40	1.44E-04	11	4.65%	488	1.78E-03	19	5.73%	601	2.19E-03
4	0.18%	18	6.74E-05	12	5.90%	618	2.25E-03	20	4.30%	451	1.64E-03
5	0.46%	48	1.77E-04	13	6.17%	647	2.36E-03	21	3.25%	341	1.24E-03
6	0.85%	89	3.24E-04	14	6.05%	634	2.31E-03	22	3.31%	347	1.27E-03
7	3.73%	391	1.43E-03	15	7.05%	739	2.70E-03	23	2.48%	260	9.49E-04
8	7.76%	814	2.97E-03	16	7.18%	753	2.75E-03	24	1.88%	197	7.18E-04
								Total		10,486	

2024 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	117	4.29E-04	9	7.12%	746	2.73E-03	17	7.43%	779	2.85E-03
2	0.42%	44	1.60E-04	10	4.38%	459	1.68E-03	18	8.23%	863	3.16E-03
3	0.38%	40	1.45E-04	11	4.65%	488	1.79E-03	19	5.73%	601	2.20E-03
4	0.18%	18	6.77E-05	12	5.90%	618	2.26E-03	20	4.30%	451	1.65E-03
5	0.46%	48	1.77E-04	13	6.17%	647	2.37E-03	21	3.25%	341	1.25E-03
6	0.85%	89	3.25E-04	14	6.05%	634	2.32E-03	22	3.31%	347	1.27E-03
7	3.73%	391	1.43E-03	15	7.05%	739	2.71E-03	23	2.48%	260	9.52E-04
8	7.76%	814	2.98E-03	16	7.18%	753	2.76E-03	24	1.88%	197	7.20E-04
								Total		10,486	

123 Primrose Road, Burlingame, CA - Off-Site Residential
Cumulative Operation - El Camino Real
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_EB_CAM	El Camino Real Eastbound	EB	2	643.6	0.40	13.3	44	1.3	30	10,486
FUG_WB_CAM	El Camino Real Westbound	WB	2	646.0	0.40	13.3	44	1.3	30	10,486
									Total	20,971

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00205			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681			
Road Dust - Emissions per Vehicle (g/VMT)	0.01492			
otal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03378			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	117	4.39E-04	9	7.12%	746	2.80E-03	17	7.43%	779	2.92E-03
2	0.42%	44	1.64E-04	10	4.38%	459	1.72E-03	18	8.23%	863	3.24E-03
3	0.38%	40	1.49E-04	11	4.65%	488	1.83E-03	19	5.73%	601	2.25E-03
4	0.18%	18	6.94E-05	12	5.90%	618	2.32E-03	20	4.30%	451	1.69E-03
5	0.46%	48	1.82E-04	13	6.17%	647	2.43E-03	21	3.25%	341	1.28E-03
6	0.85%	89	3.34E-04	14	6.05%	634	2.38E-03	22	3.31%	347	1.30E-03
7	3.73%	391	1.47E-03	15	7.05%	739	2.77E-03	23	2.48%	260	9.76E-04
8	7.76%	814	3.05E-03	16	7.18%	753	2.82E-03	24	1.88%	197	7.38E-04
								Total		10,486	

2024 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	117	4.41E-04	9	7.12%	746	2.81E-03	17	7.43%	779	2.93E-03
2	0.42%	44	1.64E-04	10	4.38%	459	1.73E-03	18	8.23%	863	3.25E-03
3	0.38%	40	1.49E-04	11	4.65%	488	1.84E-03	19	5.73%	601	2.26E-03
4	0.18%	18	6.96E-05	12	5.90%	618	2.33E-03	20	4.30%	451	1.70E-03
5	0.46%	48	1.82E-04	13	6.17%	647	2.44E-03	21	3.25%	341	1.29E-03
6	0.85%	89	3.35E-04	14	6.05%	634	2.39E-03	22	3.31%	347	1.31E-03
7	3.73%	391	1.47E-03	15	7.05%	739	2.78E-03	23	2.48%	260	9.80E-04
8	7.76%	814	3.07E-03	16	7.18%	753	2.84E-03	24	1.88%	197	7.41E-04
								Total		10,486	

123 Primrose Road, Burlingame, CA - El Camino Real Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptors (1.5 & 4.5 meter receptor height)

Emission Year	2024
Receptor Information	Construction Residential MEI receptors
Number of Receptors	2
Receptor Height	1.5 & 4.5 meters
Receptor Distances	At Construction Residential MEI locations
Meteorological Conditions	
BAAQMD San Francisco International M	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0008	0.1227	0.1121

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1647	0.1584	0.0063

123 Primrose Road, Burlingame, CA - El Camino Real Traffic Cancer Risk
Impacts at Construction Residential MEI - 1.5(PM) & 4.5(DPM) meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2024	10	0.0008	0.1227	0.1121	0.011	0.010	0.0005	0.02
1	1	0 - 1	2024	10	0.0008	0.1227	0.1121	0.136	0.115	0.0062	0.26
2	1	1 - 2	2025	10	0.0008	0.1227	0.1121	0.136	0.115	0.0062	0.26
3	1	2 - 3	2026	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
4	1	3 - 4	2027	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
5	1	4 - 5	2028	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
6	1	5 - 6	2029	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
7	1	6 - 7	2030	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
8	1	7 - 8	2031	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
9	1	8 - 9	2032	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
10	1	9 - 10	2033	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
11	1	10 - 11	2034	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
12	1	11 - 12	2035	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
13	1	12 - 13	2036	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
14	1	13 - 14	2037	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
15	1	14 - 15	2038	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
16	1	15 - 16	2039	3	0.0008	0.1227	0.1121	0.021	0.018	0.0010	0.04
17	1	16-17	2040	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
18	1	17-18	2041	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
19	1	18-19	2042	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
20	1	19-20	2043	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
21	1	20-21	2044	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
22	1	21-22	2045	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
23	1	22-23	2046	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
24	1	23-24	2047	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
25	1	24-25	2048	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
26	1	25-26	2049	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
27	1	26-27	2050	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
28	1	27-28	2051	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
29	1	28-29	2052	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
30	1	29-30	2053	1	0.0008	0.1227	0.1121	0.002	0.002	0.0001	0.00
Total Increased Cancer Risk								0.62	0.521	0.028	**1.17**

* Third trimester of pregnancy

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00017	0.16	0.16

123 Primrose Road, Burlingame, CA - El Camino Real Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site Receptors (5.8 meter receptor height)

Emission Year	2026
Receptor Information	Maximum On-Site Receptor
Number of Receptors	21
Receptor Height	5.8 meters
Receptor Distances	7 meters
Meteorological Conditions	
BAAQMD Moffett Field Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (μg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0009	0.1200	0.1086

Construction School MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (μg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1240	0.1196	0.0044

123 Primrose Road, Burlingame, CA - El Camino Real Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 5.8 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
8-Hr BR* =	361	1200	520	240
A =	1	1	1	1
EF =	250	250	250	250
AT =	70	70	70	70
FAH =	1.00	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)						
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL	Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0	1	-0.25 - 0*	2026	10	0.0009	0.1200	0.1086	0.033	0.027	0.0014	0.06	0.0002	0.12	0.12
1	1	0 - 1	2026	10	0.0009	0.1200	0.1086	0.110	0.088	0.0047	0.20			
2	1	1 - 2	2027	10	0.0009	0.1200	0.1086	0.110	0.088	0.0047	0.20			
3	1	2 - 3	2028	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
4	1	3 - 4	2029	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
5	1	4 - 5	2030	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
6	1	5 - 6	2031	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
7	1	6 - 7	2032	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
8	1	7 - 8	2033	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
9	1	8 - 9	2034	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
10	1	9 - 10	2035	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
11	1	10 - 11	2036	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
12	1	11 - 12	2037	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
13	1	12 - 13	2038	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
14	1	13 - 14	2039	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
15	1	14 - 15	2040	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
16	1	15 - 16	2041	3	0.0009	0.1200	0.1086	0.053	0.043	0.0023	0.10			
17	1	16-17	2042	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
18	1	17-18	2043	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
19	1	18-19	2044	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
20	1	19-20	2045	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
21	1	20-21	2046	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
22	1	21-22	2047	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
23	1	22-23	2048	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
24	1	23-24	2049	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
25	1	24-25	2050	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
26	1	25-26	2051	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
27	1	26-27	2052	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
28	1	27-28	2053	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
29	1	28-29	2054	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
30	1	29-30	2055	1	0.0009	0.1200	0.1086	0.002	0.002	0.0001	0.00			
Total Increased Cancer Risk								1.029	0.829	0.044	**1.90**			

* Third trimester of pregnancy

123 Primrose Road, Burlingame, CA - El Camino Real Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site Receptors (9.1 meter receptor height)

Emission Year	2026
Receptor Information	Maximum On-Site Receptor
Number of Receptors	21
Receptor Height	9.1 meters
Receptor Distances	7 meters
Meteorological Conditions	
BAAQMD Moffett Field Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (μg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0005	0.0674	0.0610

Construction School MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (μg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0697	0.0672	0.0025

123 Primrose Road, Burlingame, CA - El Camino Real Traffic Cancer Risk
Impacts at On-Site 3rd Floor Receptors - 9.1 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
8-Hr BR* =	361	1200	520	240
A =	1	1	1	1
EF =	250	250	250	250
AT =	70	70	70	70
FAH =	1.00	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	1	-0.25 - 0*	2026	10	0.0005	0.0674	0.0610	0.021	0.015	0.0008	0.04
1	1	0 - 1	2026	10	0.0005	0.0674	0.0610	0.070	0.050	0.0027	0.12
2	1	1 - 2	2027	10	0.0005	0.0674	0.0610	0.070	0.050	0.0027	0.12
3	1	2 - 3	2028	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
4	1	3 - 4	2029	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
5	1	4 - 5	2030	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
6	1	5 - 6	2031	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
7	1	6 - 7	2032	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
8	1	7 - 8	2033	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
9	1	8 - 9	2034	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
10	1	9 - 10	2035	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
11	1	10 - 11	2036	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
12	1	11 - 12	2037	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
13	1	12 - 13	2038	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
14	1	13 - 14	2039	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
15	1	14 - 15	2040	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
16	1	15 - 16	2041	3	0.0005	0.0674	0.0610	0.034	0.024	0.0013	0.06
17	1	16-17	2042	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
18	1	17-18	2043	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
19	1	18-19	2044	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
20	1	19-20	2045	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
21	1	20-21	2046	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
22	1	21-22	2047	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
23	1	22-23	2048	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
24	1	23-24	2049	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
25	1	24-25	2050	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
26	1	25-26	2051	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
27	1	26-27	2052	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
28	1	27-28	2053	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
29	1	28-29	2054	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
30	1	29-30	2055	1	0.0005	0.0674	0.0610	0.001	0.001	0.0001	0.00
Total Increased Cancer Risk								0.653	0.466	0.025	**1.14**

* Third trimester of pregnancy

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.07	0.07

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**7/28/2022**
Contact Name	Zachary Palm
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x117
Email	zpalm@illingworthrodkin.com
Project Name	123 - 135 Primrose Road
Address	123 - 135 Primrose Road
City	Burlingame
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	14-du
Comments:	

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in **Table A** Incomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in **Table B** blue section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments
1000+	13454	Pacific Bell	1480 Burlingame Avenue	27.31	0.04	0.03		Generator		2018 Dataset
300	20929	Former Caine Cleaners	1319 Howard Avenue	1.91	0.00	0.00		Sub-Slab Depressurization System		2018 Dataset

Construction MEIs

Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
0.04	1.09	0.002	0.00
0.52	1.00	0.001	0.00

Project Site

Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
1000+	13454	0.04	1.09	0.002	0.001
220	20929	0.62	1.18	0.001	0.000

Footnotes:

1. Maximally exposed individual

2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
   a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
   b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of
   c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
   d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should
   e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
   f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
   g. This spray booth is considered to be insignificant.

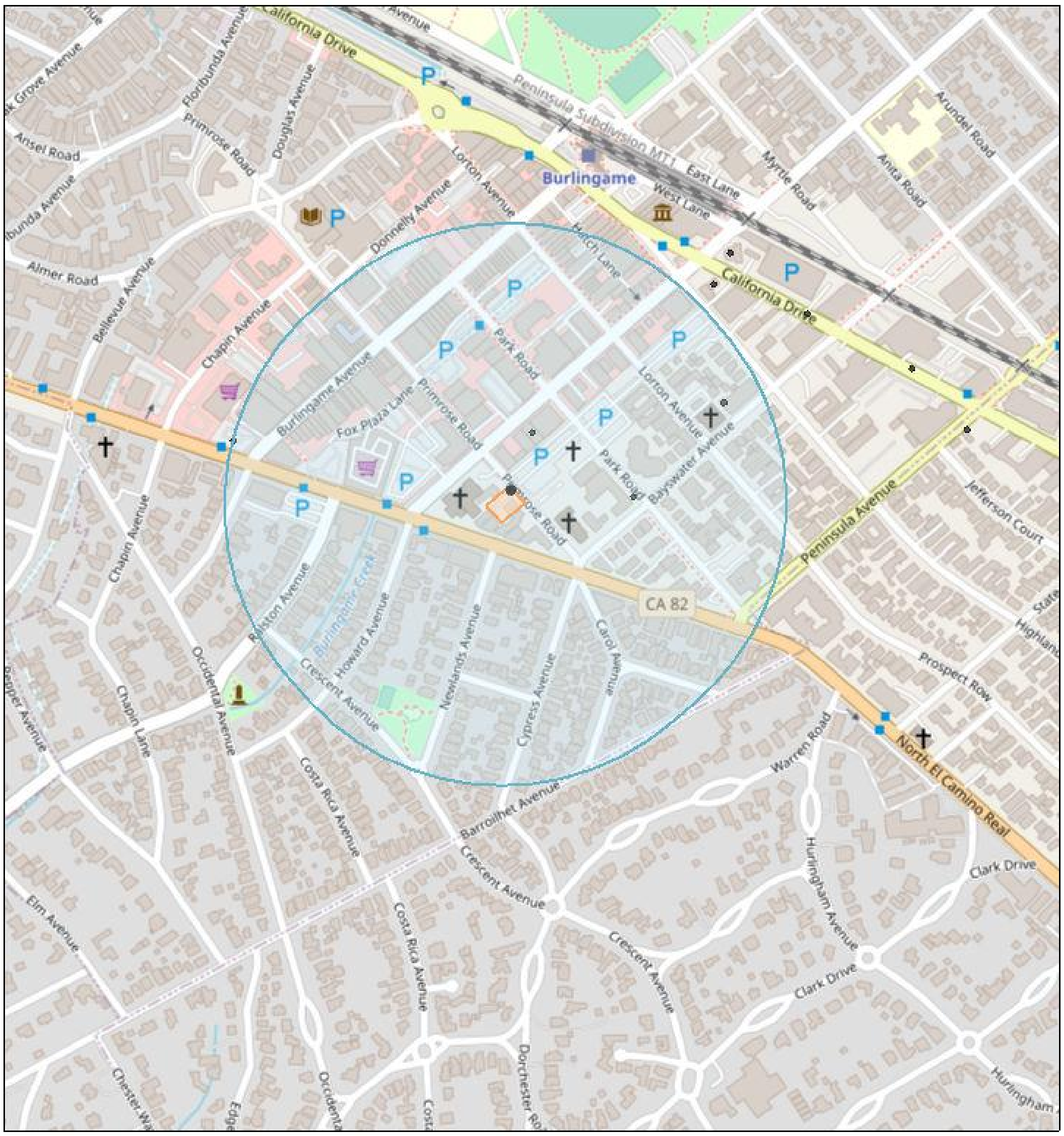
Date last updated:
03/13/2018

Screening Report

Area of Interest (AOI) Information

Area : 4,381,869.7 ft²

Jul 28 2022 13:15:46 Pacific Daylight Time



Permitted Stationary Sources

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	4	N/A	N/A

Permitted Stationary Sources

#	FacID	FacName	Address	City	Street
1	11731	Shaffer Property Trust c/o RRM	1200 Howard Avenue	Burlingame	CA
2	13454	Pacific Bell	1480 Burlingame Avenue	Burlingame	CA
3	20929	Former Caine Cleaners	1319 Howard Avenue	Burlingame	CA
4	22786	Atria-Burlingame	250 Myrtle Road	Burlingame	CA

#	Zip	County	Latitude	Longitude	Details
1	94,010.00	San Mateo	37.58	-122.34	*No Data*
2	94,010.00	San Mateo	37.58	-122.35	Generator
3	94,010.00	San Mateo	37.58	-122.35	*No Data*
4	94,010.00	San Mateo	37.58	-122.34	Generator

#	NAICS	Sector	Sub_Sector	Industry	ChronicHI
1	562,910.00	Administrative and Support and Waste Management and Remediation Services	Waste Management and Remediation Services	Remediation Services	0.0161534
2	517,110.00	Information	Telecommunications	Wired Telecommunications Carriers	0.0422525
3	812,320.00	Other Services (except Public Administration)	Personal and Laundry Services	Drycleaning and Laundry Services (except Coin-Operated)	0.0022507
4	623,311.00	Health Care and Social Assistance	Nursing and Residential Care Facilities	Continuing Care Retirement Communities	0.0000000

#	PM2_5	Cancer Risk {expression/expr0}	Chronic Hazard Index {expression/expr1}	PM2.5 {expression/expr2}	Count
1	0.0000000	3.279	0.016	*No Data*	1
2	0.0348234	27.307	0.042	0.035	1
3	0.0000000	1.912	0.002	*No Data*	1
4	0.0013393	*No Data*	*No Data*	0.001	1

NOTE: A larger buffer than 1000 feet may be warranted depending on proximity to significant sources.