320 SHERIDAN DRIVE CONSTRUCTION EMISSIONS AND HEALTH RISK ASSESSMENT

Menlo Park, California

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Prepared for:

John Shaw
President
Alliant Strategic Development
26050 Mureau Road, Suite 101
Calabasas, CA 91302

Prepared by:

Zachary Palm
Jordyn Bauer

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
Cotati, CA 94931
(707) 794-0400

I&R Project#: 24-017

Introduction

The purpose of this report is to address construction air quality and health risk impacts associated with the proposed multi-family development located at 320 Sheridan Drive in Menlo Park, California. Air quality impacts from this project would be associated with demolition and the construction of the new apartments. Air pollutants associated with construction of the project were estimated using appropriate computer models. In addition, the potential project health risks and the impacts of existing toxic air contaminant (TAC) sources affecting nearby sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1] For informational purposes, this report also provides analysis of TAC sources on future project residents.

Project Description

The 2.5-acre project site currently contains concrete pads leftover from its prior use as a school site. The project proposes to demolish the existing concrete pads to construct a three-story, 88-unit, 72,528 square-foot affordable housing building. A parking lot will also be constructed that will provide 120 parking spaces.

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 concentrations in the air basin 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 ozone concentrations. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ambient ozone concentrations. The highest ozone concentrations in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone concentrations aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant in the air basin. 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 concentrations aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

[1] Bay Area Air Quality Management District, *2022 CEQA Guidelines*, April 2023

Toxic Air Contaminants

TACs are a broad class of compounds known to cause morbidity or mortality, often because they cause cancer. 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 of TACs can result in adverse health effects, they 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 from diesel exhaust exposure 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. Health risks from TACs are estimated using the Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines, which were published in February of 2015 and incorporated in BAAQMD's current CEQA guidance.[2]

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, people 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, infants and small 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 single- and multi-family residences adjacent to the southeast and northwest. Additionally, there would be children at the Belle Haven Home Daycare located 800 feet to the east. This project would introduce new sensitive receptors (i.e., residents) to the area.

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.

[2] 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.

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.[3] 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 has been 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 has been used to develop emission reduction activities 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. Seven areas have been identified by BAAQMD as impacted communities. They include Eastern San Francisco, Richmond/San Pablo, Western Alameda, San José, Vallejo, Concord, and Pittsburgh/Antioch. The project site is not within the CARE 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 score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[4] The BAAQMD has identified several overburdened areas within its boundaries. The project site is not within an overburdened area as the Project site is scored at the 5th percentile on CalEnviroScreen.[5] The project site also is not within 1,000 feet of a census tract that scores at or above the 70th percentile.

BAAQMD CEQA Air Quality Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. In 2023, the BAAQMD revised the *California Environmental Quality Act* (*CEQA) Air Quality Guidelines* that include significance thresholds to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The current BAAQMD 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 include

[3] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program.
[4] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en.
[5] OEHAA, CalEnviroScreen 4.0 Maps https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/

assessment methodologies for criteria air pollutants and air toxics emissions as shown in Table 1.[6] Air quality impacts and health risks are considered potentially significant if they exceed these thresholds.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	**Construction Thresholds**			
	Average Daily Emissions (lbs./day)			
ROG	54			
NO_x	54			
PM_{10}	82 (Exhaust)			
$PM_{2.5}$	54 (Exhaust)			
CO	Not Applicable			
Fugitive Dust (PM_{10}/$PM_{2.5}$)	Best Management Practices (BMPs)*			
Health Risks and Hazards	**Single Sources/ Individual Project**		**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	>10 in a million	OR Compliance with Qualified Community Risk Reduction Plan	>100 in a million	OR Compliance with Qualified Community Risk Reduction Plan
Hazard Index	>1.0		>10.0	
Incremental annual $PM_{2.5}$	>0.3 µg/m^3		>0.8 µg/m^3	
Note: ROG = reactive organic gases, NOx = nitrogen oxides, 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. * BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.				

Source: Bay Area Air Quality Management District, 2022

The BAAQMD recommends all projects include a "basic" set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e., fugitive PM_{10} and $PM_{2.5}$) to be less than significant if BMPs are implemented (listed below). BAAQMD strongly encourages enhanced BMPs for construction sites near schools, residential areas, other sensitive land uses, or if air quality impacts were found to be significant.

City of Menlo Park General Plan

The City of Menlo Park General Plan, adopted November 29, 2016, includes goals, policies, and programs to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants or TACs. The following goals, policies, and programs are applicable to the proposed project and this assessment:

[6] Bay Area Air Quality Management District, 2023. *2022 CEQA Guidelines*. April.

Land Use Element

Goal LU-7 Promote the implementation and maintenance of sustainable development, facilities, and services to meet the needs of Menlo Park's residents, businesses, workers, and visitors.

Applicable Policies – Land Use Element

Policy LU-7.9 **Green Building.** Support sustainability and green building best practices through the orientation, design, and placement of buildings and facilities to optimize their energy efficiency in preparation of State zero-net energy requirements for residential construction in 2020 and commercial construction in 2030.

Applicable Programs – Land Use Element

Policy LU-7.A **Green Building Operation and Maintenance**. Employ green building and operation and maintenance best practices, including increased energy efficiency, use of renewable energy and reclaimed water, and install drought-tolerant landscaping for all projects.

Policy LU-7.D **Performance Standards**. Establish performance standards in the Zoning Ordinance that requires new development to employ environmentally friendly technology and design to conserve energy and water and minimize the generation of indoor and outdoor pollutants.

Policy LU-7.E **Greenhouse Gas Emissions**. Develop a Greenhouse Gas (GHG) standard for development projects that would help reduce communitywide GHG emissions to meet City and Statewide reduction goals.

Circulation Element

Goal CIRC-3 Increase mobility options to reduce traffic congestion, greenhouse gas emissions, and commute travel time.

Goal CIRC-5 Support local and regional transit that is efficient, frequent, convenient, and safe.

Goal CIRC-6 Provide a range of transportation choices for the Menlo Park community.

Goal CIRC-7 Utilize innovative strategies to provide efficient and adequate vehicle parking.

Applicable Policies – Circulation Element

Policy CIRC-3.1 **Vehicle-Miles Traveled**. Support development and transportation improvements that help reduce per service population (or other efficiency metric) vehicle miles traveled.

Policy CIRC-5.7 **New Development.** Ensure that new nonresidential, mixed-use, and multiple-dwelling residential development provides associated needed transit service, improvements and amenities in proportion with demand attributable to the type and scale of the proposed development.

Policy CIRC-7.1 **Parking and New Development.** Ensure new development provides appropriate parking ratios, including application of appropriate minimum and/or maximum ratios, unbundling, shared parking, electric car charging, car sharing, and Green Trip Certified strategies to accommodate residents, employees, customers and visitors.

Applicable Programs – Circulation Element

Program CIRC-6.C **Transportation Impact Fee.** Require new and expanded development to pay a transportation impact fee, and update the fee periodically to ensure that development is paying its fair share of circulation system improvement costs for all modes of transportation.

Open Space/Conservation Element

Goal OSC-4 Promote sustainability and climate action planning. Promote a sustainable energy supply and implement the City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and encouraging recycling, reduction and reuse programs.

Goal OSC-5 Ensure healthy air and water quality. Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.

Applicable Policies – Open Space/Conservation Element

Policy OSC-4.2 **Sustainable Building.** Promote and/or establish environmentally sustainable building practices or standards in new development that would conserve water and energy, prevent stormwater pollution, reduce landfilled waste, and reduce fossil fuel consumption from transportation and energy activities.

Policy OSC-4.3 **Renewable Energy**. Promote the installation of renewable energy technology, such as, on residences and businesses through education, social marketing methods, establishing standards and/or providing incentives.

Policy OSC-4.5 **Energy Standards in Residential and Commercial Construction**. Encourage projects to achieve a high level of energy conservation

exceeding standards set forth in the California Energy Code for Residential and Commercial development.

Policy OSC-5.1 **Air and Water Quality Standards**. Continue to apply standards and policies established by the Bay Area Air Quality Management District (BAAQMD), San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), and City of Menlo Park Climate Action Plan through the California Environmental Quality Act (CEQA) process and other means as applicable.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2022 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size were input to CalEEMod. The CalEEMod model output along with construction inputs are included in *Attachment 1*.

CalEEMod Modeling

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	88	Dwelling Unit	72,528	2.50
Parking Lot	120	Parking Spaces	-	

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 the equipment quantities, average hours per day, total number of workdays, and schedule, were based on the start date and equipment specifications provided by the project applicant and CalEEMod defaults (included in *Attachment 1*). The unmitigated CalEEMod scenario included Tier 4 engines for construction equipment as the applicant has stated their general contractor is committing to using equipment that is Tier 4 or better[7]. According to the project applicant, the earliest possible start date would be June 2025, and based on CalEEMod defaults the project would be built out over a period of approximately 13 months, or 277 construction workdays. The earliest year of full operation was assumed to be 2027.

[7] NextPhase Construction, Inc., File: *320 Sheridan – Menlo Park – Tier 4 Letter 032524.pdf*

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 amount of demolition material to be exported, soil imported and/or exported to the site, and the amount of concrete and asphalt truck trips to and from the site. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. Daily haul trips for demolition and grading were developed by CalEEMod using the provided demolition and soil import/export volumes. The number of total concrete/asphalt round haul trips were provided for the project and converted to daily one-way trips, assuming two trips per delivery. These values are shown in the project construction equipment worksheet included in *Attachment 1*.

Summary of Computed Construction Period Emissions

Average daily construction emissions were estimated for the total duration of the project (277 days). Table 3 shows the unmitigated annualized average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 3, predicted unmitigated annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Table 3. Construction Period Emissions - Unmitigated

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2025-2026	0.57	1.30	0.02	0.02
Average Daily Construction Emissions Per Year (pounds/day)				
2025-2026 (277 construction workdays)	4.09	9.40	0.15	0.14
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	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. General Plan Policy OSC-5.1, Air and Water Quality Standards, requires projects to apply standards and policies established by BAAQMD. The BAAQMD recommends all projects include a "basic" set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e., fugitive PM_{10} and $PM_{2.5}$) to be less than significant when BMPs are implemented. The BMPs are:

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 practicable. Building pads shall be laid as soon as practicable after grading unless seeding or soil binders are used.

6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.

7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

8. Unpaved roads providing access to site located 100 feet of further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

9. Publicly visible signs shall be posted with the telephone number and name of the 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 General Air Pollution Complaints number shall be visible to ensure compliance with applicable regulations.

The City requires new development to implement BAAQMD's basic BMPs through a standard condition of approval, consistent with General Plan Goal OSC-5 and Policy OSC-5.1. The project would be subject to this standard condition of approval and would have a less than significant impact on air quality due to the emission of criteria air pollutants during construct.

Construction Health Risk Impacts

Project impacts related to increased health risk can occur by generating emissions of TACs and air pollutants. 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. Additionally, there are existing sources of TACs and localized air pollutants in the vicinity of the project. The cumulative impact of the Project and existing TAC sources was assessed.

Health 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 health 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 $PM_{2.5}$.[8] 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.

Modeled Sensitive Receptors

Receptors for this assessment included locations where sensitive populations would be present for extended periods of time (i.e., chronic exposures). This includes the nearby existing residences surrounding the project site and the daycare as shown in Figure 1. Residential receptors are assumed to include all receptor groups (i.e., third trimester, infants, children, and adults) with almost continuous exposure to project emissions. Health risks were also computed for child receptors at the daycare. While there are additional sensitive receptors within 1,000 feet of the project site, the receptors chosen are adequate to identify maximum impacts from the project.

Construction Emissions

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment mix submitted by the applicant and for exhaust emissions from on-road vehicles, with total emissions from all construction stages being 0.05 tons (104 pounds). The on-road vehicle emissions are a result of haul truck travel on-site during demolition and grading activities, worker travel on-site, and vendor travel on-site during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.01 tons (24 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (i.e., residences) 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.[9] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Construction Sources

To represent the construction equipment exhaust emissions, an area source was used with an emission release height of 20 feet (6 meters).[10] The release height incorporates both the physical release height from the construction equipment (i.e., the height of the exhaust pipe) and plume rise after it leaves the exhaust pipe. Plume rise is due to both the high temperature of the exhaust and the high velocity of the exhaust gas. It should be noted that when modeling an area source,

[8] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[9] BAAQMD, 2023, *Appendix E of the 2022 BAAQMD CEQA Guidelines.* April.
[10] California Air Resource Board, 2007. *Proposed Regulation for In-Use Off-Road Diesel Vehicles, Appendix D: Health Risk Methodology.* April. Web: https://ww3.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm

plume rise is not calculated by the AERMOD dispersion model as it would do for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, was based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

For modeling fugitive $PM_{2.5}$ emissions, an area source with a near-ground level release height of 7 feet (2 meters) was used. 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 construction site.

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2011 - 2015) of hourly meteorological data from the San Carlos Airport prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring Monday through Friday between 8:00 a.m. to 5:00 p.m., when the majority of construction is expected to occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2025-2026 period were calculated at nearby sensitive receptors using the model. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) were used to represent the breathing heights on the first and second floors of nearby single and multi-family residences.[11] A receptor height of 3 feet (1 meter) was used to represent the breathing height of children at the nearby Belle Haven Home Daycare.

Summary of Construction Health Risk Impacts

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with the BAAQMD CEQA guidance for age sensitivity factors and exposure parameters. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant, child, and adult exposures were assumed to occur at all residences during the entire construction period. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period, while child exposures were assumed at the daycare.

Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated. 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 refence exposure level of 5 $\mu g/m^3$.

The modeled maximum 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 MEI was located southeast of the

[11] BAAQMD, 2023, *Appendix E of the 2022 BAAQMD CEQA Guidelines.* April.

project site on the first floor (5 feet above the ground) of a multi-family residence. Table 4 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and HI for project related construction activities affecting the construction MEIs. *Attachment 2* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Construction risk impacts are shown in Table 4. The maximum cancer risks from construction activities at the construction MEI would be below the single-source significance threshold. The annual $PM_{2.5}$ concentration and HI from construction activities would be below the single-source significance thresholds.

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 Belle Haven Home Daycare. The maximum increased cancer risks were adjusted using infant exposure parameters. The cancer risk, $PM_{2.5}$ concentration, and HI did not exceed their respective BAAQMD single-source significance thresholds, as shown in Table 4.

Table 4. Construction Risk Impacts at the Off-Site MEI*

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impact			
Project Construction	8.00 (infant)	0.06	0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Belle Haven Home Daycare Impacts			
Project Construction	2.14 (infant)	<0.01	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*

*Note: The project's unmitigated scenario includes Tier 4 Interim equipment based on information provided by the applicant's general contractor, as mentioned above.

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

Cumulative Health Risks of all TAC Sources at the Off-Site MEI

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

A review of the project area using BAAQMD's geographic information systems (GIS) screening tools indicated that one roadway (U.S. Highway 101) and three stationary sources within the 1,000-foot influence area could have cumulative health risk impacts at the MEI. Figure 2 shows the locations of the sources affecting the MEI within the influence area. Health risk impacts from these sources upon the MEI are reported in Table 5. Details of the cumulative screening and health risk calculations are included in *Attachment 3.*

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

Highways – U.S. 101

The project MEIs are located near U.S. 101. A refined analysis of the impacts of TACs and $PM_{2.5}$ to the MEI receptor is necessary to evaluate potential cancer risks and $PM_{2.5}$ concentrations from U.S. 101. A review of the traffic information reported by Caltrans indicates that U.S. 101 traffic includes 154,000 vehicles per day (based on an annual average)[12] that are about 4.50 percent trucks, of which 1.9 percent are considered diesel heavy duty trucks and 2.6 percent are medium duty trucks.[13]

Emission Rates

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on the U.S. 101 using the Caltrans version of the EMFAC2021 emissions model, known as CT-EMFAC2021. CT-EMFAC2021 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 (e.g., TOG), running evaporative losses for TOG, tire and brake wear, and fugitive road dust for $PM_{2.5}$. All $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e.,

[12] Caltrans. 2021. *2021 Traffic Volumes California State Highways.*
[13] Caltrans. 2021. *2021 Annual Average Daily Truck Traffic on the California State Highway System.*

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. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2021 emissions data. Inputs to the model include region (i.e., San Mateo County), type of road (i.e., freeway), Caltrans estimated local truck mix on U.S. 101 (4.50 percent)[14], traffic mix assigned by CT-EMFAC2021 for the county, year of analysis (2025), and season (annual).

In order 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 construction MEI, the CT-EMFAC2021 model was used to develop vehicle emission factors for the year 2025. 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-EMFAC2021. Year 2025 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated.

The traffic information reported by Caltrans for U.S. 101 was increased 1 percent per year to 160,159 vehicles per day (based on an annual average) that includes about 4.5 percent trucks, of which 1.9 percent are considered diesel heavy duty trucks and 2.6 percent are medium duty trucks.[15] Hourly traffic distributions specific to these segments of U.S. 101 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data is collected in real-time from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas of California.[16] The fraction of traffic volume each hour was calculated and applied to the 2025 average daily traffic volumes calculation to estimate hourly traffic emission rates for U.S. 101.

Based on traffic data from the Caltrans PeMS, traffic speeds during the daytime and nighttime periods were identified. For northbound traffic on U.S. 101, the following was assumed for all vehicles:

- 70 mph – From 12:00 a.m. until 6:00 a.m. and 8:00 p.m. until 12:00 a.m.
- 65 mph – From 6:00 a.m. until 8:00 a.m. and 9:00 a.m. until 8:00 p.m.
- 60 mph – From 8:00 a.m. until 9:00 a.m.

For southbound traffic on U.S. 101, the following was assumed for all vehicles:

- 70 mph – From 12:00 a.m. until 6:00 a.m. and 8:00 p.m. until 12:00 a.m.
- 65 mph – From 6:00 a.m. until 7:00 a.m., 11:00 a.m. until 4:00 p.m., and 6:00 p.m. until 8:00 p.m.
- 60 mph – From 7:00 a.m. until 8:00 a.m., 10:00 a.m. until 11:00 a.m., and 4:00 p.m. until 6:00 p.m.

[14] Caltrans. 2024. *2021 Annual Average Daily Truck Traffic on the California State Highways.* Web: https://dot.ca.gov/programs/traffic-operations/census
[15] Caltrans. 2024. *2021 Annual Average Daily Truck Traffic on the California State Highway System.* Web: https://dot.ca.gov/programs/traffic-operations/census.
[16] https://dot.ca.gov/programs/traffic-operations/mpr/pems-source

- 55 mph – From 8:00 a.m. until 10:00 a.m.

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.[17] TAC and $PM_{2.5}$ emissions from traffic on U.S. 101 within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a series of area sources along a line (line area sources); with line segments used for opposing travel directions on the roadway. The same meteorological data and off-site sensitive receptor MEI locations from the previous project impact dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations and heights. Annual TAC and $PM_{2.5}$ concentrations from traffic on the roadways were calculated using the model. Concentrations were calculated at the project MEI with a receptor height of 5 feet (1.5 meters) to represent the breathing height at the MEI receptor.

Computed Cancer and Non-Cancer Health Impacts

Maximum increased lifetime cancer risks and annual $PM_{2.5}$ concentrations for the receptors were computed using modeled TAC and $PM_{2.5}$ concentrations and BAAQMD methods and exposure parameters. The traffic-related cancer risk, $PM_{2.5}$ concentration, and HI impacts on the project MEI are shown in Table 5. Figure 2 shows the roadway links used for the modeling and receptor locations where concentrations were calculated. Details of the emission calculations, dispersion modeling, and cancer risk calculations for the receptors with the maximum cancer risk from U.S. 101 traffic are provided in *Attachment 3.*

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2021* GIS map website.[18] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts, based on emissions and adjustments to account for OEHHA's risk guidance. Three sources were identified using this tool, all diesel generators. The BAAQMD GIS website provided screening risks and hazards for the remaining sources. Therefore, a stationary source information request was not required to be submitted to BAAQMD.

The screening risk and hazard levels provided by BAAQMD for the stationary source was adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Backup Diesel Generator*. Health risk impacts from the stationary sources upon the MEIs are reported in Table 5.

[17] BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012
[18] BAAQMD, Web:
https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3

Summary of Cumulative Health Risk Impacts

Table 5 reports both the project and cumulative health risk impacts. The cumulative annual cancer risk, maximum $PM_{2.5}$ concentration and HI values would not exceed the BAAQMD's cumulative source health risk thresholds

Table 5. Impacts from Combined Sources at Construction MEI

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts			
Project Construction	8.00 (infant)	0.06	0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Impacts			
U.S. 101, ADT 160,159	11.22	0.33	<0.01
CALTRANS (Facility # 19890, Generator), MEI at 50 feet	0.15	-	-
Meta Platforms Inc-MPK 28-29 (Facility #23192, Generator) MEI at 1000+	0.39	<0.01	<0.01
Facebook Inc. (Facility #200438, Generator) MEI at	0.19	<0.01	<0.01
Cumulative Total	19.95	<0.41	<0.04
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Non-CEQA: On-site Health Risk Assessment of TAC Sources - New Sensitive Receptors

A health risk assessment was completed to assess the effect that existing TAC sources would have on the new sensitive receptors (i.e., residents) introduced by the project. The same TAC sources identified above were used in this assessment.[19] BAAQMD's recommended thresholds for health risks and hazards, shown in Table 1, are used to evaluate on-site exposure. Figure 3 shows the on-site sensitive receptors in relation to the nearby TAC sources. Results are listed in Table 6. *Attachment 3* includes the dispersion modeling and risk calculations for TAC source impacts upon the proposed on-site sensitive receptors.

Highways – U.S. 101

The highway analysis for the new project residents was conducted in the same manner as described above for the off-site MEI. However, the year 2027 (operational year) emission factors were conservatively assumed as being representative of future conditions, instead of 2025 (construction year). An analysis based on 2027 resulted in an increased ADT on U.S. 101 of 163,239 vehicles. The project set of receptors were placed throughout the project residential

[19] 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.

areas and were spaced every 23 feet (7 meters). Highway impacts were modeled at receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) representing sensitive receptors on the first and second floors of the building. The portions of U.S. 101 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 housing area for 24 hours per day for 350 days per year. The highest impacts from U.S. 101 occurred at a receptor on the first floor at the northeastern corner of the project site. Cancer risks associated with the highway are greatest closest to the highway and decrease with distance from the highway. The highway health risk impacts at the project site are shown in Table 6. Details of the highway emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 3.*

Stationary Sources

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

Summary of Cumulative Health Risks at the Project Site

Health risks from the existing TAC sources upon the project site are reported in Table 6. The risks from individual TAC sources are compared against the BAAQMD single-source thresholds. The risks from all the sources are then combined and compared against the BAAQMD cumulative-source thresholds. As shown, one existing source of TAC emissions, U.S. 101, exceeds the BAAQMD single-source thresholds for cancer risk and annual $PM_{2.5}$ concentration. However, none of the BAAQMD cumulative-source thresholds are exceeded.

Table 6. Impacts from Cumulative Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
U.S. 101, ADT 163,239	**20.52**	**0.75**	<0.01
CALTRANS (Facility #19890, Generator), Project Site at 50 feet	0.15	-	-
Meta Platforms Inc-MPK 28-29 (Facility #23192, Generator) Project Site at 745 feet	0.68	<0.01	<0.01
Facebook Inc. (Facility #200438, Generator) Project Site at 950 feet	0.19	<0.01	<0.01
BAAQMD Single-Source Threshold	***>10***	***>0.3***	***>1.0***
Exceed Threshold?	***Yes***	***Yes***	*No*
Cumulative Total	21.54	<0.77	<0.03
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Figure 3. Project Site, Nearby Sources, and On-Site Maximum TAC Impact

Condition of Approval (COA) AQ-1: Install MERV13 filtration in all residential buildings.

Filtration in ventilation systems at the project site would reduce the level of harmful pollutants to acceptable levels. The significant exposure for new project receptors is judged by two effects: (1) increased cancer risk, and (2) annual $PM_{2.5}$ concentration. Project exposure to cancer risk and annual $PM_{2.5}$ concentrations from U.S. 101 are above the BAAQMD single-source significance thresholds, although this is not a CEQA impact. The cancer risks and annual $PM_{2.5}$ concentration from U.S. 101 are based on exposure to diesel particulate matter and $PM_{2.5}$ resulting from emissions attributable to truck and auto exhaust, the wearing of brakes and tires and re-entrainment of roadway dust from vehicles traveling over pavement. Reducing particulate matter exposure would reduce both annual $PM_{2.5}$ exposures and cancer risk.

The project shall include the following measures to minimize long-term increased cancer risk and annual $PM_{2.5}$ exposure for new project occupants:

1. Install air filtration for all residential buildings. Air filtration devices shall be rated MERV13 or higher. To ensure adequate health protection to sensitive receptors (i.e., residents), this ventilation system, whether mechanical or passive, shall filter all fresh air that would be circulated into the dwelling units.

2. The ventilation system shall be designed to keep the building at positive pressure when doors and windows are closed to reduce the intrusion of unfiltered outside air into the building.

3. As part of implementing this measure, an ongoing maintenance plan for the buildings' heating, ventilation, and air conditioning (HVAC) air filtration system shall be required that includes regular filter replacement.

4. Ensure that the use agreement and other property documents: (1) require cleaning, maintenance, and monitoring of the affected buildings for air flow leaks, (2) include assurance that new owners or tenants are provided information on the ventilation system, and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.

Consistent with Housing Element EIR mitigation measure AQ-3, the above features shall be incorporated into the site development plan as a component of the proposed project. The air intake design and MERV filter requirements also shall be noted and/or reflected on all building plans submitted to the City and shall be verified by the City's Building Division and/or Planning Division.

Effectiveness of COA AQ-1

A properly installed and operated ventilation system with MERV13 would achieve an 80-percent reduction for small particulates.[20] The overall effectiveness calculations take into account the amount of time spent outdoors and away from home. Assuming that the filtration system is 80-percent effective and the individual is being exposed to 21 hours of indoor filtered air and three hours of outdoor unfiltered air, then the overall effectiveness of a MERV13 filtration system would be about 70-percent for DPM and $PM_{2.5}$ exposure. For U.S. 101, this would reduce the cancer risk to 8.76 per million and the maximum annual $PM_{2.5}$ concentration to 0.22 $\mu g/m^3$. With this condition of approval, impacts from U.S. 101 would be below the BAAQMD single-source thresholds.

[20] Bay Area Air Quality Management District (2016). Appendix B: Best Practices to Reduce Exposure to Local Air Pollution, *Planning Healthy Places A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning* (p. 38). http://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/php_may20_2016-pdf.pdf?la=en

Supporting Documentation

Attachment 1 includes the CalEEMod output for project construction emissions. Also included are any modeling assumptions.

Attachment 2 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 3 includes the cumulative health screening and modeling results from sources affecting the construction MEI and project site receptors.

Attachment 1: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: 320 Sheridan Drive, Menlo Park DEFAULTS

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size 88 Dwelling Units 2.5 total project acres disturbed

72,528 s.f. residential

s.f. retail

s.f. office/commercial

s.f. other, specify:

s.f. parking garage spaces

s.f. parking lot 120 spaces

Construction Days (i.e, M-F) to

Construction Hours am to pm

Pile Driving? Y/N?

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? ____

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____

Location in project (Plans Desired if Available):

DO NOT MULTIPLY EQUIPMENT HOURS/DAY BY THE QUANTITY OF EQUIPMENT

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	**6/2/2025**	**Total phase:**	**20**			**Overall Import/Export Volumes**
		End Date:	**6/30/2025**					
1	Concrete/Industrial Saws	81	0.73	8	20	8	9461	**Demolition Volume**
	Excavators	158	0.38			0	0	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	8	20	8	15808	(*or* total tons to be hauled)
3	Tractors/Loaders/Backhoes	97	0.37	8	20	8	17227	_?_ square feet *or*
	Other Equipment?							_?_ Hauling volume (tons)
								Any pavement demolished and hauled? **_1,100_ cubic yards**
	Site Preparation	**Start Date:**	**7/1/2025**		**3**			
		End Date:	**7/5/2025**					
1	Graders	187	0.41	8	3	8	1840	
1	Rubber Tired Dozers	247	0.4	8	3	8	2371	
1	Tractors/Loaders/Backhoes	97	0.37	8	3	8	861	
	Other Equipment?							
	Grading / Excavation	**Start Date:**	**7/6/2025**	**Total phase:**	**6**			
		End Date:	**7/14/2025**					**Soil Hauling Volume**
	Excavators	158	0.38			0	0	Export volume = _?_ cubic yards?
1	Graders	187	0.41	8	6	8	3680	Import volume = **_1,102_** cubic yards?
1	Rubber Tired Dozers	247	0.4	8	6	8	4742	
	Concrete/Industrial Saws	81	0.73			0	0	
2	Tractors/Loaders/Backhoes	97	0.37	7	6	7	3015	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**7/15/2025**	**Total phase:**	**6**			
		End Date:	**7/22/2025**					
1	Tractor/Loader/Backhoe	97	0.37	8	6	8	1723	
1	Excavators	158	0.38	8	6	8	2882	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**7/23/2025**	**Total phase:**	**220**			**Cement Trucks? _207_ Total Round-Trips**
		End Date:	**5/26/2026**					
1	Cranes	231	0.29	6	220	6	88427	Electric? (Y/N) ___ Otherwise assumed diesel
1	Forklifts	89	0.2	6	220	6	23496	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	220	8	109402	Or temporary line power? (Y/N) ___
1	Tractors/Loaders/Backhoes	97	0.37	6	220	6	47375	
3	Welders	46	0.45	8	220	8	109296	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	**5/27/2026**	**Total phase:**	**10**			
		End Date:	**6/9/2026**					
1	Air Compressors	78	0.48	6	10	6	2246	
	Aerial Lift	62	0.31			0	0	
	Other Equipment?							
	Paving	**Start Date:**	**6/10/2026**	**Total phase:**	**10**			
		Start Date:	**6/23/2026**					
1	Cement and Mortar Mixers	9	0.56	6	10	6	302	
1	Pavers	130	0.42	6	10	6	3276	**Asphalt? ___ cubic yards or __30__ round trips?**
1	Paving Equipment	132	0.36	8	10	8	3802	
1	Rollers	80	0.38	7	10	7	2128	
1	Tractors/Loaders/Backhoes	97	0.37	8	10	8	2871	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

Equipment listed in this sheet is to provide an example of inputs

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Construction Criteria Air Pollutants							
	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2025-2026	0.57	1.30	0.02	0.02	0.02	369.20	
	Total Construction Emissions						
Tons	0.57	1.30	0.02	0.02		369.20	
Pounds/Workdays	*Average Daily Emissions*					Workdays	
2025-2026	4.09	9.40	0.15	0.14			**277**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			
	Total Construction Emissions						
Pounds	1132.61	2602.56	42.62	40.04		0.00	
Average	4.09	9.40	0.15	0.14		0.00	277.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

24-017 320 Sheridan Drive, Menlo Park T4i Const Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	24-017 320 Sheridan Drive, Menlo Park T4i Const
Construction Start Date	6/2/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.20
Precipitation (days)	18.8
Location	320 Sheridan Dr, Menlo Park, CA 94025, USA
County	San Mateo
City	Menlo Park
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1277
EDFZ	1
Electric Utility	Peninsula Clean Energy
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Apartments Mid Rise	88.0	Dwelling Unit	2.50	72,528	0.00	—	253	—
Parking Lot	120	Space	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	102	10.5	0.18	3.28	3.35	0.16	1.47	1.54	4,451
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.45	10.2	0.18	0.63	0.80	0.16	0.15	0.32	3,147
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.93	4.03	0.06	0.27	0.33	0.06	0.08	0.14	1,279
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.53	0.74	0.01	0.05	0.06	0.01	0.01	0.02	212

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—
2025	0.45	10.5	0.18	3.28	3.35	0.16	1.47	1.54	4,451

2026	102	10.1	0.18	0.63	0.80	0.16	0.15	0.32	3,153
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2025	0.45	10.2	0.18	0.63	0.80	0.16	0.15	0.32	3,147
2026	0.44	10.1	0.18	0.63	0.80	0.16	0.15	0.32	3,128
Average Daily	—	—	—	—	—	—	—	—	—
2025	0.17	4.03	0.06	0.27	0.33	0.06	0.08	0.14	1,279
2026	2.93	3.10	0.05	0.19	0.24	0.05	0.04	0.09	951
Annual	—	—	—	—	—	—	—	—	—
2025	0.03	0.74	0.01	0.05	0.06	0.01	0.01	0.02	212
2026	0.53	0.57	0.01	0.03	0.04	0.01	0.01	0.02	158

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	3.47	0.80	0.02	2.57	2.59	0.01	0.65	0.67	3,058
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	3.01	0.89	0.01	2.57	2.59	0.01	0.65	0.67	2,923
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	3.15	0.82	0.01	2.42	2.43	0.01	0.61	0.63	2,807
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.57	0.15	< 0.005	0.44	0.44	< 0.005	0.11	0.11	465

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Mobile	1.20	0.75	0.01	2.57	2.59	0.01	0.65	0.67	2,757
Area	2.27	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	13.4
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	147
Water	—	—	—	—	—	—	—	—	17.6
Waste	—	—	—	—	—	—	—	—	122
Refrig.	—	—	—	—	—	—	—	—	0.52
Total	3.47	0.80	0.02	2.57	2.59	0.01	0.65	0.67	3,058
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Mobile	1.18	0.89	0.01	2.57	2.59	0.01	0.65	0.67	2,635
Area	1.83	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	147
Water	—	—	—	—	—	—	—	—	17.6
Waste	—	—	—	—	—	—	—	—	122
Refrig.	—	—	—	—	—	—	—	—	0.52
Total	3.01	0.89	0.01	2.57	2.59	0.01	0.65	0.67	2,923
Average Daily	—	—	—	—	—	—	—	—	—
Mobile	1.10	0.80	0.01	2.42	2.43	0.01	0.61	0.63	2,512
Area	2.05	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.61
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	147
Water	—	—	—	—	—	—	—	—	17.6
Waste	—	—	—	—	—	—	—	—	122
Refrig.	—	—	—	—	—	—	—	—	0.52
Total	3.15	0.82	0.01	2.42	2.43	0.01	0.61	0.63	2,807
Annual	—	—	—	—	—	—	—	—	—
Mobile	0.20	0.15	< 0.005	0.44	0.44	< 0.005	0.11	0.11	416

Area	0.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.09
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	24.4
Water	—	—	—	—	—	—	—	—	2.92
Waste	—	—	—	—	—	—	—	—	20.3
Refrig.	—	—	—	—	—	—	—	—	0.09
Total	0.57	0.15	< 0.005	0.44	0.44	< 0.005	0.11	0.11	465

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	8.81	0.10	—	0.10	0.09	—	0.09	2,502
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.48	0.01	—	0.01	0.01	—	0.01	137
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.09	< 0.005	—	< 0.005	< 0.005	—	< 0.005	22.7
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.00	0.10	0.10	0.00	0.02	0.02	104
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.91	0.01	0.14	0.15	0.01	0.04	0.04	621
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	34.0
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.63

3.3. Site Preparation (2025) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	7.95	0.05	—	0.05	0.05	—	0.05	2,726
Dust From Material Movement	—	—	—	0.62	0.62	—	0.07	0.07	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.07	< 0.005	—	< 0.005	< 0.005	—	< 0.005	22.4
Dust From Material Movement	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.71
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.06	0.06	0.00	0.01	0.01	62.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	7.70	0.05	—	0.05	0.05	—	0.05	2,463
Dust From Material Movement	—	—	—	2.77	2.77	—	1.34	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	< 0.005	—	< 0.005	< 0.005	—	< 0.005	40.5
Dust From Material Movement	—	—	—	0.05	0.05	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.70
Dust From Material Movement	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.08	0.08	0.00	0.02	0.02	82.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.78	0.02	0.43	0.45	0.02	0.12	0.14	1,906
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	31.3
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.18

3.7. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	9.38	0.17	—	0.17	0.16	—	0.16	2,209
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	9.38	0.17	—	0.17	0.16	—	0.16	2,209
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	2.97	0.05	—	0.05	0.05	—	0.05	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.54	0.01	—	0.01	0.01	—	0.01	116
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.15	0.12	0.00	0.52	0.52	0.00	0.12	0.12	525
Vendor	0.01	0.39	< 0.005	0.07	0.07	< 0.005	0.02	0.02	284
Hauling	< 0.005	0.23	< 0.005	0.03	0.04	< 0.005	0.01	0.01	156
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.00	0.52	0.52	0.00	0.12	0.12	500
Vendor	0.01	0.40	< 0.005	0.07	0.07	< 0.005	0.02	0.02	283
Hauling	< 0.005	0.24	< 0.005	0.03	0.04	< 0.005	0.01	0.01	155
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.00	0.16	0.16	0.00	0.04	0.04	159
Vendor	< 0.005	0.13	< 0.005	0.02	0.02	< 0.005	0.01	0.01	89.8
Hauling	< 0.005	0.07	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	49.3
Annual	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.03	0.03	0.00	0.01	0.01	26.3
Vendor	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	14.9
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.17

3.9. Building Construction (2026) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	9.38	0.17	—	0.17	0.16	—	0.16	2,208
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	9.38	0.17	—	0.17	0.16	—	0.16	2,208
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	2.68	0.05	—	0.05	0.05	—	0.05	631
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.49	0.01	—	0.01	0.01	—	0.01	104
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.14	0.11	0.00	0.52	0.52	0.00	0.12	0.12	514
Vendor	0.01	0.36	< 0.005	0.07	0.07	< 0.005	0.02	0.02	278
Hauling	< 0.005	0.22	< 0.005	0.03	0.04	< 0.005	0.01	0.01	152
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.14	0.14	0.00	0.52	0.52	0.00	0.12	0.12	489
Vendor	0.01	0.38	< 0.005	0.07	0.07	< 0.005	0.02	0.02	278
Hauling	< 0.005	0.23	< 0.005	0.03	0.04	< 0.005	0.01	0.01	152
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.00	0.15	0.15	0.00	0.03	0.03	140
Vendor	< 0.005	0.11	< 0.005	0.02	0.02	< 0.005	0.01	0.01	79.4
Hauling	< 0.005	0.06	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	43.4
Annual	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.03	0.03	0.00	0.01	0.01	23.3
Vendor	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.1

Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.19

3.11. Paving (2026) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	5.88	0.08	—	0.08	0.08	—	0.08	1,248
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.16	< 0.005	—	< 0.005	< 0.005	—	< 0.005	34.2
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.66
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.12	0.12	0.00	0.03	0.03	122
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.69	0.01	0.11	0.12	0.01	0.03	0.04	486

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.3
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.53
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.20

3.13. Architectural Coating (2026) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	1.07	0.03	—	0.03	0.03	—	0.03	134
Architectural Coatings	102	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.67
Architectural Coatings	2.80	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.61
Architectural Coatings	0.51	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.00	0.10	0.10	0.00	0.02	0.02	103
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.45
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Trenching (2025) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	2.28	0.04	—	0.04	0.03	—	0.03	434

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.13
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.18
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.04	0.04	0.00	0.01	0.01	41.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.20	0.75	0.01	2.57	2.59	0.01	0.65	0.67	2,757
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.20	0.75	0.01	2.57	2.59	0.01	0.65	0.67	2,757
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.18	0.89	0.01	2.57	2.59	0.01	0.65	0.67	2,635
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.18	0.89	0.01	2.57	2.59	0.01	0.65	0.67	2,635
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.20	0.15	< 0.005	0.44	0.44	< 0.005	0.11	0.11	416
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.20	0.15	< 0.005	0.44	0.44	< 0.005	0.11	0.11	416

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	147
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	147
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	147
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	147
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	24.4
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	24.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	1.55	—	—	—	—	—	—	—	—
Architectural Coatings	0.28	—	—	—	—	—	—	—	—
Landscape Equipment	0.44	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	13.4
Total	2.27	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	13.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	1.55	—	—	—	—	—	—	—	—
Architectural Coatings	0.28	—	—	—	—	—	—	—	—
Total	1.83	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Consumer Products	0.28	—	—	—	—	—	—	—	—
Architectural Coatings	0.05	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.09
Total	0.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.09

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	17.6
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	17.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	17.6
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	17.6
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	2.92
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	2.92

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	122
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	122
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	122
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	122
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	20.3
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	20.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	0.52
Total	—	—	—	—	—	—	—	—	0.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	0.52
Total	—	—	—	—	—	—	—	—	0.52
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	0.09
Total	—	—	—	—	—	—	—	—	0.09

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

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

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

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/2/2025	6/30/2025	5.00	20.0	—
Site Preparation	Site Preparation	7/1/2025	7/5/2025	5.00	3.00	—
Grading	Grading	7/6/2025	7/14/2025	5.00	6.00	—
Building Construction	Building Construction	7/23/2025	5/26/2026	5.00	220	—
Paving	Paving	6/10/2026	6/23/2026	5.00	10.0	—

Architectural Coating	Architectural Coating	5/27/2026	6/9/2026	5.00	10.0	—
Trenching	Trenching	7/15/2025	7/22/2025	5.00	6.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Interim	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Site Preparation	Scrapers	Diesel	Tier 4 Interim	1.00	8.00	423	0.48
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	7.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	2.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 4 Interim	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Interim	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Interim	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	1.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Tier 4 Interim	2.00	8.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Tier 4 Interim	1.00	8.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	1.00	6.00	37.0	0.48
Trenching	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Trenching	Excavators	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	7.50	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	23.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—

Building Construction	Worker	63.4	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	9.41	8.40	HHDT,MHDT
Building Construction	Hauling	1.88	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	6.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	12.7	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	146,869	48,956	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	—	—	4.50	0.00	—
Grading	1,102	—	6.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Parking Lot	0.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	100.0	0.03	< 0.005
2026	0.00	100.0	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	479	432	360	166,106	3,657	3,301	2,750	1,269,056
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
146869.19999999998	48,956	0.00	0.00	—

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	527,267	100.0	0.0330	0.0040	0.00
Parking Lot	0.00	100.0	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	3,191,443	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	65.0	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11.8	annual days of extreme heat

Extreme Precipitation	4.05	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.7	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

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

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	10.6
AQ-PM	13.2
AQ-DPM	76.3
Drinking Water	47.6
Lead Risk Housing	71.3
Pesticides	0.00

Toxic Releases	26.6
Traffic	94.7
Effect Indicators	—
CleanUp Sites	33.9
Groundwater	70.3
Haz Waste Facilities/Generators	95.8
Impaired Water Bodies	0.00
Solid Waste	67.6
Sensitive Population	—
Asthma	22.0
Cardio-vascular	8.84
Low Birth Weights	18.6
Socioeconomic Factor Indicators	—
Education	2.30
Housing	6.89
Linguistic	2.81
Poverty	2.12
Unemployment	10.7

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	90.60695496
Employed	75.70896959
Median HI	97.24111382
Education	—

Bachelor's or higher	94.58488387
High school enrollment	15.50109072
Preschool enrollment	95.7141024
Transportation	—
Auto Access	95.6242782
Active commuting	54.63877839
Social	—
2-parent households	81.81701527
Voting	98.1265238
Neighborhood	—
Alcohol availability	92.28795073
Park access	48.28692416
Retail density	28.12780701
Supermarket access	34.0177082
Tree canopy	92.76273579
Housing	—
Homeownership	90.68394713
Housing habitability	91.96715001
Low-inc homeowner severe housing cost burden	81.31656615
Low-inc renter severe housing cost burden	72.78326703
Uncrowded housing	70.98678301
Health Outcomes	—
Insured adults	95.73976646
Arthritis	0.0
Asthma ER Admissions	94.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0

Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	93.2
Cognitively Disabled	43.0
Physically Disabled	65.4
Heart Attack ER Admissions	99.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	67.1
Children	51.6
Elderly	55.7
English Speaking	98.1
Foreign-born	22.8
Outdoor Workers	72.9
Climate Change Adaptive Capacity	—

Impervious Surface Cover	75.1
Traffic Density	88.5
Traffic Access	50.9
Other Indices	—
Hardship	15.1
Other Decision Support	—
2016 Voting	97.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	5.00
Healthy Places Index Score for Project Location (b)	97.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification

Characteristics: Utility Information	Menlo Park default clean energy provider is Peninsula Clean Energy.
Land Use	Total lot acreage, number of dwelling units, square footage, and total parking spaces provided by provided worksheet.
Construction: Construction Phases	Defaults based on provided start date - added trenching.
Construction: Off-Road Equipment	Defaults based on provided land uses. Applicant is committing to the usage of Tier 4 Interim equipment.
Construction: Trips and VMT	Demolition = 75 demolition truck round trips (7.5 trips/day), Building = 207 concrete truck round trips (1.88 trips/day), Paving = 30 asphalt truck round trips (6 trips/day).
Operations: Hearths	No hearths.
Operations: Energy Use	Menlo Park REACH Code - no natural gas in new residential construction - convert natural gas to electricity.
Operations: Water and Waste Water	Wastewater treatment 100% aerobic - no septic tanks or lagoons.

2. Emissions Summary - HRA

2.2 Construction Emissions by Year, Unmitigated

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO_2e
Daily - Summer (Max)									
2025	0.4288018	9.5841331	0.1708250	2.7980079	2.8452080	0.1598724	1.3442632	1.3914632	2732.7090972642686
2026	102.18703	9.5773863	0.1708250	0.0546072	0.2254323	0.1598724	0.0131503	0.1730228	2316.04202093077
Daily - Winter (Max)									
2025	0.4269073	9.5989706	0.1708665	0.0546072	0.2254737	0.1599139	0.0131503	0.1730643	2316.4737780400137
2026	0.4168805	9.5911172	0.1708250	0.0546072	0.2254323	0.1598724	0.0131503	0.1730228	2314.1481972373826
Average Daily									
2025	0.1639410	3.7699263	0.0613235	0.0691551	0.1304787	0.0575788	0.0270043	0.0845832	946.9526408221687
2026	2.9242802	2.9329791	0.0518391	0.0161003	0.0679394	0.0485133	0.0038770	0.0523903	700.6425053215972
Annual									
2025	0.0299192	0.6880115	0.0111915	0.0126208	0.0238123	0.0105081	0.0049282	0.0154364	156.7788162586258
2026	0.5336811	0.5352687	0.0094606	0.0029383	0.0123989	0.0088536	0.0007075	0.0095612	115.99936244903112

5.3. Construction Vehicles - HRA

5.3.1 Unmitigated

Phase Nam	Trip Type	One-Way T	Miles per T	Vehicle Mix
Demolition				
Demolitior	Worker	12.5	1	LDA,LDT1,LDT2
Demolitior	Vendor		1	HHDT,MHDT
Demolitior	Hauling	7.5	1	HHDT
Demolitior	Onsite truc			HHDT
Site Preparation				
Site Prepar	Worker	7.5	1	LDA,LDT1,LDT2
Site Prepar	Vendor		1	HHDT,MHDT
Site Prepar	Hauling	0	1	HHDT
Site Prepar	Onsite truc			HHDT
Grading				
Grading	Worker	10	1	LDA,LDT1,LDT2
Grading	Vendor		1	HHDT,MHDT
Grading	Hauling	23	1	HHDT
Grading	Onsite truc			HHDT
Building Construction				
Building Cc	Worker	63.36	1	LDA,LDT1,LDT2
Building Cc	Vendor	9.4072	1	HHDT,MHDT
Building Cc	Hauling	1.88	1	HHDT
Building Cc	Onsite truc			HHDT
Paving				
Paving	Worker	15	1	LDA,LDT1,LDT2
Paving	Vendor		1	HHDT,MHDT
Paving	Hauling	6	1	HHDT
Paving	Onsite truc			HHDT
Architectural Coating				
Architectu	Worker	12.672	1	LDA,LDT1,LDT2
Architectu	Vendor		1	HHDT,MHDT
Architectu	Hauling	0	1	HHDT
Architectu	Onsite truc			HHDT
Trenching				
Trenching	Worker	5	1	LDA,LDT1,LDT2
Trenching	Vendor		1	HHDT,MHDT
Trenching	Hauling	0	1	HHDT
Trenching	Onsite truc			HHDT

Attachment 2: Project Construction Emissions and Health Risk Calculations

320 Sheridan Drive, Menlo Park, CA
Construction Health Impact Summary

Maximum Impacts at MEI Location - Without Conditions of Approval

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM (µg/m^3)	Maximum Concentrations: Fugitive PM2.5 (µg/m^3)	Cancer Risk (per million): Infant/Child	Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m^3)
2025 + 2026	0.0967	0.0336	17.19	0.02	0.13
Total	-	-	**17.19**		-
Maximum	0.0967	0.0336	**-**	**0.02**	**0.13**

Maximum Impacts at MEI Location - With Conditions of Approval

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM (µg/m^3)	Maximum Concentrations: Fugitive PM2.5 (µg/m^3)	Cancer Risk (per million): Infant/Child	Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m^3)
2025 + 2026	0.0450	0.0157	8.00	0.01	0.06
Total	-	-	**8.00**	-	-
Maximum	0.0450	0.0157	**-**	**0.01**	**0.06**

Maximum Impacts at Belle Haven Home Daycare - Without Conditions of Approval

Construction Year	Unmitigated Emissions: Maximum Concentrations: Exhaust PM10/DPM (µg/m^3)	Unmitigated Emissions: Maximum Concentrations: Fugitive PM2.5 (µg/m^3)	Child Cancer Risk (per million)	Maximum Annual PM2.5 Concentration (µg/m^3)
2025 + 2026	0.0039	0.0009	2.14	0.00
Total	-	-	**2.14**	-
Maximum	0.0039	0.0009	**-**	**0.00**

320 Sheridan Drive, Menlo Park, CA

DPM Emissions and Modeling Emission Rates - Without Conditions of Approval

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2025	Construction	0.0320	CON_DPM	63.9	0.01946	2.45E-03	10,953	2.24E-07
2026	Construction	0.0202	CON_DPM	40.3	0.01228	1.55E-03	10,953	1.41E-07
Total		***0.0521***		***104.3***	***0.0317***	***0.0040***		

Construction Hours

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

DPM Construction Emissions and Modeling Emission Rates - With Conditions of Approval

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2025	Construction	0.0131	CON_DPM	26.1	0.00795	1.00E-03	10,953	9.15E-08
2026	Construction	0.0112	CON_DPM	22.4	0.00682	8.59E-04	10,953	7.84E-08
Total		***0.0243***		***48.5***	***0.0148***	***0.0019***		

Construction Hours

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

320 Sheridan Drive, Menlo Park, CA

PM2.5 Fugitive Dust Emissions for Modeling - Without Conditions of Approval

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)	PM2.5 Emission Rate $g/s/m^2$
2025	Construction	CON_FUG	0.0114	22.7	0.00692	8.71E-04	10,953	7.95E-08
2026	Construction	CON_FUG	0.0007	1.4	0.00043	5.43E-05	10,953	4.96E-09
Total			***0.0121***	***24.1***	***0.0073***	***0.0009***		

Construction Hours

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

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Conditions of Approval

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)	PM2.5 Emission Rate $g/s/m^2$
2025	Construction	CON_FUG	0.0049	9.9	0.00300	3.78E-04	10,953	3.45E-08
2026	Construction	CON_FUG	0.0007	1.4	0.00043	5.43E-05	10,953	4.96E-09
Total			***0.0056***	***11.3***	***0.0034***	***0.0004***		

Construction Hours

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

320 Sheridan Drive, Menlo Park, 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

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled		Age	Adult			
Exposure	Exposure Duration				Sensitivity	Cancer Risk	DPM Conc (ug/m3)		Sensitivity	Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2025 + 2026	0.0928	10	1.26	2025 + 2026	0.0928	-	-			
1	1	0 - 1	2025 + 2026	0.0928	10	15.24	2025 + 2026	0.0928	1	0.27	0.019	0.03	0.12
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						**16.50**				**0.27**			

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, 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

			Infant/Child - Exposure Information				Adult - Exposure Information			
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**
0	0.25	-0.25 - 0*	2025 + 2026	0.0967	10	1.31	2025 + 2026	0.0967	-	-
1	1	0 - 1	2025 + 2026	0.0967	10	15.88	2025 + 2026	0.0967	1	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						**17.19**				**0.28**

Maximum		
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.019	0.03	0.13

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, 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

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
							Modeled						
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2025 + 2026	0.0432	10	0.59	2025 + 2026	0.0432	-	-			
1	1	0 - 1	2025 + 2026	0.0432	10	7.09	2025 + 2026	0.0432	1	0.12	0.009	0.01	0.06
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						**7.68**				**0.12**			

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, 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

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
							Modeled						
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2025 + 2026	0.0450	10	0.61	2025 + 2026	0.0450	-	-			
1	1	0 - 1	2025 + 2026	0.0450	10	7.39	2025 + 2026	0.0450	1	0.13	0.009	0.02	0.06
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						**8.00**				**0.13**			

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Belle Haven Home Daycare - 1 meter - Infant/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-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 SCAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air (µg/m^3)
SCAF = School Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs)
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School operation hours while emission source in operation
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

	Infant	Child
Age -->	**0 - <2**	**2 - <16**
Parameter		
ASF =	10	3
DPM CPF =	1.10E+00	1.10E+00
8-Hr BR* =	1200	520
SCHR =	9	9
SHR =	9	9
SDay =	5	5
A =	1	1
EF =	250	250
AT =	70	70
SCAF =	4.20	4.20

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

Construction Cancer Risk by Year - Maximum Preschool 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)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
1	1	1.5 - 2.5	2025 + 2026	0.0039	10	2.14	0.001	0.00	0.00
Total Increased Cancer Risk						**2.14**			

* Children assumed to be 1.5 years of age with 1 year of exposure to construction emissions

Attachment 3: Cumulative Screening Information and Modeling Calculations

320 Sheridan Drive, Menlo Park, CA - Highway 101 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Project MEI Receptor (1.5 meter receptor height)

Emission Year	2025
Receptor Information	Project MEI receptor
Number of Receptors	1
Receptor Height	1.5 meters
Receptor Distances	At Project MEI location
Meteorological Conditions	
BAAQMD San Carlos Airport Met Data	2011 - 2015
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2011 - 2015	0.0126	0.4170	0.3055

Construction MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2011 - 2015	0.3259	0.2895	0.0364

320 Sheridan Drive, Menlo Park, CA - Highway 101 Traffic Cancer Risk
Impacts at Project MEIs - 1.5 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)			TOTAL
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	
0	0.25	-0.25 - 0*	2025	10	0.0126	0.4170	0.3055	0.171	0.032	0.0014	0.20
1	1	0 - 1	2025	10	0.0126	0.4170	0.3055	2.068	0.391	0.0169	2.48
2	1	1 - 2	2026	10	0.0126	0.4170	0.3055	2.068	0.391	0.0169	2.48
3	1	2 - 3	2027	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
4	1	3 - 4	2028	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
5	1	4 - 5	2029	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
6	1	5 - 6	2030	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
7	1	6 - 7	2031	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
8	1	7 - 8	2032	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
9	1	8 - 9	2033	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
10	1	9 - 10	2034	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
11	1	10 - 11	2035	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
12	1	11 - 12	2036	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
13	1	12 - 13	2037	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
14	1	13 - 14	2038	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
15	1	14 - 15	2039	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
16	1	15 - 16	2040	3	0.0126	0.4170	0.3055	0.326	0.062	0.0027	0.39
17	1	16-17	2041	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
18	1	17-18	2042	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
19	1	18-19	2043	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
20	1	19-20	2044	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
21	1	20-21	2045	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
22	1	21-22	2046	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
23	1	22-23	2047	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
24	1	23-24	2048	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
25	1	24-25	2049	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
26	1	25-26	2050	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
27	1	26-27	2051	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
28	1	27-28	2052	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
29	1	28-29	2053	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
30	1	29-30	2054	1	0.0126	0.4170	0.3055	0.036	0.007	0.0003	0.04
Total Increased Cancer Risk								9.37	1.772	0.076	**11.22**

Maximum Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.00252	0.29	0.33

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, CA - Highway 101 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Onsite MEI Receptor (meter receptor height)

Emission Year	2027
Receptor Information	Onsite MEI receptor
Number of Receptors	162
Receptor Height	4.5 & 1.5 meters
Receptor Distances	At Onsite MEI location

Meteorological Conditions

BAAQMD San Carlos Airport Met Data	2011 - 2015
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)			
	DPM	Exhaust TOG	Evaporative TOG	
2011 - 2015	0.0226	0.8361	0.6610	1st Floor
2011 - 2015	0.0208	0.7245	0.5704	2nd Floor

Construction MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)			
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
2011 - 2015	0.7479	0.6732	0.0747	1st Floor
2011 - 2015	0.6466	0.5820	0.0647	2nd Floor

320 Sheridan Drive, Menlo Park, CA - Highway 101 Traffic Cancer Risk
Impacts at Onsite MEI - 1.5 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)			TOTAL
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	
0	0.25	-0.25 - 0*	2027	10	0.0226	0.8361	0.6610	0.307	0.065	0.0030	0.38
1	1	0 - 1	2027	10	0.0226	0.8361	0.6610	3.709	0.784	0.0365	4.53
2	1	1 - 2	2028	10	0.0226	0.8361	0.6610	3.709	0.784	0.0365	4.53
3	1	2 - 3	2029	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
4	1	3 - 4	2030	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
5	1	4 - 5	2031	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
6	1	5 - 6	2032	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
7	1	6 - 7	2033	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
8	1	7 - 8	2034	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
9	1	8 - 9	2035	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
10	1	9 - 10	2036	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
11	1	10 - 11	2037	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
12	1	11 - 12	2038	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
13	1	12 - 13	2039	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
14	1	13 - 14	2040	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
15	1	14 - 15	2041	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
16	1	15 - 16	2042	3	0.0226	0.8361	0.6610	0.584	0.123	0.0057	0.71
17	1	16-17	2043	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
18	1	17-18	2044	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
19	1	18-19	2045	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
20	1	19-20	2046	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
21	1	20-21	2047	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
22	1	21-22	2048	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
23	1	22-23	2049	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
24	1	23-24	2050	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
25	1	24-25	2051	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
26	1	25-26	2052	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
27	1	26-27	2053	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
28	1	27-28	2054	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
29	1	28-29	2055	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
30	1	29-30	2056	1	0.0226	0.8361	0.6610	0.065	0.014	0.0006	0.08
Total Increased Cancer Risk								16.81	3.553	0.165	**20.52**

Maximum Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.00452	0.67	0.75

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, CA - Highway 101 Traffic Cancer Risk - with MERV13 Filtration
Impacts at Onsite MEI - 1.5 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)			TOTAL
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	
0	0.25	-0.25 - 0*	2027	10	0.0068	0.8361	0.6610	0.092	0.065	0.0030	0.16
1	1	0 - 1	2027	10	0.0068	0.8361	0.6610	1.113	0.784	0.0365	1.93
2	1	1 - 2	2028	10	0.0068	0.8361	0.6610	1.113	0.784	0.0365	1.93
3	1	2 - 3	2029	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
4	1	3 - 4	2030	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
5	1	4 - 5	2031	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
6	1	5 - 6	2032	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
7	1	6 - 7	2033	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
8	1	7 - 8	2034	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
9	1	8 - 9	2035	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
10	1	9 - 10	2036	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
11	1	10 - 11	2037	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
12	1	11 - 12	2038	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
13	1	12 - 13	2039	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
14	1	13 - 14	2040	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
15	1	14 - 15	2041	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
16	1	15 - 16	2042	3	0.0068	0.8361	0.6610	0.175	0.123	0.0057	0.30
17	1	16-17	2043	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
18	1	17-18	2044	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
19	1	18-19	2045	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
20	1	19-20	2046	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
21	1	20-21	2047	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
22	1	21-22	2048	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
23	1	22-23	2049	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
24	1	23-24	2050	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
25	1	24-25	2051	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
26	1	25-26	2052	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
27	1	26-27	2053	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
28	1	27-28	2054	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
29	1	28-29	2055	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
30	1	29-30	2056	1	0.0068	0.8361	0.6610	0.019	0.014	0.0006	0.03
Total Increased Cancer Risk								5.04	3.553	0.165	**8.76**

Maximum Hazard Index	**Maximum Fugitive PM2.5**	**Total PM2.5**
0.00135	0.20	0.22

* Third trimester of pregnancy

320 Sheridan Drive, Menlo Park, CA - Highway 101 Traffic Cancer Risk
Impacts at Onsite MEI - 4.5 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)			TOTAL
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	
0	0.25	-0.25 - 0*	2027	10	0.0208	0.7245	0.5704	0.283	0.056	0.0026	0.34
1	1	0 - 1	2027	10	0.0208	0.7245	0.5704	3.416	0.679	0.0315	4.13
2	1	1 - 2	2028	10	0.0208	0.7245	0.5704	3.416	0.679	0.0315	4.13
3	1	2 - 3	2029	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
4	1	3 - 4	2030	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
5	1	4 - 5	2031	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
6	1	5 - 6	2032	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
7	1	6 - 7	2033	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
8	1	7 - 8	2034	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
9	1	8 - 9	2035	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
10	1	9 - 10	2036	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
11	1	10 - 11	2037	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
12	1	11 - 12	2038	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
13	1	12 - 13	2039	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
14	1	13 - 14	2040	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
15	1	14 - 15	2041	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
16	1	15 - 16	2042	3	0.0208	0.7245	0.5704	0.538	0.107	0.0050	0.65
17	1	16-17	2043	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
18	1	17-18	2044	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
19	1	18-19	2045	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
20	1	19-20	2046	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
21	1	20-21	2047	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
22	1	21-22	2048	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
23	1	22-23	2049	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
24	1	23-24	2050	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
25	1	24-25	2051	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
26	1	25-26	2052	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
27	1	26-27	2053	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
28	1	27-28	2054	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
29	1	28-29	2055	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
30	1	29-30	2056	1	0.0208	0.7245	0.5704	0.060	0.012	0.0006	0.07
Total Increased Cancer Risk								15.48	3.079	0.143	**18.70**

Maximum Hazard Index	**Maximum Fugitive PM2.5**	**Total PM2.5**
0.00416	0.58	0.65

* Third trimester of pregnancy

File Name: Highway 2025.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 2/22/2024 3:07:03 PM
Area: San Mateo (SF)
Analysis Year: 2025
Season: Annual

==========

Vehicle Category	VMT Fraction	Diesel VMT Fraction	Gas VMT Fraction
	Across Category	Within Category	Within Category
Truck 1	0.026	0.385	0.601
Truck 2	0.019	0.820	0.133
Non-Truck	0.955	0.010	0.928

==========

Road Type: Freeway
Silt Loading Factor: CARB 0.015 g/m2
Precipitation Correction: CARB P = 74 days N = 365 days

==========

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

Pollutant Name	55 mph	60 mph	65 mph	70 mph
PM2.5	0.001239	0.001362	0.001549	0.001650
TOG	0.015191	0.016050	0.017746	0.018973
Diesel PM	0.000452	0.000515	0.000581	0.000583

==========

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

Pollutant Name	Emission Factor
TOG	0.837673

==========

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

Pollutant Name	Emission Factor
PM2.5	0.002080

==========

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

Pollutant Name	55 mph	60 mph	65 mph	70 mph
PM2.5	0.002590	0.002290	0.001990	0.001990

==========

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

Pollutant Name	Emission Factor
PM2.5	0.008127

==========END==========

File Name: Highway 2027.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 2/22/2024 3:07:15 PM
Area: San Mateo (SF)
Analysis Year: 2027
Season: Annual

==========

Vehicle Category	VMT Fraction	Diesel VMT Fraction	Gas VMT Fraction
	Across Category	Within Category	Within Category
Truck 1	0.026	0.387	0.573
Truck 2	0.019	0.801	0.132
Non-Truck	0.955	0.010	0.924

==========

Road Type: Freeway
Silt Loading Factor: CARB 0.015 g/m2
Precipitation Correction: CARB P = 74 days N = 365 days

==========

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

Pollutant Name	55 mph	60 mph	65 mph	70 mph
PM2.5	0.001107	0.001220	0.001392	0.001481
TOG	0.013302	0.014031	0.015487	0.016534
Diesel PM	0.000401	0.000461	0.000526	0.000528

==========

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

Pollutant Name	Emission Factor
TOG	0.784870

==========

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

Pollutant Name	Emission Factor
PM2.5	0.002079

==========

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

Pollutant Name	55 mph	60 mph	65 mph	70 mph
PM2.5	0.002587	0.002286	0.001984	0.001984

==========

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

Pollutant Name	Emission Factor
PM2.5	0.008231

==========END==========

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025

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	Line Area Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_NB_101	Highway 101 Northbound	NB	5	747.9	0.46	24.3	79.7	3.4	66.9	80,080	18,165	195,526	1.382E-08	1.019E-08	6.8	3.16
DPM_SB_101	Highway 101 Southbound	SB	5	751.8	0.47	24.3	79.7	3.4	65.4	80,080	18,260	196,546	1.382E-08	1.019E-08	6.8	3.16
									Total	160,159						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle (g/VMT)	0.00058	0.000581	0.000515	0.000452

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - DPM_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1135	8.54E-05	9	5.65%	4527	3.01E-04	17	6.02%	4819	3.61E-04
2	1.14%	911	6.86E-05	10	5.63%	4510	3.38E-04	18	5.93%	4747	3.56E-04
3	1.06%	852	6.41E-05	11	5.51%	4411	3.31E-04	19	5.69%	4557	3.42E-04
4	1.21%	967	7.28E-05	12	5.63%	4510	3.38E-04	20	5.05%	4044	3.03E-04
5	1.62%	1296	9.75E-05	13	5.61%	4493	3.37E-04	21	4.24%	3393	2.55E-04
6	2.90%	2322	1.75E-04	14	5.72%	4583	3.44E-04	22	3.74%	2997	2.26E-04
7	4.30%	3443	2.58E-04	15	5.88%	4712	3.53E-04	23	2.82%	2261	1.70E-04
8	5.33%	4267	3.20E-04	16	5.96%	4777	3.58E-04	24	1.93%	1545	1.16E-04
								Total		80,080	

2025 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.41%	1126	8.52E-05	9	5.37%	4299	2.52E-04	17	6.75%	5403	3.61E-04
2	0.86%	690	5.22E-05	10	5.39%	4320	2.53E-04	18	6.54%	5235	3.50E-04
3	0.59%	476	3.60E-05	11	5.83%	4673	3.12E-04	19	5.75%	4605	3.47E-04
4	0.47%	377	2.85E-05	12	5.94%	4754	3.58E-04	20	4.90%	3924	2.96E-04
5	0.73%	587	4.44E-05	13	6.08%	4869	3.67E-04	21	4.54%	3638	2.75E-04
6	1.59%	1275	9.65E-05	14	6.15%	4926	3.71E-04	22	4.20%	3360	2.54E-04
7	2.90%	2322	1.75E-04	15	6.39%	5115	3.86E-04	23	3.60%	2881	2.18E-04
8	5.08%	4071	2.72E-04	16	6.60%	5286	3.99E-04	24	2.34%	1871	1.42E-04
								Total		80,080	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM2.5_NB_101	Highway 101 Northbound	NB	5	747.9	0.46	24.3	80	1.3	66.875	80,080	18,165	195,526	3.91E-08	2.88E-08	2.6	1.21
PM2.5_SB_101	Highway 101 Southbound	SB	5	751.8	0.47	24.3	80	1.3	65.416667	80,080	18,260	196,546	3.91E-08	2.88E-08	2.6	1.21
									Total	160,159						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle (g/VMT)	0.001650	0.00155	0.001362	0.001239

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1135	2.42E-04	9	5.65%	4527	7.96E-04	17	6.02%	4819	9.64E-04
2	1.14%	911	1.94E-04	10	5.63%	4510	9.02E-04	18	5.93%	4747	9.49E-04
3	1.06%	852	1.81E-04	11	5.51%	4411	8.82E-04	19	5.69%	4557	9.11E-04
4	1.21%	967	2.06E-04	12	5.63%	4510	9.02E-04	20	5.05%	4044	8.09E-04
5	1.62%	1296	2.76E-04	13	5.61%	4493	8.98E-04	21	4.24%	3393	7.23E-04
6	2.90%	2322	4.95E-04	14	5.72%	4583	9.16E-04	22	3.74%	2997	6.38E-04
7	4.30%	3443	6.89E-04	15	5.88%	4712	9.42E-04	23	2.82%	2261	4.81E-04
8	5.33%	4267	8.53E-04	16	5.96%	4777	9.55E-04	24	1.93%	1545	3.29E-04
								Total		80,080	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.41%	1126	2.41E-04	9	5.37%	4299	6.91E-04	17	6.75%	5403	9.55E-04
2	0.86%	690	1.48E-04	10	5.39%	4320	6.95E-04	18	6.54%	5235	9.25E-04
3	0.59%	476	1.02E-04	11	5.83%	4673	8.26E-04	19	5.75%	4605	9.26E-04
4	0.47%	377	8.07E-05	12	5.94%	4754	9.55E-04	20	4.90%	3924	7.89E-04
5	0.73%	587	1.26E-04	13	6.08%	4869	9.79E-04	21	4.54%	3638	7.79E-04
6	1.59%	1275	2.73E-04	14	6.15%	4926	9.90E-04	22	4.20%	3360	7.19E-04
7	2.90%	2322	4.67E-04	15	6.39%	5115	1.03E-03	23	3.60%	2881	6.17E-04
8	5.08%	4071	7.19E-04	16	6.60%	5286	1.06E-03	24	2.34%	1871	4.01E-04
								Total		80,080	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_NB_101	Highway 101 Northbound	NB	5	747.9	0.46	24.3	80	1.3	66.875	80,080	18,165	195,526	4.50E-07	3.32E-07	2.6	1.21
TEXH_SB_101	Highway 101 Southbound	SB	5	751.8	0.47	24.3	80	1.3	65.416667	80,080	18,260	196,546	4.50E-07	3.32E-07	2.6	1.21
									Total	160,159						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle (g/VMT)	0.01897	0.01775	0.01605	0.01519

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1135	2.78E-03	9	5.65%	4527	9.38E-03	17	6.02%	4819	1.10E-02
2	1.14%	911	2.23E-03	10	5.63%	4510	1.03E-02	18	5.93%	4747	1.09E-02
3	1.06%	852	2.09E-03	11	5.51%	4411	1.01E-02	19	5.69%	4557	1.04E-02
4	1.21%	967	2.37E-03	12	5.63%	4510	1.03E-02	20	5.05%	4044	9.26E-03
5	1.62%	1296	3.17E-03	13	5.61%	4493	1.03E-02	21	4.24%	3393	8.31E-03
6	2.90%	2322	5.69E-03	14	5.72%	4583	1.05E-02	22	3.74%	2997	7.34E-03
7	4.30%	3443	7.89E-03	15	5.88%	4712	1.08E-02	23	2.82%	2261	5.54E-03
8	5.33%	4267	9.77E-03	16	5.96%	4777	1.09E-02	24	1.93%	1545	3.78E-03
								Total		80,080	

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.42%	1135	2.79E-03	9	5.65%	4527	8.92E-03	17	6.02%	4819	1.00E-02
2	1.14%	911	2.24E-03	10	5.63%	4510	8.89E-03	18	5.93%	4747	9.89E-03
3	1.06%	852	2.10E-03	11	5.51%	4411	9.19E-03	19	5.69%	4557	1.05E-02
4	1.21%	967	2.38E-03	12	5.63%	4510	1.04E-02	20	5.05%	4044	9.31E-03
5	1.62%	1296	3.19E-03	13	5.61%	4493	1.03E-02	21	4.24%	3393	8.35E-03
6	2.90%	2322	5.72E-03	14	5.72%	4583	1.06E-02	22	3.74%	2997	7.38E-03
7	4.30%	3443	7.93E-03	15	5.88%	4712	1.09E-02	23	2.82%	2261	5.57E-03
8	5.33%	4267	8.89E-03	16	5.96%	4777	1.10E-02	24	1.93%	1545	3.80E-03
								Total		80,080	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_NB_101	Highway 101 Northbound	NB	5	747.9	0.46	24.3	80	1.3	66.875	80,080	18,165	195,526	2.84E-07	2.09E-07	2.6	1.21
TEVAP_SB_101	Highway 101 Southbound	SB	5	751.8	0.47	24.3	80	1.3	65.416667	80,080	18,260	196,546	2.84E-07	2.09E-07	2.6	1.21
									Total	160,159						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle per Hour (g/hour)	0.83767	0.83767	0.83767	0.83767
Emissions per Vehicle per Mile (g/VMT)	0.01197	0.01289	0.01396	0.01523

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1135	1.75E-03	9	5.65%	4527	8.16E-03	17	6.02%	4819	8.02E-03
2	1.14%	911	1.41E-03	10	5.63%	4510	7.50E-03	18	5.93%	4747	7.90E-03
3	1.06%	852	1.32E-03	11	5.51%	4411	7.34E-03	19	5.69%	4557	7.58E-03
4	1.21%	967	1.49E-03	12	5.63%	4510	7.50E-03	20	5.05%	4044	6.73E-03
5	1.62%	1296	2.00E-03	13	5.61%	4493	7.47E-03	21	4.24%	3393	5.24E-03
6	2.90%	2322	3.59E-03	14	5.72%	4583	7.62E-03	22	3.74%	2997	4.63E-03
7	4.30%	3443	5.73E-03	15	5.88%	4712	7.84E-03	23	2.82%	2261	3.49E-03
8	5.33%	4267	7.10E-03	16	5.96%	4777	7.95E-03	24	1.93%	1545	2.39E-03
								Total		80,080	

2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.42%	1135	1.76E-03	9	5.65%	4527	8.95E-03	17	6.02%	4819	8.73E-03
2	1.14%	911	1.42E-03	10	5.63%	4510	8.91E-03	18	5.93%	4747	8.60E-03
3	1.06%	852	1.32E-03	11	5.51%	4411	7.99E-03	19	5.69%	4557	7.62E-03
4	1.21%	967	1.50E-03	12	5.63%	4510	7.54E-03	20	5.05%	4044	6.76E-03
5	1.62%	1296	2.01E-03	13	5.61%	4493	7.51E-03	21	4.24%	3393	5.27E-03
6	2.90%	2322	3.61E-03	14	5.72%	4583	7.66E-03	22	3.74%	2997	4.65E-03
7	4.30%	3443	5.76E-03	15	5.88%	4712	7.88E-03	23	2.82%	2261	3.51E-03
8	5.33%	4267	7.73E-03	16	5.96%	4777	7.99E-03	24	1.93%	1545	2.40E-03
								Total		80,080	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
FUG_NB_101	Highway 101 Northbound	NB	5	747.9	0.46	24.3	80	1.3	66.875	80,080	18,165	195,526	2.89E-07	2.13E-07	2.6	1.21
FUG_SB_101	Highway 101 Southbound	SB	5	751.8	0.47	24.3	80	1.3	65.416667	80,080	18,260	196,546	2.89E-07	2.13E-07	2.6	1.21
									Total	160,159						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Tire Wear - Emissions per Vehicle (g/VMT)	0.00208	0.00208	0.00208	0.00208
Brake Wear - Emissions per Vehicle (g/VMT)	0.00199	0.00199	0.00229	0.00259
Road Dust - Emissions per Vehicle (g/VMT)	0.00813	0.00813	0.00813	0.00813
tal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01220	0.01220	0.01250	0.01280

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1135	1.79E-03	9	5.65%	4527	7.30E-03	17	6.02%	4819	7.59E-03
2	1.14%	911	1.43E-03	10	5.63%	4510	7.10E-03	18	5.93%	4747	7.47E-03
3	1.06%	852	1.34E-03	11	5.51%	4411	6.95E-03	19	5.69%	4557	7.17E-03
4	1.21%	967	1.52E-03	12	5.63%	4510	7.10E-03	20	5.05%	4044	6.37E-03
5	1.62%	1296	2.04E-03	13	5.61%	4493	7.07E-03	21	4.24%	3393	5.34E-03
6	2.90%	2322	3.66E-03	14	5.72%	4583	7.22E-03	22	3.74%	2997	4.72E-03
7	4.30%	3443	5.42E-03	15	5.88%	4712	7.42E-03	23	2.82%	2261	3.56E-03
8	5.33%	4267	6.72E-03	16	5.96%	4777	7.52E-03	24	1.93%	1545	2.43E-03
								Total		80,080	

2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.42%	1135	1.80E-03	9	5.65%	4527	7.52E-03	17	6.02%	4819	7.81E-03
2	1.14%	911	1.44E-03	10	5.63%	4510	7.49E-03	18	5.93%	4747	7.70E-03
3	1.06%	852	1.35E-03	11	5.51%	4411	7.15E-03	19	5.69%	4557	7.21E-03
4	1.21%	967	1.53E-03	12	5.63%	4510	7.14E-03	20	5.05%	4044	6.40E-03
5	1.62%	1296	2.05E-03	13	5.61%	4493	7.11E-03	21	4.24%	3393	5.37E-03
6	2.90%	2322	3.67E-03	14	5.72%	4583	7.25E-03	22	3.74%	2997	4.74E-03
7	4.30%	3443	5.45E-03	15	5.88%	4712	7.46E-03	23	2.82%	2261	3.58E-03
8	5.33%	4267	6.92E-03	16	5.96%	4777	7.56E-03	24	1.93%	1545	2.45E-03
								Total		80,080	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2027

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	Line Area Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_NB_101	Highway 101 Northbound	NB	5	582.6	0.36	24.3	79.7	3.4	66.9	81,620	14,150	152,311	1.276E-08	9.409E-09	6.8	3.16
DPM_SB_101	Highway 101 Southbound	SB	5	559.5	0.35	24.3	79.7	3.4	65.4	81,620	13,589	146,272	1.276E-08	9.409E-09	6.8	3.16
									Total	163,239						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle (g/VMT)	0.00053	0.000526	0.000461	0.000401

Emisson Factors from CT-EMFAC2017

2027 Hourly Traffic Volumes and DPM Emissions - DPM_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1157	6.14E-05	9	5.65%	4614	2.14E-04	17	6.02%	4911	2.60E-04
2	1.14%	929	4.93E-05	10	5.63%	4597	2.43E-04	18	5.93%	4839	2.56E-04
3	1.06%	868	4.61E-05	11	5.51%	4496	2.38E-04	19	5.69%	4644	2.46E-04
4	1.21%	986	5.24E-05	12	5.63%	4596	2.43E-04	20	5.05%	4122	2.18E-04
5	1.62%	1321	7.01E-05	13	5.61%	4580	2.42E-04	21	4.24%	3458	1.84E-04
6	2.90%	2367	1.26E-04	14	5.72%	4671	2.47E-04	22	3.74%	3055	1.62E-04
7	4.30%	3510	1.86E-04	15	5.88%	4803	2.54E-04	23	2.82%	2304	1.22E-04
8	5.33%	4349	2.30E-04	16	5.96%	4868	2.58E-04	24	1.93%	1575	8.36E-05
								Total		81,620	

2027 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.41%	1147	5.85E-05	9	5.37%	4382	1.70E-04	17	6.75%	5507	2.45E-04
2	0.86%	703	3.58E-05	10	5.39%	4403	1.70E-04	18	6.54%	5336	2.38E-04
3	0.59%	485	2.47E-05	11	5.83%	4762	2.12E-04	19	5.75%	4693	2.38E-04
4	0.47%	384	1.96E-05	12	5.94%	4845	2.46E-04	20	4.90%	4000	2.03E-04
5	0.73%	598	3.05E-05	13	6.08%	4962	2.52E-04	21	4.54%	3707	1.89E-04
6	1.59%	1300	6.63E-05	14	6.15%	5021	2.55E-04	22	4.20%	3424	1.75E-04
7	2.90%	2366	1.20E-04	15	6.39%	5213	2.65E-04	23	3.60%	2936	1.50E-04
8	5.08%	4149	1.85E-04	16	6.60%	5388	2.74E-04	24	2.34%	1907	9.72E-05
								Total		81,620	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM2.5_NB_101	Highway 101 Northbound	NB	5	582.6	0.36	24.3	80	1.3	66.875	81,620	14,150	152,311	3.58E-08	2.64E-08	2.6	1.21
PM2.5_SB_101	Highway 101 Southbound	SB	5	559.5	0.35	24.3	80	1.3	65.416667	81,620	13,589	146,272	3.58E-08	2.64E-08	2.6	1.21
									Total	163,239						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle (g/VMT)	0.001481	0.00139	0.001220	0.001107

Emisson Factors from CT-EMFAC2017

2027 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1157	1.72E-04	9	5.65%	4614	5.66E-04	17	6.02%	4911	6.87E-04
2	1.14%	929	1.38E-04	10	5.63%	4597	6.43E-04	18	5.93%	4839	6.77E-04
3	1.06%	868	1.29E-04	11	5.51%	4496	6.29E-04	19	5.69%	4644	6.50E-04
4	1.21%	986	1.47E-04	12	5.63%	4596	6.43E-04	20	5.05%	4122	5.77E-04
5	1.62%	1321	1.97E-04	13	5.61%	4580	6.41E-04	21	4.24%	3458	5.15E-04
6	2.90%	2367	3.52E-04	14	5.72%	4671	6.54E-04	22	3.74%	3055	4.55E-04
7	4.30%	3510	4.91E-04	15	5.88%	4803	6.72E-04	23	2.82%	2304	3.43E-04
8	5.33%	4349	6.09E-04	16	5.96%	4868	6.81E-04	24	1.93%	1575	2.35E-04
								Total		81,620	

2027 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.41%	1147	1.64E-04	9	5.37%	4382	4.68E-04	17	6.75%	5507	6.49E-04
2	0.86%	703	1.01E-04	10	5.39%	4403	4.71E-04	18	6.54%	5336	6.29E-04
3	0.59%	485	6.94E-05	11	5.83%	4762	5.61E-04	19	5.75%	4693	6.31E-04
4	0.47%	384	5.50E-05	12	5.94%	4845	6.51E-04	20	4.90%	4000	5.38E-04
5	0.73%	598	8.55E-05	13	6.08%	4962	6.67E-04	21	4.54%	3707	5.30E-04
6	1.59%	1300	1.86E-04	14	6.15%	5021	6.75E-04	22	4.20%	3424	4.90E-04
7	2.90%	2366	3.18E-04	15	6.39%	5213	7.01E-04	23	3.60%	2936	4.20E-04
8	5.08%	4149	4.89E-04	16	6.60%	5388	7.24E-04	24	2.34%	1907	2.73E-04
								Total		81,620	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_NB_101	Highway 101 Northbound	NB	5	582.6	0.36	24.3	80	1.3	66.875	81,620	14,150	152,311	4.00E-07	2.95E-07	2.6	1.21
TEXH_SB_101	Highway 101 Southbound	SB	5	559.5	0.35	24.3	80	1.3	65.416667	81,620	13,589	146,272	4.00E-07	2.95E-07	2.6	1.21
									Total	163,239						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle (g/VMT)	0.01653	0.01549	0.01403	0.01330

Emisson Factors from CT-EMFAC2017

2027 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1157	1.92E-03	9	5.65%	4614	6.51E-03	17	6.02%	4911	7.65E-03
2	1.14%	929	1.54E-03	10	5.63%	4597	7.16E-03	18	5.93%	4839	7.54E-03
3	1.06%	868	1.44E-03	11	5.51%	4496	7.00E-03	19	5.69%	4644	7.23E-03
4	1.21%	986	1.64E-03	12	5.63%	4596	7.16E-03	20	5.05%	4122	6.42E-03
5	1.62%	1321	2.20E-03	13	5.61%	4580	7.13E-03	21	4.24%	3458	5.75E-03
6	2.90%	2367	3.93E-03	14	5.72%	4671	7.28E-03	22	3.74%	3055	5.08E-03
7	4.30%	3510	5.47E-03	15	5.88%	4803	7.48E-03	23	2.82%	2304	3.83E-03
8	5.33%	4349	6.77E-03	16	5.96%	4868	7.58E-03	24	1.93%	1575	2.62E-03
								Total		81,620	

2027 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.42%	1157	1.85E-03	9	5.65%	4614	5.93E-03	17	6.02%	4911	6.65E-03
2	1.14%	929	1.48E-03	10	5.63%	4597	5.91E-03	18	5.93%	4839	6.56E-03
3	1.06%	868	1.39E-03	11	5.51%	4496	6.09E-03	19	5.69%	4644	6.95E-03
4	1.21%	986	1.57E-03	12	5.63%	4596	6.87E-03	20	5.05%	4122	6.16E-03
5	1.62%	1321	2.11E-03	13	5.61%	4580	6.85E-03	21	4.24%	3458	5.52E-03
6	2.90%	2367	3.78E-03	14	5.72%	4671	6.99E-03	22	3.74%	3055	4.88E-03
7	4.30%	3510	5.25E-03	15	5.88%	4803	7.18E-03	23	2.82%	2304	3.68E-03
8	5.33%	4349	5.89E-03	16	5.96%	4868	7.28E-03	24	1.93%	1575	2.51E-03
								Total		81,620	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_NB_101	Highway 101 Northbound	NB	5	582.6	0.36	24.3	80	1.3	66.875	81,620	14,150	152,311	2.71E-07	2.00E-07	2.6	1.21
TEVAP_SB_101	Highway 101 Southbound	SB	5	559.5	0.35	24.3	80	1.3	65.416667	81,620	13,589	146,272	2.71E-07	2.00E-07	2.6	1.21
									Total	163,239						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Emissions per Vehicle per Hour (g/hour)	0.78487	0.78487	0.78487	0.78487
Emissions per Vehicle per Mile (g/VMT)	0.01121	0.01207	0.01308	0.01427

Emisson Factors from CT-EMFAC2017

2027 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1157	1.30E-03	9	5.65%	4614	6.07E-03	17	6.02%	4911	5.96E-03
2	1.14%	929	1.05E-03	10	5.63%	4597	5.58E-03	18	5.93%	4839	5.88E-03
3	1.06%	868	9.79E-04	11	5.51%	4496	5.46E-03	19	5.69%	4644	5.64E-03
4	1.21%	986	1.11E-03	12	5.63%	4596	5.58E-03	20	5.05%	4122	5.00E-03
5	1.62%	1321	1.49E-03	13	5.61%	4580	5.56E-03	21	4.24%	3458	3.90E-03
6	2.90%	2367	2.67E-03	14	5.72%	4671	5.67E-03	22	3.74%	3055	3.44E-03
7	4.30%	3510	4.26E-03	15	5.88%	4803	5.83E-03	23	2.82%	2304	2.60E-03
8	5.33%	4349	5.28E-03	16	5.96%	4868	5.91E-03	24	1.93%	1575	1.78E-03
								Total		81,620	

2027 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.42%	1157	1.25E-03	9	5.65%	4614	6.36E-03	17	6.02%	4911	6.20E-03
2	1.14%	929	1.01E-03	10	5.63%	4597	6.34E-03	18	5.93%	4839	6.11E-03
3	1.06%	868	9.40E-04	11	5.51%	4496	5.68E-03	19	5.69%	4644	5.42E-03
4	1.21%	986	1.07E-03	12	5.63%	4596	5.36E-03	20	5.05%	4122	4.81E-03
5	1.62%	1321	1.43E-03	13	5.61%	4580	5.34E-03	21	4.24%	3458	3.74E-03
6	2.90%	2367	2.56E-03	14	5.72%	4671	5.45E-03	22	3.74%	3055	3.31E-03
7	4.30%	3510	4.09E-03	15	5.88%	4803	5.60E-03	23	2.82%	2304	2.49E-03
8	5.33%	4349	5.49E-03	16	5.96%	4868	5.68E-03	24	1.93%	1575	1.71E-03
								Total		81,620	

320 Sheridan Drive, Menlo Park, CA - Off-Site Residential
Cumulative Traffic - Highway 101
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
FUG_NB_101	Highway 101 Northbound	NB	5	582.6	0.36	24.3	80	1.3	66.875	81,620	14,150	152,311	2.97E-07	2.19E-07	2.6	1.21
FUG_SB_101	Highway 101 Southbound	SB	5	559.5	0.35	24.3	80	1.3	65.416667	81,620	13,589	146,272	2.97E-07	2.19E-07	2.6	1.21
									Total	163,239						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	70	65	60	55
Tire Wear - Emissions per Vehicle (g/VMT)	0.00208	0.00208	0.00208	0.00208
Brake Wear - Emissions per Vehicle (g/VMT)	0.00198	0.00198	0.00229	0.00259
Road Dust - Emissions per Vehicle (g/VMT)	0.00823	0.00823	0.00823	0.00823
tal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01229	0.01229	0.01260	0.01290

Emisson Factors from CT-EMFAC2017

2027 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.42%	1157	1.43E-03	9	5.65%	4614	5.84E-03	17	6.02%	4911	6.07E-03
2	1.14%	929	1.15E-03	10	5.63%	4597	5.68E-03	18	5.93%	4839	5.98E-03
3	1.06%	868	1.07E-03	11	5.51%	4496	5.56E-03	19	5.69%	4644	5.74E-03
4	1.21%	986	1.22E-03	12	5.63%	4596	5.68E-03	20	5.05%	4122	5.10E-03
5	1.62%	1321	1.63E-03	13	5.61%	4580	5.66E-03	21	4.24%	3458	4.28E-03
6	2.90%	2367	2.93E-03	14	5.72%	4671	5.78E-03	22	3.74%	3055	3.78E-03
7	4.30%	3510	4.34E-03	15	5.88%	4803	5.94E-03	23	2.82%	2304	2.85E-03
8	5.33%	4349	5.38E-03	16	5.96%	4868	6.02E-03	24	1.93%	1575	1.95E-03
								Total		81,620	

2027 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.42%	1157	1.37E-03	9	5.65%	4614	5.75E-03	17	6.02%	4911	5.97E-03
2	1.14%	929	1.10E-03	10	5.63%	4597	5.73E-03	18	5.93%	4839	5.89E-03
3	1.06%	868	1.03E-03	11	5.51%	4496	5.47E-03	19	5.69%	4644	5.51E-03
4	1.21%	986	1.17E-03	12	5.63%	4596	5.46E-03	20	5.05%	4122	4.89E-03
5	1.62%	1321	1.57E-03	13	5.61%	4580	5.44E-03	21	4.24%	3458	4.11E-03
6	2.90%	2367	2.81E-03	14	5.72%	4671	5.55E-03	22	3.74%	3055	3.63E-03
7	4.30%	3510	4.17E-03	15	5.88%	4803	5.70E-03	23	2.82%	2304	2.74E-03
8	5.33%	4349	5.29E-03	16	5.96%	4868	5.78E-03	24	1.93%	1575	1.87E-03
								Total		81,620	

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	**2/7/2024**
Contact Name	Jordyn Bauer
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x106
Email	jbauer@illingworthrodkin.com
Project Name	320 Sheridan
Address	320 Sheridan
City	Menlo Park
County	San Mateo
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	88 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** ue section only.

6. Note that a small percentage of the station… ve 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 Matthew Hanson at 415-749-8733, or mhanson@baaqmd.gov

Table B: Google Earth data

Project MEI

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	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
50	19890	CALTRANS	Rt 101	0.153	0	0		Generator		2021 Dataset	1.00	0.15	0.00000	0.0000
1000+	23192	Meta Platforms Inc-MPK 28-29	164 Jefferson Drive	9.707	0.024	0.012		Generator		2021 Dataset	0.04	0.39	0.00096	0.0005
1000+	200438	Facebook Inc.	162 JEFFERSON DR	4.816	0.001	0.006		Generator		2021 Dataset	0.04	0.19	0.000	0.0002

Footnotes:

1. Maximally exposed individual

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
50	19890	0.28	0.04	0.0000	0.0000
745	23192	0.07	0.68	0.0017	0.0008
950	200438	0.04	0.19	0.000	0.0002

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.

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 0.003 or
    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 reflect
    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.

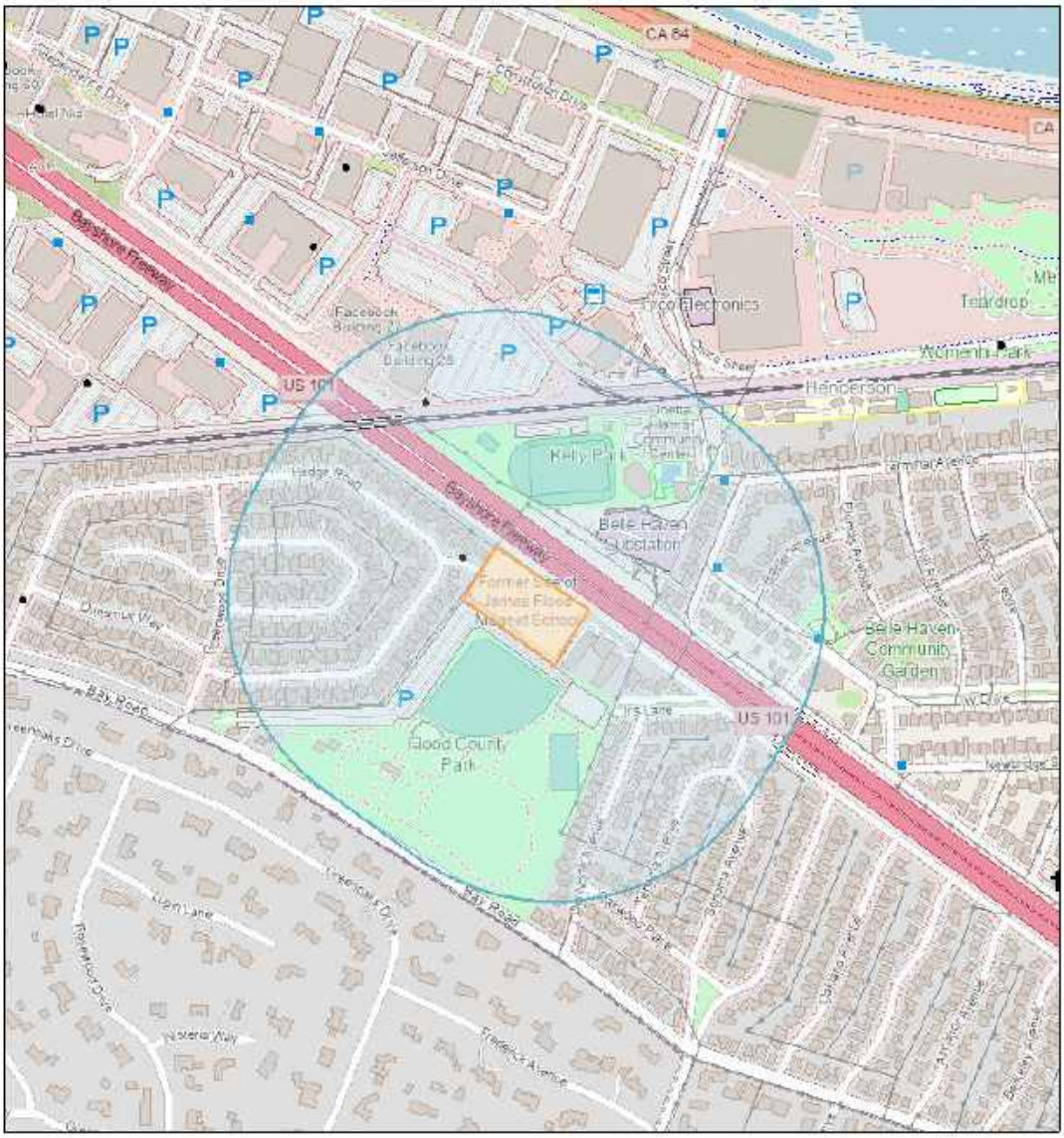
Date last updated:
03/13/2018

Screening Report

Area of Interest (AOI) Information

Area : 4,756,988.15 ft²

Feb 7 2024 12:12:48 Pacific Standard Time



▪ Permitted Stationary Sources

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	2	N/A	N/A

Permitted Stationary Sources

#	Facility_I	Facility_N	Address	City	State
1	19890	CALTRANS	Rt 101	Menlo Park	CA
2	23192	Meta Platforms Inc-MPK 28-29	Jefferson Drive	Menlo Park	CA

#	Zip	County	Latitude	Longitude	Details
1	94025	San Mateo	37.477441	-122.171195	Generator
2	94025	San Mateo	37.479238	-122.171728	Generator

#	NAICS	NAICS_Sect	NAICS_Subs	NAICS_Indu	Cancer_Ris
1	488999	Transportation and Warehousing	Support Activities for Transportation	All Other Support Activities for Transportation	0.153000
2	518210	Information	Data Processing, Hosting and Related Services	Data Processing, Hosting, and Related Services	9.707000

#	Chronic_Ha	PM25	Count
1	0.000000	0.000000	1
2	0.024000	0.012000	1

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