

GIFFORD AVENUE ASSISTED LIVING AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San José, California

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Introduction

The purpose of this report is to address air quality impacts and compute the greenhouse gas (GHG) emissions associated with the proposed Gifford Avenue Assisted Living project on seven parcels along Gifford Avenue and W. San Carlos in San José, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing uses at the site, construction of the new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using models. In addition, the potential construction health risk impact to nearby sensitive receptors and the impact of existing toxic air contaminant (TAC) sources affecting the proposed residences were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).¹

Project Description

The project site is currently developed with nine single-family residences, an auto dealership, and a community garden on Parcels 82 through 88. Parcels 82 through 85 are part of the Downtown Strategy 2040 Plan and parcels 86 through 88 are part of the Diridon Station Area Plan. The project proposes to demolish the existing uses on the 0.9-acre site and construct a six-story, full-service care facility for seniors, with meals and a variety of other services. The project would consist of 116 assisted living units and 49 memory care units (165 total units, 168 beds) in the building with a gross floor area of 185,054 square feet (sf). Additionally, four affordable housing units are proposed as on-site staff housing. There would be 32 parking spaces on the ground floor garage. The assisted living facility would also include a 300-kilowatt (kW) emergency generator powered by a diesel engine on the ground floor in the northwest corner of the proposed building.

Setting

The project is located in Santa Clara 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 (PM₁₀), and fine particulate matter (PM_{2.5}).

Air Pollutants of Concern

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

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of

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

10 micrometers or less (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.² See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Regulatory Agencies

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.³ The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees

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.

³ Available online: <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>. Accessed: November 21, 2014.

regional air district activities and regulates air quality at the State level. The BAAQMD has published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.⁴ The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

City San José Envision 2040 General Plan

The San José Envision 2040 General Plan includes goals, policies, and actions 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 actions are applicable to the proposed project and this assessment:

Applicable Goals – Air Pollutant Emission Reduction

Goal MS-10 Minimize air pollutant emissions from new and existing development.

Applicable Policies – Air Pollutant Emission Reduction

MS-10.1 Assess projected air emissions from new development in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.

MS-10.2 Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region’s Clean Air Plan and State law.

Applicable Goals – Toxic Air Contaminants

Goal MS-11 Minimize exposure of people to air pollution and toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

Applicable Policies – Toxic Air Contaminants

MS-11.1 Require completion of air quality modeling for sensitive land uses such as new residential developments that are located near sources of pollution such as freeways and industrial uses. Require new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs or be located an adequate distance from sources of toxic air contaminants (TACs) to avoid significant risks to health and safety.

MS-11.2 For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

⁴ Bay Area Air Quality Management District. 2017. *BAAQMD CEQA Air Quality Guidelines*. May.

- MS-11.4 Encourage the installation of appropriate air filtration at existing schools, residences, and other sensitive receptor uses adversely affected by pollution sources.
- MS-11.5 Encourage the use of pollution absorbing trees and vegetation in buffer areas between substantial sources of TACs and sensitive land uses.

Actions – Toxic Air Contaminants

- MS-11.7 Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.

Applicable Goals – Construction Air Emissions

- Goal MS-13 Minimize air pollutant emissions during demolition and construction activities

Applicable Policies – Construction Air Emissions

- MS-13.1 Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At minimum, conditions shall conform to construction mitigation measures recommended in the current BAAQMD CEQA Guidelines for the relevant project size and type.

Applicable Actions – Construction Air Emissions

- MS-13.4 Adopt and periodically update dust, particulate, and exhaust control standard measures for demolition and grading activities to include on project plans as conditions of approval based upon construction mitigation measures in the BAAQMD CEQA Guidelines.

Downtown Strategy 2040 Plan and Diridon Station Area Plan

The San José Downtown Strategy 2040 Plan and Diridon Station Area Plan are urban design plans that guides development activities planned within their areas. The Downtown Strategy Plan EIR⁵ and Diridon Station Area Plan EIR⁶ identified less-than-significant construction period emissions if development projects are in conformance with 2017 BAAQMD CEQA Guidelines, GP Policy MS-13.1, and current City requirements that include various levels of construction emissions control measures. All projects are required to implement the following control measures:

City requirements, all projects will be required to implement the following control measures:

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

⁵ The City of San Jose, *Downtown Strategy 2040 Integrated Final Environmental Impact Report*, SCH# 2003042127, December 2018.

⁶ The City of San Jose, *Diridon Station Area Plan Integrated Final Program Environmental Impact Report*, SCH# 2011092022, August 2014.

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Future projects developed under the Downtown Strategy Plan and Diridon Station Area Plan that incorporate these measures and are below the screening levels would not result in a significant impact related to construction emissions of regional criteria pollutants. Projects that exceed the screening levels would be required to complete additional project level analysis of construction-related emissions of criteria pollutants and may require additional measures to ensure that construction emissions would not exceed the threshold for average daily emissions.

Operational emissions of regional criteria air pollutants with measures included to reduce emissions under the Downtown Strategy Plan and Diridon Station Area Plan were identified as significant and unavoidable. To reduce operational emissions associated with vehicle travel, future development will be required to implement a transportation demand management (TDM) program, consistent with the Downtown Transportation Plan.

The TDM programs may incorporate, but would not be limited to, the following Transportation Control Measures (TCMs):

- Rideshare Measures:
 - Implement carpool/vanpool program (e.g., carpool ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.)
- Transit Measures:
 - Construct transit facilities such as bus turnouts/bus bulbs, benches, shelters, etc.
 - Design and locate buildings to facilitate transit access (e.g., locate building entrances near transit stops, eliminate building setbacks, etc.)
- Services Measures:
 - Provide on-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc.;

- Provide on-site child care or contribute to off-site childcare within walking distance.
- Shuttle Measures:
 - Establish mid-day shuttle service from work site to food service establishments/commercial areas;
 - Provide shuttle service to transit stations/multimodal centers
- Parking Measures:
 - Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles;
 - Implement parking fees for single occupancy vehicle commuters;
 - Implement parking cash-out program for employees (i.e., non-driving employees receive transportation allowance equivalent to value of subsidized parking);
- Bicycle and Pedestrian Measures:
 - Provide secure, weather-protected bicycle parking for employees;
 - Provide safe, direct access for bicyclists to adjacent bicycle routes;
 - Provide showers and lockers for employees bicycling or walking to work;
 - Provide secure short-term bicycle parking for retail customers or non-commute trips;
 - Provide direct, safe, attractive pedestrian access from Planning Area to transit stops and adjacent development;
- Other Measures:
 - Implement compressed work week schedule (e.g., 4 days/40 hours, 9 days/80 hours);
 - Implement home-based telecommuting program.

During project-level supplemental review of future individual development projects, the measures will be evaluated for consistency with the Downtown Strategy 2040, Diridon Station Area Plan, and General Plan policies. All feasible and applicable measures will be required as part of project design or as conditions of approval.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the single-family residences to the east of the site opposite Gifford Avenue and the single-family residences to the south of the project site. There are additional residences at farther distances from the project site. This project would introduce new sensitive receptors to the area.

Significance Thresholds

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

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (Exhaust)	82	15
PM _{2.5}	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	Single Sources Within 1,000-foot Zone of Influence	Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)	
Excess Cancer Risk	>10.0 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual PM _{2.5}	>0.3 µg/m ³	>0.8 µg/m ³	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020)*		
Note: ROG = reactive organic gases, NO _x = nitrogen oxides, PM ₁₀ = coarse 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. GHG = greenhouse gases. *BAAQMD does not have a recommended post-2020 GHG threshold.			

Air Quality Impacts and Conditions of Approval

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), has prepared and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.⁷ The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have emissions below the BAAQMD thresholds (see below), 2) the project would be considered urban infill, and 3) the project would be located near transit with regional connections.

Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Bay Area is considered a non-attainment area for ground-level O₃ and PM_{2.5} under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM₁₀ under the California Clean Air Act, but not the federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O₃, PM_{2.5} and PM₁₀, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O₃ precursor pollutants (ROG and NO_x), PM₁₀, and PM_{2.5} and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to

⁷ Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan*.

CalEEMod. The CARB Emission FACTors 2017 (EMFAC2017) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.⁸ The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2017 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

The proposed assisted living project land uses were input into CalEEMod as follows:

- 165 dwelling units and 166,397-sf entered as “Congregate Care (Assisted Living)” on 0.9 acres,
- 4 dwelling units and 4,000-sf entered as “Apartments Mid Rise”, and
- 32 spaces and 14,657-sf entered as “Enclosed Parking Structure”.

Construction Schedule and Equipment Inputs

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

The CalEEMod construction equipment worksheet provided by the applicant included the schedule for each phase. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was provided. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be September 2021 and the project would be built out over a period of approximately 16 months, or 325 construction workdays. The first full year of operation was assumed to be 2023.

Construction Truck and Hauling Traffic Emissions

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2014 motor vehicle emission factor model. This model has been superseded by the EMFAC2017 model; however, CalEEMod has not been updated to include EMFAC2017. Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, soil material imported and/or exported to the site, and the estimate of cement and asphalt truck trips. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul

⁸ See CARB’s EMFAC2017 Web Database at <https://www.arb.ca.gov/emfac/2017/>

trips for demolition were estimated from the provided demolition tonnage by assuming each truck could carry 10 tons per load. The number of concrete and asphalt total round haul trips were provided for the project and converted to total one-way trips, assuming two trips per round-trip delivery.

The construction traffic information was combined with EMFAC2017 motor vehicle emissions factors. EMFAC2017 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1 and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including cement trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips, and 20 miles for hauling (demolition material export and soil import/export). Since CalEEMod does not address cement or asphalt trucks, these were treated as vendor travel distances. Each trip was assumed to include a 5-minute idle time. Emissions associated with vehicle starts were also included. On-road emission rates from calendar years 2021-2022 for Santa Clara County were used. Table 2 provides the traffic inputs that were combined with the EMFAC2017 emission factors to compute vehicle emissions.

Table 2. Construction Traffic Data Used for EMFAC2017 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker ¹	Total Vendor ¹	Total Haul ²	
Vehicle mix ¹	71.5% LDA 6.4% LDT1 22.1% LDT2	38.1% MHDT 61.9% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5 Minute Truck Idle Time
Demolition	225	-	151	24,394-sf of demolition hauling & 200 tons of pavement demolition. CalEEMod default worker trips.
Site Preparation	180	-	-	CalEEMod default worker trips
Grading	300	-	1,125	1,600-cy import & 7,500-cy export. CalEEMod default worker trips
Trenching	1,680	-	-	CalEEMod default worker trips
Building Construction	25,600	4,000	3,200	1,600 cement truck round trips. CalEEMod default worker and vendor trips
Architectural Coating	2,080	-	-	CalEEMod default worker trips
Paving	300	-	6	3 asphalt truck round trips. CalEEMod default worker trips

Notes: ¹ Based on 2021-2022 EMFAC2017 light-duty vehicle fleet mix for Santa Clara County.

² Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed.

Summary of Computed Construction Period Emissions

Annual emissions were predicted using CalEEMod. Average daily emissions were computed by dividing the total construction emissions by the number of construction days (325 construction workdays). Table 3 shows average daily construction emissions of ROG, NO_x, PM₁₀ exhaust, and PM_{2.5} exhaust during construction of the project. As indicated in Table 3, predicted construction period emissions would not exceed the BAAQMD significance thresholds.

Table 3. Construction Period Emissions

Scenario	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
Total construction emissions (tons)	1.4 tons	2.0 tons	0.1 tons	0.1 tons
Average daily emissions (pounds)¹	8.7 lbs./day	12.5 lbs./day	0.7 lbs./day	0.6 lbs./day
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs./day	54 lbs./day	82 lbs./day	54 lbs./day
Exceed Threshold?	No	No	No	No
Notes: ¹ Assumes 325 workdays.				

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD *CEQA Air Quality Guidelines*, the Downtown Strategy Plan, and the Diridon Station Area Plan consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. *A Condition of Approval for the project would be to implement BAAQMD-recommended best management practices described above during construction activities, as stated in the Downtown Strategy Plan and the Diridon Station Area Plan.*

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future employees and guests. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was also used to estimate emissions from operation of the proposed project assuming full build-out.

CalEEMod Inputs

Land Uses

The project land uses were entered into CalEEMod as described above for the construction period modeling.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest the project could possibly be constructed and begin operating would be 2023. Emissions associated with build-out later than 2023 would be lower.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model. The daily trip rate, depending on the land use type, accounted for the location based reduction.⁹ For each land use type, the forecasted daily trip rate with trip reductions applied was divided by the quantity of that land use to identify the weekday daily trip rate. The Saturday and Sunday trip rates were assumed to be the weekday rate adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate. The trip generation units for the assisted living land use were in “beds”. The assisted living land use in CalEEMod is in “dwelling units”. Since the dwelling unit number was known for the assisted living facility, the number of dwelling units and total daily trips were used to compute the assisted living land use’s daily trip rate (i.e., total daily trips divided by the 165 dwelling units). The default trip lengths and trip types specified by CalEEMod were used.

EMFAC2017 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMISSION FACTORS from 2014 (EMFAC2014), which is an older CARB emission inventory for on road and off road mobile sources. Since the release of CalEEMod Version 2016.3.2, new emission factors have been produced by CARB. EMFAC2017 became available for use in March 2018 and approved by the EPA in August 2019. It includes the latest data on California’s car and truck fleets and travel activity. Additionally, CARB has recently released EMFAC off-model adjustment factors to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.^{10,11} The SAFE vehicle Rule Part One revoked California’s authority to set its own GHG emission standards and set zero emission vehicle mandates in California. As a result of this ruling, mobile criteria pollutant and GHG emissions would increase. Therefore, the CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2017, which were adjusted with the CARB EMFAC off-model adjustment factors. More details about the updates in emissions

⁹ Hexagon Transportation Consultants, Inc., *Gifford Assisted Living Development Local Transportation Analysis*. July 13, 2020.

¹⁰ California Air Resource Board, 2019. *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One*. November. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf

¹¹ California Air Resource Board, 2020. *EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO₂) Emissions to Accounts for the SAFE Vehicles Rule Part One and the Final SAFE Rule*. June. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf?utm_medium=email&utm_source=govdelivery

calculation methodologies and data are available in the EMFAC2017 Technical Support Document.¹²

Energy – Electricity

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. GHG emissions modeling included the indirect emissions from electricity consumption. The electricity produced emission rate was then modified in CalEEMod. CalEEMod has a default emission factor of 641.3 pounds of CO₂ per megawatt of electricity produced, which is based on Pacific Gas and Electric's (PG&E) 2008 emissions rate. However, PG&E published in 2019 emissions rates for 2010 through 2017, which showed the emission rate for delivered electricity had been reduced to 210 pounds CO₂ per megawatt of electricity delivered in the year 2017.¹³ This intensity factor was used in the model along with the assumption that the project would use electricity supplied by San José Clean Energy (SJCE). SJCE would provide electricity that would be 100-percent carbon free by 2021 before the project becomes operational.¹⁴

Emergency Generator

The project would include a 300-kW emergency generator powered by a diesel engine located on the ground floor near the northwest corner of the building. Emissions from the testing and maintenance of the proposed generator engine were calculated for an approximately 402-horsepower (hp) diesel engine. The CalEEMod modeling assumed 50 hours of annual operation for testing and maintenance purposes.

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to be powered by natural gas per BAAQMD Regulation 6, Rule 3, which requires that new building construction not install a wood-burning device (effective as of November 1, 2016).¹⁵

Existing Uses

A CalEEMod model run was developed to compute emissions from use of the existing onsite residences, auto business, and community garden as if it was operating in 2023. The input for this existing land use modeling scenario included 9 dwelling units, 24,394-sf, and 0.32 acres entered as "Single Family Housing" and 0.58 acres entered as "Parking Lot" on a 0.9-acre lot based on Google Map imagery. The auto dealership and community garden were entered as "Parking Lot"

¹² See CARB 2018: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac>

¹³ PG&E, 2019. *Corporate Responsibility and Sustainability Report*. Web: http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf

¹⁴ See: <https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/climate-smart-san-jos/2019-reach-code-initiative>

¹⁵ Bay Area Air Quality Management District, 2015: https://www.baaqmd.gov/~/_media/dotgov/files/rules/reg-6-rule-3-woodburning-devices/documents/rg0603.pdf?la=en

because the uses would produce low operational and traffic emissions that it would not make a considerable offset to the proposed project. This input was applied to the model in the same manner described for the proposed project.

Project Operational Emissions

Annual emissions were predicted using CalEEMod and daily emissions were estimating assuming 365 days of operation. Table 4 shows average daily emissions of ROG, NO_x, total PM₁₀, and total PM_{2.5} during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds.

Table 4. Operational Period Emissions

Scenario	ROG	NO_x	PM₁₀	PM_{2.5}
2023 Project Operational Emissions (<i>tons/year</i>)	1.0 tons	0.3 tons	0.3 tons	0.1 tons
2023 Existing Operational Emissions (<i>tons/year</i>)	0.2 tons	0.1 tons	0.1 tons	<0.1 tons
Net Annual Emissions (<i>tons/year</i>)	0.8 tons	0.2 tons	0.2 tons	0.1 tons
<i>BAAQMD Thresholds (tons /year)</i>	<i>10 tons</i>	<i>10 tons</i>	<i>15 tons</i>	<i>10 tons</i>
<i>Exceed Threshold?</i>	No	No	No	No
2023 Project Operational Emissions (<i>lbs/day</i>) ¹	4.2 lbs.	1.4 lbs.	1.1 lbs.	0.3 lbs.
<i>BAAQMD Thresholds (pounds/day)</i>	<i>54 lbs.</i>	<i>54 lbs.</i>	<i>82 lbs.</i>	<i>54 lbs.</i>
<i>Exceed Threshold?</i>	No	No	No	No
Notes: ¹ Assumes 365-day operation.				

Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased community risk can occur either by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity or by significantly exacerbating existing cumulative TAC impacts. This project would introduce new sources of TACs during construction (i.e. on-site construction emissions) and operation (i.e. emergency diesel generators and mobile sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would include the installation of emergency generators powered by diesel engines that would also have emissions of TACs and air pollutants. Additionally, the project would generate some traffic, consisting of mostly light-duty vehicles. However, the number daily trips generated by the project are small enough (i.e. 331 daily trips¹⁶) to not be considered a source of substantial TACs or PM_{2.5}.

Therefore, project impacts to existing sensitive receptors were addressed for temporary construction activities and the operation of the emergency generator. There are also several sources of existing TACs and localized air pollutants in the vicinity of the project. The impact of the existing sources of TAC was also assessed in terms of the cumulative risk that includes the project contribution.

Community Risk Methodology for Construction and Operation

Community risk impacts were addressed by predicting increased cancer risk, the increase in annual PM_{2.5} concentrations and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, and increased traffic from the project. To evaluate the increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance,¹⁷ with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

The project increased cancer risk is computed by summing the project construction cancer risk and operation cancer risk contributions. Unlike, the increased maximum cancer risk, the annual PM_{2.5} concentration and HI values are not additive but based on the annual maximum values for the entirety of the project. The project's maximally exposed individual (MEI) is identified as the sensitive receptor that is most impacted by the project's construction and operation.

The methodology for computing community risks impacts is contained in *Attachment 1*. This involved the modeling of TAC and PM_{2.5} emissions, dispersion modeling and cancer risk computations.

¹⁶ Hexagon Transportation Consultants, Inc., *Gifford Assisted Living Development Local Transportation Analysis*. July 13, 2020.

¹⁷ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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 all adjacent and nearby existing residences, as shown in Figure 1. Residential receptors are assumed to include all receptor groups (i.e. infants, children, and adults) with almost continuous exposure to project emissions.

Community Risks from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. Although it was concluded in the previous sections (see Table 3) that construction exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations, construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM_{2.5}. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and PM_{2.5}.¹⁸ This assessment included dispersion modeling to predict the off-site concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod model provided total annual PM₁₀ exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages of 0.0873 tons (175 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length 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 0.0874 tons (175 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 (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.¹⁹

Construction Sources

Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive PM_{2.5} dust emissions. Combustion equipment exhaust emissions were modeled as a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 20-foot (6-meter) intervals throughout the construction site. This resulted in 96

¹⁸ DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

¹⁹ Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May.

individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. The locations of the point sources used for the modeling are identified in Figure 1. Emissions from vehicle travel on- and off-site were distributed among the point sources throughout the site.

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

AERMOD Inputs and Meteorological Data

Construction emissions were modeled as occurring daily between 7:00 a.m. to 4:00 p.m., when the majority of construction activity would occur. The modeling used a five-year data set (2013-2017) of hourly meteorological data from the San José International Airport that was prepared for use with the AERMOD model by BAAQMD. Annual DPM and PM_{2.5} concentrations from construction activities during the 2021-2022 period were calculated using the model. DPM and PM_{2.5} concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) were used to represent the breathing height on the first and second floors of nearby single- and multi-family residences.

Summary of Construction Community Risk Impacts

The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant and adult exposures were assumed to occur at all residences during the entire construction period.

The maximum modeled annual PM_{2.5} concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI values was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation reference exposure level of 5 µg/m³.

The maximum modeled annual DPM and PM_{2.5} concentrations, which includes both the DPM and fugitive PM_{2.5} concentrations, were identified at nearby sensitive receptors (as shown in Figure 1) to find the MEI. Results of this assessment indicated that the construction MEI was located on the first floor (5 feet above ground) of the adjacent residence to the south of the project site.

The maximum increased cancer risks and maximum PM_{2.5} concentration from construction at the location of the MEI exceed their respective BAAQMD single-source thresholds of greater than 10.0 per million for cancer risk and greater than 0.3 µg/m³ for PM_{2.5} concentration. Table 5 summarizes the maximum cancer risks, PM_{2.5} concentrations, and health hazard indexes for project

related construction activities affecting the MEI. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Table 5. Construction Risk Impacts at the Off-site Residential MEI

Source		Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Project Construction	Unmitigated	33.8 (infant)	0.75	0.03
	Mitigated*	2.9 (infant)	0.16	<0.01
BAAQMD Single-Source Threshold		>10.0	>0.3	>1.0
<i>Exceed Threshold?</i>	Unmitigated	<i>Yes</i>	<i>Yes</i>	<i>No</i>
	Mitigated*	<i>No</i>	<i>No</i>	<i>No</i>

* Construction equipment with Tier 4 interim engines as Mitigation Measures.

Figure 1. Project Construction Site, Point Source Locations, Locations of Off-Site Sensitive Receptors, and Maximum TAC Impacts



Community Risks from Project Operation – Traffic and Generators

Operation of the project would have long-term emissions from mobile sources (i.e., traffic) and stationary sources (i.e., generator). While these emissions would not be as intensive at or near the site as construction activity, they would contribute to long-term effects to sensitive receptors.

Operational Traffic

Per BAAQMD recommended methods for evaluating risks and hazards, a road with less than 10,000 total vehicle per day is considered a low-impact source of TACs.²⁰ This project would generate a net increase of 331 daily trips²¹ with a majority of the trips being from light-duty vehicles (i.e. passenger cars), which is less than 10,000 daily vehicles. Therefore, emissions from project traffic would be negligible and not included within this analysis.

Operational Emergency Generator Modeling

The project would include a 300-kW emergency generator with an estimated 402-hp diesel engine. The generator would be located on the ground floor near the northwest corner of the building. Figure 2 shows the location of the modeled emergency generator.

This diesel engine would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since it will be equipped with an engine larger than 50 hp. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet Best Available Control Technology for Toxics (TBACT) and pass the toxic risk screening level of less than ten in a million. The risk assessment would be prepared by BAAQMD. Depending on results, BAAQMD would set limits for DPM emissions (e.g., more restricted engine operation periods). Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

To obtain an estimate of potential cancer risks and PM_{2.5} impacts from operation of the emergency generators, the U.S. EPA AERMOD dispersion model was used to calculate the maximum annual DPM concentration at off-site sensitive receptor locations (nearby residences). The same receptors and breathing heights used in the construction dispersion modeling were used for the generator dispersion model. Additionally, the BAAQMD San José International Airport meteorological data was used. Stack parameters (stack height, exhaust flow rate, and exhaust gas temperature) for modeling the generators were based on BAAQMD default parameters for emergency generators.²² Annual average DPM and PM_{2.5} concentrations were modeled assuming that generator testing could occur at any time of the day.

²⁰ Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May.

²¹ Hexagon Transportation Consultants, Inc., *Gifford Assisted Living Development Local Transportation Analysis*. July 13, 2020.

²² The San Francisco Community Risk Reduction Plan: Technical Support Document, BAAQMD, San Francisco Dept. of Public Health, and San Francisco Planning Dept., December 2012

To calculate the increased cancer risk from the generators at the MEI, the cancer risks exposure duration was adjusted to account for the MEI being exposed to construction for the first two years of the 30-year lifetime period. The exposure duration for the generators was adjusted for 28 years. Table 6 lists the community risks from the project generator at the location of existing off-site residential MEI. The emissions and health risk calculations for the proposed generator are included in *Attachment 4*.

Summary of Project-Related Community Risks at MEI

For this project, the sensitive receptor identified as the construction MEI is also the project MEI. At this location, the MEI would be exposed to two years of construction cancer risks and 28 years of operational (i.e. emergency backup generator) cancer risks. The cancer risks from construction and operation of the project were summed together. The annual PM_{2.5} concentration and HI values are based on an annual maximum risk for the entirety of the project.

As shown in Table 6, the unmitigated maximum cancer risks and PM_{2.5} concentrations from construction and operation activities at the MEI location would exceed the single-source significance thresholds. However, the mitigated risks and hazard values from the project would not exceed the BAAQMD single-source significance thresholds.

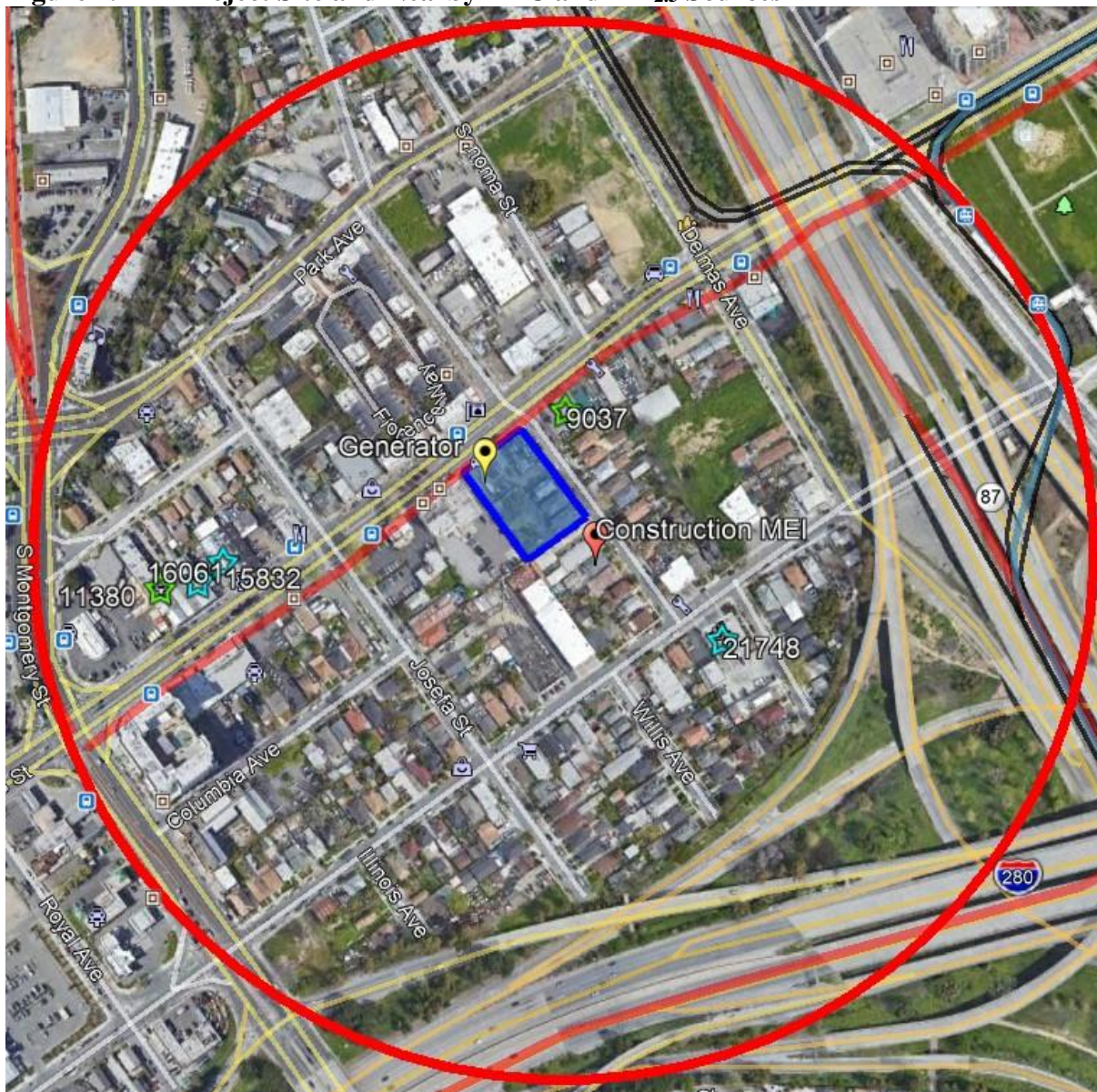
Table 6. Construction and Operation Risk Impacts at the Off-site Project MEI

Source		Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Project Construction (Years 0-2)	Unmitigated	33.8 (infant)	0.75	0.03
	Mitigated	2.9 (infant)	0.16	<0.01
Project Generator (Years 3-30)		0.7	<0.01	<0.01
Unmitigated Total/Maximum Project (Years 0-30)		34.5	0.75	0.03
Mitigated Total/Maximum Project (Years 0-30)		3.6	0.16	<0.01
BAAQMD Single-Source Threshold		>10.0	>0.3	>1.0
Exceed Threshold?	Unmitigated	Yes	Yes	No
	Mitigated	No	No	No

Cumulative Community Risks of all TAC Sources at Project MEI

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site (i.e. influence area). These sources include highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on State Route 87 (S.R. 87), Interstate 280 (I-280), and W. San Carlos Street have an average daily traffic (ADT) of over 10,000 vehicles. All other roadways within the area are assumed to have an ADT that is less than 10,000 vehicles. Five stationary sources were identified within the 1,000-foot influence area using the BAAQMD's stationary source stationary source website map and Google Earth map. Figure 2 shows the sources affecting the MEI. Community risk impacts from these sources upon the MEI reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5*.

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



Highways – S.R. 87 and I-280

BAAQMD provides a *Highway Screening Analysis Google Earth Map* tool to identify estimated risk and hazard impacts from highways throughout the Bay Area. Cumulative risk, hazard, and PM_{2.5} impacts at various distances from the highway are estimated for different segments of the highways.²³ The tool uses the average annual daily traffic (AADT) count, fleet mix, and other modeling parameters specific to that segment of the highway. The lifetime cancer risk, annual PM_{2.5} exposure, and non-cancer HI impacts were identified using this tool. The construction MEI was approximately 700 feet west of S.R. 87 at Link 533 (6ft elevation) and approximately 800 feet north of I-280 at Link 520 (6ft elevation). Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described in *Attachment 1*. The risk impacts from these highways are discussed in Table 7.

Local Roadways – W. San Carlos Street

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project.²⁴ Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect new OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. However, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.²⁵

Although the section W. San Carlos Street near the project site is part of S.R. 82, the more recent project traffic volumes²⁶ were used to analyze this roadway over BAAQMD's older highway screening tool. The ADT on W. San Carlos Street was estimated to be 12,330 vehicles. This estimate was based on the peak-hour traffic volumes included in the project's traffic analysis for background plus project conditions. The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT.

²³ Note at the time of the original analysis the use of the BAAQMD *Highway Screening Analysis Google Earth Map* was acceptable. Since this is a screening model community risks are conservatively higher than risks predicted using more refined dispersion modeling.

²⁴ Note at the time of the original analysis the use of the BAAQMD *Roadway Screening Analysis Calculator* was acceptable for CEQA-purposes. Since this is a screening model community risks are conservatively higher than risks predicted using more refined dispersion modeling.

²⁵ Correspondence with Alison Kirk, BAAQMD, November 23, 2015.

²⁶ Hexagon Transportation Consultants, Inc., *Gifford Assisted Living Development Local Transportation Analysis*. July 13, 2020.

The BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County was used for this roadway. W. San Carlos Street was identified as an east-west roadway with the construction MEI located approximately 340 feet south of the roadway. Estimated risk values for the roadway upon the construction MEI is listed in Table 7. Note that BAAQMD has found that non-cancer hazards from all local roadways would be below a Hazard Index of 0.03.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identifies the location of nearby stationary sources and their estimated risk and hazard impacts. In addition, *BAAQMD's Permitted Stationary Sources 2018* geographic information system (GIS) website²⁷ was used to locate updated nearby permitted stationary sources. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. BAAQMD provided updated emissions data.²⁸ Those data were input into BAAQMD's *Risk and Hazards Emissions Screening Calculator* which computes the cancer risk, annual PM_{2.5} concentrations, and HI using adjustments to account for new OEHHA guidance and distance from the sources.

Five stationary sources were identified; Plant #11380, #9037, and #15832 are auto body coating systems, Plant #16061 is a spray booth operation, and Plant #21748 is a diesel-powered generator. Estimated risk values for these stationary sources at the MEI are listed in Table 7.

Summary of Cumulative Risks at the MEI

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptor most affected by the construction and operation of the project (i.e. the MEI). Without mitigation, the project's community risk from project construction and operation activities would exceed the maximum cancer risk and PM_{2.5} concentration single-source significance thresholds. The combined annual cancer risk and Hazard risk values, which includes unmitigated and mitigated, would not exceed their respective cumulative thresholds. The unmitigated combined PM_{2.5} concentration would exceed the cumulative threshold of 0.8 µg/m³. With the incorporation of the Condition of Approval to implement BAAQMD-recommended best management practices and *Mitigation Measures AQ-1*, the project construction's single-source and cumulative-source risks would no longer exceed the significance thresholds.

²⁷ BAAQMD,

<https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65>

²⁸ Correspondence with Areana Flores, BAAQMD, October 17, 2019.

Table 7. Impacts from Combined Sources at Off-Site Construction MEI

Source	Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Project Impacts			
Unmitigated Total/Maximum Project (Years 0-30)	34.5	0.75	0.03
Mitigated Total/Maximum Project (Years 0-30)	3.6	0.16	<0.01
BAAQMD Single-Source Threshold			
	>10.0	>0.3	>1.0
<i>Exceed Threshold?</i>	Unmitigated	<i>Yes</i>	<i>Yes</i>
	Mitigated	<i>No</i>	<i>No</i>
Cumulative Sources			
S.R. 87 at 700 feet west, Link 533 (6ft elevation)	1.7	0.01	<0.01
I-280 at 800 feet north, Link 520 (6ft elevation)	10.4	0.10	0.01
W. San Carlos St (east-west) at 340 feet south, ADT 12,330	1.3	0.05	<0.03
Plant #11380 (Auto Body Coating) at 875 feet	--	--	<0.01
Plant #9037 (Auto Body Coating) at 265 feet	--	--	<0.01
Plant #16061 (Spray Booth Operation) at 805 feet	--	--	--
Plant #15832 (Auto Body Coating) at 735 feet	--	--	<0.01
Plant #21748 (Generator) at 245 feet	<0.1	<0.01	<0.01
Cumulative Sources	Unmitigated	<48.0 (infant)	<0.12
	Mitigated	<17.1 (infant)	<0.10
BAAQMD Cumulative Source Threshold			
	>100	>0.8	>10.0
<i>Exceed Thresholds?</i>	Unmitigated	<i>No</i>	<i>Yes</i>
	Mitigated	<i>No</i>	<i>No</i>

Mitigation Measure AQ-1: Selection of equipment during construction to minimize emissions. Such equipment selection would include the following:

The project shall develop a plan demonstrating that the off-road equipment used onsite to construct the project would achieve a fleet-wide average 70-percent reduction in DPM exhaust emissions or greater. One feasible plan to achieve this reduction would include the following:

- All diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA particulate matter emissions standards for Tier 4 engines. Where Tier 4 equipment is not available, exceptions could be made for equipment with U.S. EPA Tier 3 engines that include CARB-certified Level 3 Diesel Particulate Filters or equivalent. Equipment that is electrically powered or uses non-diesel fuels would also meet this requirement.

Effectiveness of Mitigation Measure AQ-1

CalEEMod was used to compute emissions associated with this mitigation measure assuming that all equipment met U.S. EPA Tier 4 interim engines standards and Condition of Approval to include best management practices for construction. With this mitigation, the computed maximum increased lifetime residential cancer risk from construction at the construction MEI, assuming infant exposure, would be 2.9 in one million or less. The mitigated maximum annual PM_{2.5} concentration would be 0.16 µg/m³, and as a result the cumulative maximum annual PM_{2.5} concentration would be 0.33 µg/m³. The mitigated cancer risk and PM_{2.5} concentration would no longer exceed their respective significance thresholds.

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

Additionally, a community risk assessment was completed to analyze the impact existing TAC sources would have on the new proposed sensitive receptors that the project would introduce. The same TAC sources identified above were used in this health risk assessment.²⁹

Highways – S.R. 87 and I-280

The highway analysis was done in the same manner for the new project sensitive receptors as described above for the construction MEI. The project sensitive receptors would be 700 feet west of S.R. 87 at Link 533 (6ft elevation) and approximately 900 feet north of I-280 at Link 520 (6ft elevation). The results are listed in Table 8.

Local Roadways – W. San Carlos Street

The roadway analysis was done in the same manner for the new project sensitive receptors as described above for the construction MEI. The project sensitive receptors would be located 20 feet south from the nearest through lane of W. San Carlos Street to the project property line. The results are listed in Table 8.

Stationary Sources

The stationary source screening analysis for the project site receptors was conducted in the same manner as described above for the construction MEI. Table 8 shows the health risk results.

Combined Community Health Risk at Project Site

Community risk impacts from combined sources upon the project site sensitive receptors are reported in Table 8. As shown, the annual cancer risks, annual PM_{2.5} concentrations, and Hazard Indexes are all below their respective single-source and cumulative significance thresholds.

²⁹ We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473, which confirm that the impacts of the environment on a project are excluded from CEQA unless the project itself “exacerbates” such impacts.

Table 8. Cumulative Community Risk Impact to New Project Residences

Source	Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
S.R. 87 at 700 feet west, Link 533 (6ft elevation)	<1.7*	0.01	<0.01
I-280 at 900 feet north, Link 520 (6ft elevation)	<9.4*	0.09	0.01
W. San Carlos St (east-west) at 20 feet south, ADT 12,330	<5.6*	0.21	<0.03
Plant #11380 (Auto Body Coating) at 690 feet	--	--	<0.01
Plant #9037 (Auto Body Coating) at 95 feet	--	--	<0.01
Plant #16061 (Spray Booth Operation) at 610 feet	--	--	--
Plant #15832 (Auto Body Coating) at 525 feet	--	--	<0.01
Plant #21748 (Generator) at 360 feet	<0.1*	<0.01	<0.01
<i>BAAQMD Single-Source Threshold</i>	>10.0	>0.3	>0.1
<i>Exceed Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>
Cumulative Total	18.5	0.32	<0.09
<i>BAAQMD Cumulative Source Threshold</i>	>100	>0.8	>10.0
<i>Exceed Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>

* Note that BAAQMD tools predict cancer risk for lifetime exposures that include infant and child cancer risk assumptions. Project sensitive receptors would be adults that have a lower cancer risk based on the same concentration of exposure. Therefore, the risk would be less.

Greenhouse Gas Emissions

Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO₂) and water vapor but there are also several others, most importantly methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO₂, CH₄, and N₂O are byproducts of fossil fuel combustion.
- N₂O is associated with agricultural operations such as fertilization of crops.
- CH₄ is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO₂ being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO₂ equivalents (CO₂e).

An expanding body of scientific research supports the theory that global climate change is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California are adversely affected by the global warming trend. Increased precipitation and sea level rise will increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Recent Regulatory Actions for GHG Emissions

Executive Order S-3-05 – California GHG Reduction Targets

Executive Order (EO) S-3-05 was signed by Governor Arnold Schwarzenegger in 2005 to set GHG emission reduction targets for California. The three targets established by this EO are as follows: (1) reduce California's GHG emissions to 2000 levels by 2010, (2) reduce California's GHG emissions to 1990 levels by 2020, and (3) reduce California's GHG emissions by 80 percent below 1990 levels by 2050.

Assembly Bill 32 – California Global Warming Solutions Act (2006)

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codified the State’s GHG emissions target by directing CARB to reduce the State’s global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05, which has a target of reducing GHG emissions 80 percent below 1990 levels.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State’s main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO₂e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO₂e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO₂e. Thus, an estimated reduction of 80 MMT of CO₂e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

Executive Order B-30-15 & Senate Bill 32 GHG Reduction Targets – 2030 GHG Reduction Target

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California’s 2017 Climate Change Scoping Plan*.³⁰ While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive

³⁰ California Air Resource Board, 2017. *California’s 2017 Climate Change Scoping Plan: The Strategy for Achieving California’s 2030 Greenhouse Gas Targets*. November. Web: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf

Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State’s emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikable communities;
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce “super pollutants” by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO_{2e} per capita (statewide) by 2030 and no more than 2 metric tons CO_{2e} per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 – Carbon Neutrality

In 2018, a new statewide goal was established to achieve carbon neutrality as soon as possible, but no later than 2045, and to maintain net negative emissions thereafter. CARB and other relevant state agencies are tasked with establishing sequestration targets and create policies/programs that would meet this goal.

Senate Bill 375 – California's Regional Transportation and Land Use Planning Efforts (2008)

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB’s ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be

achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retail sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2017 the target would be 52 percent, and by December 31, 2030 the target would be 60 percent. By December 31, 2045, all California utilities would be required to supply retail electricity that is 100 percent carbon-free and sourced from eligible renewable energy resource to all California end-use customers.

California Building Standards Code – Title 24 Part 11 & Part 6

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.³¹ The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1, 2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic

³¹ See: <https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.>

systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.³²

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO₂e).³³ These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.³⁴ In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.³⁵ The Bay Area GHG emissions were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

Climate Smart San José

Climate Smart San José is a plan to reduce air pollution, save water, and create a stronger and healthier community. The City approved goals and milestones in February 2018 to ensure the City can substantially reduce GHG emissions through reaching the following goals and milestones:

- All new residential buildings will be Zero Net Carbon Emissions (ZNE) by 2020 and all new commercial buildings will be ZNE by 2030 (Note that ZNE buildings would be all electric with a carbon-free electricity source).
- San Jose Clean Energy (SJCE) will provide 100-percent carbon-free base power by 2021.
- One gigawatt of solar power will be installed in San Jose by 2040.
- 61 percent of passenger vehicles will be powered by electricity by 2030.

The California Energy Commission (CEC) updates the California Building Energy Efficiency Standards every three years, in alignment with the California Code of regulations. Title 24 Parts 6 and 11 of the California Building Energy Efficiency Standards and the California Green Building Standards Code (CALGreen) address the need for regulations to improve energy efficiency and combat climate change. The 2019 CAL Green standards include substantial changes intended to increase the energy efficiency of buildings. For example, the code encourages the installation of solar and heat pump water heaters in low-rise residential buildings. The 2019 California Code went before City Council in October 2019 for approval, with an effective date of January 1, 2020. As part of this action, the City adopted a “reach code” that requires development projects to exceed

³² See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

³³ United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: <https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf>

³⁴ CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

³⁵ BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.

the minimum Building Energy Efficiency requirements.³⁶ The City’s reach code applies only to new residential and non-residential construction in San José. It incentivizes all-electric construction, requires increased energy efficiency and electrification-readiness for those choosing to maintain the presence of natural gas. The code requires that non-residential construction include solar readiness. It also requires additional EV charging readiness and/or electric vehicle service equipment (EVSE) installation for all development types.

City of San Jose Greenhouse Gas Reduction Strategy

The Greenhouse Gas Reduction Strategy (GHGRS) was a document prepared by the City of San José to help the City to quantify, reduce, and manage their GHG emissions.³⁷ The GHGRS was prepared alongside the *Envision San José 2040 General Plan Update* to ensure that the General Plan aligned with AB32. The City uses the following ‘Plan-level’ GHG significance threshold to reduce GHG emissions to meet the 2020 goal of AB32: 6.6 metric tons of CO₂ equivalent per service population per year (MT CO_{2e} / SP / year). Service population is defined as the number of residents plus the number of people working within San José. The City has also estimated an efficiency threshold of 3.04 MT CO_{2e} /SP for 2035. However, since this project would be operational post-2020, the 2020 efficiency threshold is not appropriate. This analysis uses an efficiency threshold for projects operational post-2020 that is more aggressive than the 2035 efficiency threshold proposed by the City of San José. Additionally, the GHGRS has several measures that would be implemented, monitored, and enforced by the City. These policies and measures are listed as attachments in the GHGRS. New development projects are subject to the greenhouse gas policies listed in Attachment B and D of the GHGRS.

BAAQMD GHG Significance Thresholds

The BAAQMD’s CEQA Air Quality Guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate.

Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a “Substantial Progress” efficiency metric of 2.6 MT CO_{2e}/year/service population and a bright-line threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.6 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.³⁸ The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold.

³⁶ City of San Jose Transportation and Environmental Committee, *Building Reach Code for New Construction Memorandum*, August 2019.

³⁷ City of San José, 2011. *Greenhouse Gas Reduction Strategy for the City of San José*. June (updated December 2015). <http://www.sanjoseca.gov/documentcenter/view/9388>

³⁸ Association of Environmental Professionals, 2016. *Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*. April.

Impact-GHG 1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above within the operational period emissions. CalEEMod output is included in *Attachment 2*.

Service Population Emissions

The project service population efficiency rate is based on the number of future residents and future employees. Based on provided project information, the number of future residents is anticipated to be 168 senior residents and there would be 60 full-time employees. The total future population at the project site would be 228 residents and employees.

Construction Emissions

GHG emissions associated with construction were computed to be 421 MT of CO₂e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully developed site under the proposed project. The effects from project-specific sustainability measures were not included in this analysis.

To be considered an exceedance, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold in the future year of 2030. As shown in Table 9, net annual emissions from the proposed project are predicted to be 287 MT of CO₂e in 2030. The service population emissions for 2030 are predicted to be 1.7 MT/CO₂e/year/service population, respectively. Both the net metric ton emissions and service

population emissions are under the thresholds. Therefore, the project would not be in exceedance for GHG emissions.

Table 9. Annual Project GHG Emissions (CO₂e) in Metric Tons and by Service Population

Source Category	Existing Land Use in 2023	Proposed Project in 2023	Existing Land Use in 2030	Proposed Project in 2030
Area	2	9	2	9
Energy Consumption	44	78	44	78
Mobile	68	253	59	220
Solid Waste Generation	5	77	5	77
Water Usage	2	15	2	15
Metric Ton Total	121	432	112	399
Net Metric Tons		311		287
<i>Bright-Line Significance Threshold</i>		-		660 MT of CO ₂ e
Service Population Emissions		1.9		1.7
<i>Service Population Significance Threshold</i>		-		2.6 MT of CO ₂ e/year/service population
Exceed Both Thresholds?				No

Impact GHG 2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB’s Scoping Plan. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures and water-efficient irrigation systems.

Additionally, the project would implement and comply with the greenhouse gas reduction policies found in the *Envisions San José 2040 General Plan Policy*, which are also found in GHGRS as Attachment B. The project is also subject to the GHG reduction strategies listed in the *Greenhouse Gas Reduction Strategy Implementation Tracking* (Attachment D) tool in the GHGRS. The project would implement and comply with all relevant GHG reduction measures as determined by the City.

Supporting Documentation

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

Attachment 2 includes the CalEEMod output for project construction and operational criteria air pollutant and GHG emissions. The operational output for existing uses and the year 2030 is also included in this attachment. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2017 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

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

Attachment 5 includes the screening community risk calculations from sources affecting the MEI. Due to the large size of the BAAQMD health risk calculators, these files were not included but are available upon request and would be provided in digital format.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminants (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.³⁹ These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.⁴⁰ This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.⁴¹ Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

³⁹ 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.

⁴⁰ CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

⁴¹ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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

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

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

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

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)

FAH = Fraction of time spent at home (unitless)

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

Where:

C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁻⁶ = Conversion factor

* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures.

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

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

Non-Cancer Hazards

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

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

Annual PM_{2.5} Concentrations

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

Attachment 2: CalEEMod Modeling Inputs and Outputs

Attachment 3: EMFAC2017 Emissions and CARB SAFE Off-Model Adjustment Factors

Attachment 4: Project Construction and Operation Dispersion Modeling Inputs and Risk Calculations

Project Construction Emissions and Health Risk Calculations

Gifford Assisted Living, San Jose, CA

DPM Construction Emissions and Modeling Emission Rates

Construction		DPM (ton/year)	Source Type	No. Sources	DPM Emissions			Emissions per Point Source
Year	Activity				(lb/yr)	(lb/hr)	(g/s)	(g/s)
2021	Construction	0.0292	Point	96	58.5	0.01780	2.24E-03	2.34E-05
2022	Construction	0.0581	Point	96	116.2	0.03536	4.46E-03	4.64E-05
Total		0.0873			174.6	0.0532	0.0067	

Notes:

Emissions assumed to be evenly distributed over each construction areas

hr/day = 9 (7am - 4pm)
 days/yr = 365
 hours/year = 3285

Gifford Assisted Living, San Jose, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction		Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions			Modeled Area	DPM Emission Rate
Year	Activity			(lb/yr)	(lb/hr)	(g/s)	(m ²)	g/s/m ²
2021	Construction	CON_FUG	0.0859	171.9	0.05232	6.59E-03	3605.581	1.83E-06
2022	Construction	CON_FUG	0.0015	3.0	0.00091	1.14E-04	3605.581	3.17E-08
Total			0.0874	174.9	0.0532	0.0067		

Notes:

Emissions assumed to be evenly distributed over each construction areas

hr/day = 9 (7am - 4pm)
 days/yr = 365
 hours/year = 3285

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions			Emissions per Point Source
					(lb/yr)	(lb/hr)	(g/s)	(g/s)
2021	Construction	0.0018	Point	96	3.6	0.00109	1.37E-04	1.43E-06
2022	Construction	0.0059	Point	96	11.7	0.00357	4.50E-04	4.69E-06
Total		0.0077			15.3	0.0047	0.0006	

Emissions assumed to be evenly distributed over each construction areas

hr/day = 9 (7am - 4pm)
 days/yr = 365
 hours/year = 3285

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

Construction Year	Activity	Area Source	PM2.5 Emissions				Modeled Area (m ²)	DPM Emission Rate
			(ton/year)	(lb/yr)	(lb/hr)	(g/s)		g/s/m ²
2021	Construction	CON_FUG	0.0196	39.3	0.01196	1.51E-03	3605.581	4.18E-07
2022	Construction	CON_FUG	0.0015	3.0	0.00091	1.14E-04	3605.581	3.17E-08
Total			0.0211	42.3	0.0129	0.0016		

Emissions assumed to be evenly distributed over each construction areas

hr/day = 9 (7am - 4pm)
 days/yr = 365
 hours/year = 3285

Gifford Assisted Living, San Jose, CA - Construction Health Impact Summary

Maximum Impacts at MEI Location - Unmitigated

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m ³)
	Exhaust PM10/DPM (µg/m ³)	Fugitive PM2.5 (µg/m ³)	Infant/Child	Adult		
	2021	0.067			0.68458	11.9
2022	0.13307	0.01186	21.9	0.4	0.03	0.14
Total	-	-	33.8	0.6	-	-
Maximum	0.1331	0.6846	-	-	0.03	0.75

Maximum Impacts at MEI Location - With Mitigation

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m ³)
	Exhaust PM10/DPM (µg/m ³)	Fugitive PM2.5 (µg/m ³)	Infant/Child	Adult		
	2021	0.0041			0.15637	0.7
2022	0.01344	0.01186	2.2	0.04	0.003	0.03
Total	-	-	2.9	0.05	-	-
Maximum	0.0134	0.1564	-	-	0.003	0.16

- Tier 4 Interim Mitigation

**Gifford Assisted Living, San Jose, 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-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 (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information		Adult Cancer Risk (per million)	
			DPM Conc (ug/m3)				Modeled			Age Sensitivity Factor
			Year	Annual			Year	Annual		
0	0.25	-0.25 - 0*	2021	0.0670	10	0.91	2021	0.0670	-	
1	1	0 - 1	2021	0.0670	10	11.00	2021	0.0670	1	
2	1	1 - 2	2022	0.1331	10	21.86	2022	0.1331	1	
3	1	2 - 3		0.0000	3	0.00		0.0000	1	
4	1	3 - 4		0.0000	3	0.00		0.0000	1	
5	1	4 - 5		0.0000	3	0.00		0.0000	1	
6	1	5 - 6		0.0000	3	0.00		0.0000	1	
7	1	6 - 7		0.0000	3	0.00		0.0000	1	
8	1	7 - 8		0.0000	3	0.00		0.0000	1	
9	1	8 - 9		0.0000	3	0.00		0.0000	1	
10	1	9 - 10		0.0000	3	0.00		0.0000	1	
11	1	10 - 11		0.0000	3	0.00		0.0000	1	
12	1	11 - 12		0.0000	3	0.00		0.0000	1	
13	1	12 - 13		0.0000	3	0.00		0.0000	1	
14	1	13 - 14		0.0000	3	0.00		0.0000	1	
15	1	14 - 15		0.0000	3	0.00		0.0000	1	
16	1	15 - 16		0.0000	3	0.00		0.0000	1	
17	1	16-17		0.0000	1	0.00		0.0000	1	
18	1	17-18		0.0000	1	0.00		0.0000	1	
19	1	18-19		0.0000	1	0.00		0.0000	1	
20	1	19-20		0.0000	1	0.00		0.0000	1	
21	1	20-21		0.0000	1	0.00		0.0000	1	
22	1	21-22		0.0000	1	0.00		0.0000	1	
23	1	22-23		0.0000	1	0.00		0.0000	1	
24	1	23-24		0.0000	1	0.00		0.0000	1	
25	1	24-25		0.0000	1	0.00		0.0000	1	
26	1	25-26		0.0000	1	0.00		0.0000	1	
27	1	26-27		0.0000	1	0.00		0.0000	1	
28	1	27-28		0.0000	1	0.00		0.0000	1	
29	1	28-29		0.0000	1	0.00		0.0000	1	
30	1	29-30		0.0000	1	0.00		0.0000	1	
Total Increased Cancer Risk						33.8			0.57	

* Third trimester of pregnancy

Hazard Index	Maximum	
	Fugitive PM2.5	Total PM2.5
0.013	0.6846	0.7516
0.027	0.0119	0.1449

**Gifford Assisted Living, San Jose, 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-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 (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)
			DPM Conc (ug/m3)				Modeled		Age Sensitivity Factor	
			Year	Annual			Year	Annual		
0	0.25	-0.25 - 0*	2021	0.0317	10	0.43	2021	0.0317	-	-
1	1	0 - 1	2021	0.0317	10	5.20	2021	0.0317	1	0.09
2	1	1 - 2	2022	0.0629	10	10.34	2022	0.0629	1	0.18
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						16.0				0.27

* Third trimester of pregnancy

Hazard Index	Maximum	
	Fugitive PM2.5	Total PM2.5
0.006	0.2600	0.2916
0.013	0.0045	0.0673

**Gifford Assisted Living, San Jose, 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-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 (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)
			DPM Conc (ug/m3)				Modeled		Age Sensitivity Factor	
			Year	Annual			Year	Annual		
0	0.25	-0.25 - 0*	2021	0.0041	10	0.06	2021	0.0041	-	-
1	1	0 - 1	2021	0.0041	10	0.67	2021	0.0041	1	0.01
2	1	1 - 2	2022	0.0134	10	2.21	2022	0.0134	1	0.04
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						2.9				0.05

* Third trimester of pregnancy

Hazard Index	Maximum	
	Fugitive PM2.5	Total PM2.5
0.001	0.1564	0.1605
0.003	0.0119	0.0253

Project Emergency Generator Emissions and Health Risk Calculations

Gifford Assisted Livings, San Jose, CA

Standby Emergency Generator Impacts

Off-site Sensitive Receptors

Receptor height = 1.5 meter Construction MEI

DPM Emission Rates		
Source Type	DPM Emissions per Generator	
	Max Daily (lb/day)	Annual (lb/year)
300-kW, 402-hp Generator	0.013	4.86
CalEEMod DPM Emissions	0.00243	tons/year

Modeling Information		
Model	AERMOD	
Source	Diesel Generator Engine	
Source Type	Point	
Meteorological Data	2013-2017 San Jose Airport Meteorological Data	
Point Source Stack Parameters		
Generator Engine Size (hp)	402	
Stack Height (ft)	12.00	near ground level release
Stack Diameter (ft)**	0.60	
Exhaust Gas Flowrate (CFM)*	2527.73	
Stack Exit Velocity (ft/sec)**	149.00	
Exhaust Temperature (°F)**	872.00	
Emissions Rate (lb/hr)	0.000555	

* AERMOD default

**BAAQMD default generator parameters

**Gifford Assisted Living, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator**

Impacts at Off-Site Receptors- 1.5m Construction MEI Receptor Heights

Impact at Project MEI (28-year Exposure)

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-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 (µg/m³)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10⁻⁶ = Conversion factor

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5	
			DPM Conc (ug/m3)							
			Year	Annual						
0	0.25	-0.25 - 0*	2021	0.0000	10	0.00				
1	1	0 - 1	2021	0.0000	10	0.00				
2	1	1 - 2	2022	0.0000	10	0.00				
3	1	2 - 3	2023	0.0016	3	0.04	0.0003	0.0016	0.0032	
4	1	3 - 4	2024	0.0016	3	0.04	0.0003	0.0016	0.0032	
5	1	4 - 5	2025	0.0016	3	0.04	0.0003	0.0016	0.0032	
6	1	5 - 6	2026	0.0016	3	0.04	0.0003	0.0016	0.0032	
7	1	6 - 7	2027	0.0016	3	0.04	0.0003	0.0016	0.0032	
8	1	7 - 8	2028	0.0016	3	0.04	0.0003	0.0016	0.0032	
9	1	8 - 9	2029	0.0016	3	0.04	0.0003	0.0016	0.0032	
10	1	9 - 10	2030	0.0016	3	0.04	0.0003	0.0016	0.0032	
11	1	10 - 11	2031	0.0016	3	0.04	0.0003	0.0016	0.0032	
12	1	11 - 12	2032	0.0016	3	0.04	0.0003	0.0016	0.0032	
13	1	12 - 13	2033	0.0016	3	0.04	0.0003	0.0016	0.0032	
14	1	13 - 14	2034	0.0016	3	0.04	0.0003	0.0016	0.0032	
15	1	14 - 15	2035	0.0016	3	0.04	0.0003	0.0016	0.0032	
16	1	15 - 16	2036	0.0016	3	0.04	0.0003	0.0016	0.0032	
17	1	16-17	2037	0.0016	1	0.00	0.0003	0.0016	0.0032	
18	1	17-18	2038	0.0016	1	0.00	0.0003	0.0016	0.0032	
19	1	18-19	2039	0.0016	1	0.00	0.0003	0.0016	0.0032	
20	1	19-20	2040	0.0016	1	0.00	0.0003	0.0016	0.0032	
21	1	20-21	2041	0.0016	1	0.00	0.0003	0.0016	0.0032	
22	1	21-22	2042	0.0016	1	0.00	0.0003	0.0016	0.0032	
23	1	22-23	2043	0.0016	1	0.00	0.0003	0.0016	0.0032	
24	1	23-24	2044	0.0016	1	0.00	0.0003	0.0016	0.0032	
25	1	24-25	2045	0.0016	1	0.00	0.0003	0.0016	0.0032	
26	1	25-26	2046	0.0016	1	0.00	0.0003	0.0016	0.0032	
27	1	26-27	2047	0.0016	1	0.00	0.0003	0.0016	0.0032	
28	1	27-28	2048	0.0016	1	0.00	0.0003	0.0016	0.0032	
29	1	28-29	2049	0.0016	1	0.00	0.0003	0.0016	0.0032	
30	1	29-30	2050	0.0016	1	0.00	0.0003	0.0016	0.0032	
Total Increased Cancer Risk						0.7	Max	0.0003	0.002	0.003

* Third trimester of pregnancy

Attachment 5: Cumulative Community Risk Screening and Calculations

S.R. 87 Screening Risks



I-280 Screening Risks

