APPENDIX A
NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND COMMENTS RECEIVED

San Francisco Planning

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PUBLIC NOTICE

NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT AND NOTICE OF A PUBLIC SCOPING MEETING

Date:	March 9, 2022
Case No.:	2015.012491ENV
Project Title:	San Francisco Gateway Project
Project Address:	749 Toland Street and 2000 McKinnon Avenue
Zoning:	PDR-2 – Core Production, Distribution, and Repair Industrial Protection Zone Special Use District 65-J Height and Bulk District
Block/Lot:	5284A/008 and 5287/002
Lot Size:	743,800 square feet
Project Sponsor:	Ken Sun, Prologis Inc. – (510) 661-4027 ksun@prologis.com
Lead Agency:	San Francisco Planning Department
Staff Contact:	Elizabeth White – (628) 652-7557 elizabeth.white@sfgov.org

Introduction

The San Francisco Planning Department (department) prepared this notice of preparation of an environmental impact report (EIR) in connection with the proposed San Francisco Gateway project (749 Toland Street and 2000 McKinnon Avenue) (proposed project). The purpose of the EIR is to provide information regarding the physical environmental effects of the proposed project; identify possible ways to minimize any potentially significant adverse effects; and describe and analyze possible alternatives to the proposed project. The department is issuing this notice to inform the public and responsible and interested agencies about the proposed project and the intent to prepare an EIR, and to provide notice of a public scoping meeting to solicit comments on the scope of the EIR. The department will hold the public scoping meeting on Wednesday, March 30, 2022 at 6 p.m., using an online platform. You may view this notice and register to join the meeting via the online platform link found on the department's webpage, sfplanning.org/sfceqadocs (under "SF Gateway Project); or by phone, using the following phone number and meeting identification number: (408) 638-0968; , meeting ID: 865 7991 0030.

Project Description

The project sponsor, Prologis Inc., proposes to redevelop two parcels in a core industrial area of the City and County of San Francisco (city). The proposed project would construct two new multi-story production, distribution, and repair (PDR)[1] buildings. The project site is in the Bayview Hunters Point Area Plan and is bounded by Kirkwood Avenue to the north, Rankin Street to the east, McKinnon Avenue to the south, and Toland Street to the west. An elevated portion of Interstate 280 bisects the project site. The attached initial study contains a comprehensive project description, including figures, and a preliminary list of required project approvals.

The project sponsor would demolish the four existing single-story buildings that are currently occupied by PDR space, which encompass 448,000 gross square feet.[2] This would be followed by construction of two three-story buildings (with active roofs): buildings A and B. Each building would be 97 feet tall and would have a maximum height of 115 feet, including rooftop appurtenances. The two new buildings (including PDR space, logistics yard, vehicular circulation systems, and ground-floor retail spaces) would total 2,160,000 gross square feet. The proposed project would provide space for several main types of PDR uses: manufacturing and maker space,[3] parcel delivery service including last-mile delivery,[4] wholesale and storage, and fleet management. Each building would include a combination of enclosed and partially enclosed spaces, with a multi-level vehicular system (comprising staging, circulation, and logistics yard areas) serving each level. In both buildings, all three levels of the PDR space would have direct vehicular access via a one-way ramp system for vehicles as large as tractor trailers. The roof level would provide a solar array and a screened, open-air multi-purpose deck that could be used for parking and/or material and vehicle staging. Each building would include 35,000 gross square feet of ground-floor maker space and 8,400 gross square feet of ground-floor retail space.

Proposed Circulation, Access, and Travel Demand Management

Vehicular access to and circulation around the project site would use the existing streets, with two exceptions. The project proposes to convert Kirkwood Avenue (along the northern side of the project site, between Toland and Rankin streets) to a single-lane, eastbound one-way street; and convert a portion of McKinnon Avenue (along the southern side of the project site, between Toland and Selby streets) to a single-lane, westbound one-way street. Both of these streets currently serve travel in both directions. These proposed circulation modifications are shown in Figure 17, Proposed Roadway Modifications Surrounding the Project Site (p. 30) of the attached initial study.

The project site does not currently have sidewalks or curb cuts. The proposed project would construct new 10-foot-wide sidewalks along the site's perimeter (including Selby Street) and would create seven new curb cuts of varying widths for access to each new building. The new sidewalks would be designed in accordance with San

[1] PDR use is a grouping of uses that includes but is not limited to all industrial and agricultural uses, ambulance services, animal hospitals, automotive service stations, automotive repair, automotive wash, arts activities, business services, cat boarding, catering services, commercial storage, kennels, motor vehicle tow services, livery stables, parcel delivery services, public utilities yards, storage yards, trade offices, trade shops, wholesale sales, and wholesale storage.

[2] Square footages presented for the existing and proposed uses are approximate.

[3] This is defined as a light industrial use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers, wholesalers, or the public. Makers are often characterized by their production and custom activities, which usually involve individual or special design, handiwork, and/or design-related innovation and experimentation.

[4] Last-mile delivery is defined as the movement of goods from a transportation hub to the final delivery destination (i.e., typically a personal residence or business).

Francisco's Better Streets Plan standards for industrial roads. Other streetscape modifications include new striped parking spaces along the perimeter of the project site; a portion of the required bicycle parking spaces (most of the required spaces would be provided on the ground floor of the buildings); and street trees. The proposed nine street trees on the eastern sidewalk of Toland Street along the northern half of the building (from the building A entrance to Kirkwood Street) would serve as wind mitigation measures; they would be approximately 25-foot-tall evergreen street trees with a 15-foot-diameter canopy.[5] Refer to Figure 19, Proposed Streetscape Plan (p. 34) of the attached initial study for more detailed information on the proposed streetscape modifications.

The proposed project's foundation design is expected to be concrete spread footings and/or grade beams on improved and engineered soil, with excavation for the foundations likely to extend 10 feet below existing grade. Ground improvements, such as stone columns, drill displacement columns, geopiers,[6] soil-cement mixing, or other similar methods, would provide vertical support through the existing soils to strengthen the undocumented fill that underlies the project site. Using drill rigs, approximately 7,000 vibratory replacement stone columns or drill displacement columns[7] would be extended 25 feet deep, and approximately 900 auger cast piles would be extended 60 feet deep, to support the buildings onsite. The proposed project would not require pile-driving activities. Approximately 140,600 cubic yards of soil would be excavated for the proposed project.[8] Of this total, approximately 42,600 cubic yards would be improved and reused, and the remaining 98,000 cubic yards would be exported offsite.

On June 7, 2021, the project sponsor submitted a priority processing application under Planning Director's Bulletin No. 2, committing the project to use the lowest diesel emitting off-road equipment (Tier 4 interim or final) for the duration of construction.[9,10] On June 15, 2021, the department approved this application.[11] Construction work would typically occur five to six workdays per week for eight hours per day over approximately 31 months. Nighttime construction activities (8 p.m. to 7 a.m.) are expected during specific construction phases; the project sponsor would seek city approval to extend specific construction activities beyond standard construction hours. The total number of temporary/short-term workers during construction is anticipated to range from approximately 2,500 to 3,000. Approximately 400 to 500 workers are expected to travel to the site daily at any given time during peak construction periods.

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[5] BMT, San Francisco Gateway Project Final Wind Microclimate Study, June 23, 2020.

[6] Geopier is an engineering term used to refer to stiff rock columns drilled deep into the earth's surface, down to a hard nonyielding depth. Geopiers are used to support a building foundation and reinforce the soil when the existing ground is unstable, wet or unsuitable for building construction.

[7] Drill displacement columns (or controlled low-strength material columns) are formed in displaced soil cavities and displace liquefiable and compressible soil with cemented controlled low-strength material. Controlled low-strength material column ground improvement can mitigate liquefaction and settlement of heavy foundations and slabs. Controlled low-strength material columns are ideal for sensitive project sites such as those near critical structures that require low noise and no vibration construction methods.

[8] The proposed project would entail excavation of 140,600 cubic yards of soil. This total includes 134,000 cubic yards of soil onsite and 6,600 cubic yards of soil for street improvements.

[9] Prologis, *Application for Priority Application Processing for Director's Bulletin No. 2,* June 7, 2021.

[10] Prologis, *Priority Application Processing for Clean Construction Projects, Supplemental Application for Type 3 Priority Projects for Director's Bulletin No. 2,* June 7, 2021.

[11] San Francisco Planning Department, *Signed Application for Priority Application Processing for Director's Bulletin No. 2,* June 15, 2021.

Expanded Streetscape Variant

The environmental review also analyzes an expanded streetscape variant. The expanded streetscape variant comprises the same land uses and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Refer to Figure 21, Expanded Streetscape Variant (p. 39) in the attached initial study project description for more detailed information on the expanded streetscape variant.

Summary of Potential Environmental Issues

The department has prepared an initial study to evaluate the physical environmental effects of the proposed project and expanded streetscape variant. The initial study assessed project-specific and cumulative impacts for all topics required under the California Environmental Quality Act (CEQA); it also identified which environmental topic areas may be significantly impacted by the proposed project and expanded streetscape variant.

The initial study determined that the potential individual and cumulative environmental effects would be less than significant for the following topics: land use and land use planning; population and housing; greenhouse gas emissions; shadow; recreation; utilities and service systems; public services; biological resources; hydrology and water quality; hazards and hazardous materials; mineral resources; energy resources; agriculture and forestry resources; and wildfire. The initial study determined that the proposed project and expanded streetscape variant would result in significant impacts that could be reduced to less-than-significant levels with incorporation of mitigation measures that have been agreed to by the project sponsor for the following topics: cultural resources; tribal cultural resources; wind; and geology and soils.

In addition, the project and expanded streetscape variant meet all requirements of a transit-oriented infill development project under Public Resources Code section 21099[12] (Senate Bill 743); therefore, aesthetics and parking were not considered in determining whether the project or variant have the potential to result in significant environmental effects.

The initial study determined that the proposed project and expanded streetscape variant could result in potentially significant environmental impacts related to transportation and circulation; air quality; and noise. These topics will be discussed in an EIR, as discussed below. The EIR will also address other topics required by CEQA, including growth-inducing impacts; mitigation measures; significant unavoidable impacts; significant irreversible impacts; any known controversy associated with environmental effects, or alternatives; and issues to be resolved by the decision makers.

Transportation and Circulation

The proposed project and expanded streetscape variant would generate new vehicle trips, resulting in additional vehicle miles traveled (VMT) to and from the project site. A transportation analysis will be prepared to evaluate person trips generated by the proposed project and expanded streetscape variant's operation and the associated mode split of these person trips (e.g., vehicle or transit); freight and passenger loading operations; site circulation; VMT impacts; transit service and capacity; code compliance; loading; hazards due to a project design feature, including to pedestrians and bicyclists; construction impacts; and emergency access. The

[12] *San Francisco Planning Department, Eligibility Checklist: CEQA Section 21099 – Modernization of Transportation Analysis, San Francisco Gateway Project, December 19, 2018.*

transportation and circulation issues will be analyzed in accordance with the department's Transportation Impact Analysis Guidelines (2019).

Air Quality

The air quality analysis will evaluate the consistency of the proposed project and expanded streetscape variant with applicable air quality plans; and the potential for the proposed project and variant to result in emissions of criteria air pollutants and other toxic air contaminants that may affect sensitive receptors, such as residents. The air quality analysis will include quantification of both construction-related and operational criteria air pollutant emissions. A health risk assessment will be prepared to evaluate potential long-term health effects from emissions during both construction and operation. The analysis will also discuss the potential for the proposed project and expanded streetscape variant to result in sources of odor.

Noise

The noise analysis will evaluate short-term construction-related and long-term operation-related noise and vibration impacts that could result from the proposed project and expanded streetscape variant. The analysis will investigate the potential for noise sources from the proposed project to adversely affect nearby noise-sensitive receptors. This includes both stationary (e.g., heating, ventilation, and air conditioning and other mechanical systems) and mobile (e.g., delivery trucks arriving or departing from the project site) noise sources.

Alternatives

Pursuant to CEQA and section 15126.6 of the state CEQA Guidelines, the EIR will also analyze a reasonable range of alternatives that would reduce or avoid one or more significant environmental impacts identified in the EIR, and will include an analysis of the comparative environmental impacts of feasible alternatives to the proposed project and variant. Alternatives will include a No Project Alternative, which will assume no change to the existing physical conditions on the project site, and one or more alternatives to address other significant effects of the proposed project that are identified in the EIR.

Finding

The proposed project or variant may have a significant effect on the environment; therefore, an EIR is required. This finding is based on the criteria of the state CEQA Guidelines , sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and the reasons documented in the initial study for the project, which is attached. The purpose of the EIR is to provide information about potentially significant physical environmental impacts of the proposed project, identify possible ways to minimize the potentially significant impacts, and describe and analyze possible alternatives to the proposed project. Publication of a notice of preparation, initial study, or EIR does not indicate a decision by the city to approve or disapprove a proposed project or variant. However, before making any such decision, the decision makers must review and consider the information contained in the EIR.

Public Scoping Meeting

Pursuant to CEQA section 21083.9 and CEQA Guidelines section 15206, the department will hold a public scoping meeting to receive verbal comments concerning the scope of the EIR. You may participate in the public process concerning the project's environmental effects by attending a video and teleconference on Wednesday, March 30, 2022, 6 p.m.. You may register for the meeting via the online platform link the department's webpage,

sfplanning.org/sfceqadocs (under "SF Gateway Project"); or by phone, using the following phone number and meeting identification number: (408) 638-0968; meeting ID: 865 7991 0030. To request assistance in additional languages, please contact candace.soohoo@sfgov.org or call (628) 652-7550; call at least 72 hours in advance of the meeting to ensure availability. Written comments will also be accepted at this meeting and until 5 p.m. on April 8, 2022. Written comments should be sent to Elizabeth White, San Francisco Planning Department, 49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103, or emailed to CPC.SFGatewayProject@sfgov.org.

The notice of preparation and initial study are available at sfplanning.org/sfceqadocs.[13] If you have questions or comments concerning this notice or the project's environmental review, or would like to request a USB or paper copy of the notice of preparation, contact Elizabeth White at CPC.SFGatewayProject@sfgov.org or (628) 652-7557.

If you work for a responsible or trustee agency, we need to know your agency's views regarding the scope and content of the environmental information that is relevant to your agency's statutory responsibilities in connection with the proposed project; your agency may need to use the EIR when considering a permit or other approval for this project. We will also need the name of the contact person for your agency.

Members of the public are not required to provide personal identifying information when they communicate with the planning commission or the department. All written or verbal communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the department's website or in other public documents.

Anyone receiving this notice is encouraged to pass on this information to others who may have an interest in the proposed project.

March 9, 2022
Date



Lisa Gibson
Environmental Review Officer

ATTACHMENTS

San Francisco Gateway Project (749 Toland Street and 2000 McKinnon Avenue) Initial Study

[13] These documents (and all documents cited in this initial study, unless otherwise noted) are also available for review on the San Francisco Property Information Map, which can be accessed at http://sfplanninggis.org/PIM/?. Individual files can be viewed by entering the project address (749 Toland Street), clicking on the "Planning Applications" link, clicking on the "More Details" link under the project's environmental case number (2015-012491ENV), and clicking on the "Related Documents" link.

From:	CPC.SFGatewayProject
To:	CPC.SFGatewayProject; "Bradley Angel"
Cc:	"ealom kamillah"; "Renay Jenkins"; "Harrison Arieann"; Range, Jessica (CPC)
Subject:	RE: Request for Planning Dept. to present about SF Gateway Project at April 20th 2-pm Bayview Hunters Point Environmental Justice Response Task Force
Date:	Thursday, April 07, 2022 4:46:58 PM

Hello again,

Members from the SF Gateway project sponsor team are available to attend this meeting on April 20 at 2pm if the Task Force is interested. If so, would you please let me know and I will coordinate with them on their attendance.

Thank you!
Liz

Elizabeth White, Senior Environmental Planner
Environmental Planning Division
San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103
Direct: 628.652.7557 | www.sfplanning.org
San Francisco Property Information Map

-----Original Message-----
From: CPC.SFGatewayProject
Sent: Tuesday, April 05, 2022 5:03 PM
To: Bradley Angel <bradley@greenaction.org>; CPC.SFGatewayProject <CPC.SFGatewayProject@sfgov.org>; White, Elizabeth (CPC) <Elizabeth.White@sfgov.org>
Cc: ealom kamillah <kamillah@greenaction.org>; Renay Jenkins <renay_jenkins@yahoo.com>; Harrison Arieann <a.harrison@tuchs.org>; Range, Jessica (CPC) <jessica.range@sfgov.org>
Subject: RE: Request for Planning Dept. to present about SF Gateway Project at April 20th 2-pm Bayview Hunters Point Environmental Justice Response Task Force

Hi Mr. Angel,

Yes, I will be able to attend the April 20 meeting to present our scoping meeting video presentation and answer questions about the environmental review process. Please send me the meeting invitation when you get a chance.

Thank you,
Liz

Elizabeth White, Senior Environmental Planner Environmental Planning Division San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103
Direct: 628.652.7557 | www.sfplanning.org San Francisco Property Information Map

-----Original Message-----
From: Bradley Angel <bradley@greenaction.org>
Sent: Tuesday, April 05, 2022 2:07 PM
To: CPC.SFGatewayProject <CPC.SFGatewayProject@sfgov.org>
Cc: ealom kamillah <kamillah@greenaction.org>; Renay Jenkins <renay_jenkins@yahoo.com>; Harrison Arieann <a.harrison@tuchs.org>
Subject: Request for Planning Dept. to present about SF Gateway Project at April 20th 2-pm Bayview Hunters Point Environmental Justice Response Task Force

This message is from outside the City email system. Do not open links or attachments from untrusted sources.

Hello,

I am writing on behalf of the Bayview Hunters Point Environmental Justice Response Task Force to request the Planning Department make a presentation at the upcoming monthly meeting, Wednesday, April 20th, 2-4 pm about the proposed SF Gateway Project.

Many residents including numerous Greenaction staff and members who live in the community are very concerned and would like to hear more about the proposed project and opportunties for public comment and participation.

Please let us know if this can happen, thanks,

Bradley Angel

From:	White, Elizabeth (CPC)
To:	Samuel Garcia
Cc:	Alison Kirk; CPC.SFGatewayProject; Range, Jessica (CPC)
Subject:	RE: San Francisco Gateway Project - BAAQMD Comment Letter
Date:	Thursday, April 07, 2022 7:27:43 AM
Attachments:	San Francisco Gateway Project NOP DEIR 040622.pdf image001.png

Hi Samuel,

Thank you for BAAQMD's comment letter on the SF Gateway Notice of Preparation.

Liz

Elizabeth White, Senior Environmental Planner
Environmental Planning Division
San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103
Direct: 628.652.7557 | www.sfplanning.org
San Francisco Property Information Map

From: Samuel Garcia <sgarcia@baaqmd.gov>
Sent: Wednesday, April 06, 2022 5:15 PM
To: White, Elizabeth (CPC) <elizabeth.white@sfgov.org>
Cc: Alison Kirk <AKirk@baaqmd.gov>
Subject: San Francisco Gateway Project - BAAQMD Comment Letter

This message is from outside the City email system. Do not open links or attachments from untrusted sources.

Hi Elizabeth,

I hope you're doing well. Please see the attached comment letter from the Air District regarding the San Francisco Gateway Project. If you have any questions, don't hesitate to reach out to me.

Thank you again for this work,

Samuel De Perio Garcia
Bay Area Air Quality Management District
Environmental Planner II | Planning & Climate Protection
375 Beale Street, Suite 700 | San Francisco, CA 94105
Office Phone: 415-749-5124
sgarcia@baaqmd.gov | www.baaqmd.gov



April 7, 2022

Elizabeth White
Senior Environmental Planner
San Francisco Planning
City of San Francisco
49 South Van Ness Avenue
San Francisco, California 94103
cpc.sfgatewayproject@sfgov.org

Dear Elizabeth White:

Thank you for providing the California Air Resources Board (CARB) with the opportunity to comment on the Notice of Preparation (NOP) for the San Francisco Gateway (Project) Draft Environmental Impact Report (DEIR), State Clearinghouse No. 2022030286. The Project proposes the demolition of four existing buildings totaling 448,000 square feet and the construction of two industrial buildings totaling 2,160,000 square feet. The Project site is located within the City of San Francisco (City), California, which is the lead agency for California Environmental Quality Act (CEQA) purposes.

Industrial development, such as the proposed Project, can result in high daily volumes of heavy-duty diesel truck traffic and operation of on-site equipment (e.g., forklifts and yard tractors) that emit toxic diesel emissions, and contribute to regional air pollution and global climate change.[1] The Project will expose nearby communities to elevated levels of air pollution. Residences are located south of the Project with the closest residences located approximately 640 feet from the Project's southwestern boundary. In addition to residences, the Thurgood Marshall Academic High School, Willie L. Brown Jr. Middle School, and Dr. Charles R. Drew Elementary School are located within a mile of the Project. According to the California Communities Environmental Health Screening Tool Version 4.0 (CalEnviroScreen),[2] these communities are located in census tracts that score within the top 13 percent of State's most impacted from air pollution from an environmental hazard and socioeconomic standpoint. Based on this CalEnviroScreen score, the area surrounding the Project is home to some of the most vulnerable neighborhoods in the State. Due to the Project's proximity to residences and schools already burdened by multiple sources of air pollution, CARB is concerned with the potential cumulative health impacts associated with the construction and operation of the Project.

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1. With regard to greenhouse gas emissions from this project, CARB has been clear that local governments and project proponents have a responsibility to properly mitigate these impacts. CARB's guidance, set out in detail in the Scoping Plan issued in 2017, makes clear that in CARB's expert view, local mitigation is critical to achieving climate goals and reducing greenhouse gases below levels of significance.
2. "CalEnviroScreen 4.0." Oehha.ca.gov, California Office of Environmental Health Hazard Assessment, October 2021, *https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40*

Due to the Project's proximity to residences and schools, CARB is concerned with the potential cumulative health impacts associated with the construction and operation of the Project. CARB has reviewed the NOP and is concerned about the air pollution and health risk impacts that would result from the proposed Project.

The DEIR Should Quantify and Discuss the Potential Cancer Risks from Project Operation

Since the Project is near residences and a school, the City and applicant must prepare a health risk assessment (HRA) for the Project. The HRA should account for all potential operational health risks from Project-related diesel PM emission sources, including, but not limited to, back-up generators, on-site diesel-powered equipment, and heavy-duty trucks. The HRA should also determine if the operation of the Project in conjunction with past, present, and reasonably foreseeable future projects or activities would result in a cumulative cancer risk impact on nearby residences. To reduce diesel PM exposure and associated cancer risks, the City and applicant should include all applicable air pollution reduction measures listed in Attachment A of this letter.

Since the Project description provided in the NOP does not explicitly state that the proposed industrial land would not be used for cold storage, there is a possibility that trucks and trailers visiting the Project-site would be equipped with Transport Refrigeration Units (TRUs.)[3] TRUs on trucks and trailers can emit large quantities of diesel exhaust while operating within the Project-site. Residences and other sensitive receptors (e.g., daycare facilities, senior care facilities, and schools) located near where these TRUs could be operating would be exposed to diesel exhaust emissions that would result in a significant cancer risk impact to the nearby community. If the Project would be used for cold storage, the City must model air pollutant emissions from on-site TRUs in the DEIR, as well as include potential cancer risks from on-site TRUs in the Project's HRA. If the Project will not be used for cold storage, the City and applicant should include one of the following design measures in the DEIR:

- A Project design measure requiring contractual language in tenant lease agreements that prohibits tenants from operating TRUs within the Project-site; or
- A condition requiring a restrictive covenant over the parcel that prohibits the applicant's use of TRUs on the property unless the applicant seeks and receives an amendment to its conditional use permit allowing such use.

The HRA prepared in support of the Project should be based on the latest Office of Environmental Health Hazard Assessment's (OEHHA) guidance (2015 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments),[4] and CARB's Hot

3. TRUs are refrigeration systems powered by integral diesel engines that protect perishable goods during transport in an insulated truck and trailer vans, rail cars, and domestic shipping containers.
4. Office of Environmental Health Hazard Assessment (OEHHA). Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February 2015. Accessed at: *https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf*.

Spots Analysis and Reporting Program (HARP2 model). The Project's mobile diesel PM emissions used to estimate the Project's cancer risk impacts should be based on CARB's latest 2021 Emission Factors model (EMFAC2021). Mobile emission factors can be easily obtained by running the EMFAC2021 Web Database: *https://arb.ca.gov/emfac/.*

The HRA should evaluate and present the existing baseline (current conditions), future baseline (full build-out year, without the Project), and future year with the Project. The health risks modeled under both the existing and the future baselines should reflect all applicable federal, state, and local rules and regulations. By evaluating health risks using both baselines, the public and planners will have a complete understanding of the potential health impacts that would result from the Project.

The DEIR Should Quantify and Discuss the Potential Cancer Risks from Project Construction

In addition to the health risks associated with operational diesel PM emissions, health risks associated with construction diesel PM emissions should also be included in the air quality section of the DEIR and the Project's HRA. Construction of the Project would result in short-term diesel PM emissions from the use of both on-road and off-road diesel equipment. The OEHHA guidance recommends assessing cancer risks for construction projects lasting longer than two months. Since construction would very likely occur over a period lasting longer than two months, the HRA prepared for the Project should include health risks for existing residences near the Project-site during construction.

The HRA should account for all diesel PM emission sources related to Project construction, including, but not limited to, off-road mobile equipment, diesel generators, and on-road heavy-duty trucks. As previously stated in Section I of this letter, the cancer risks evaluated in the construction HRA should be based on the latest OEHHA guidance, and CARB's HARP2 model. The cancer risks reported in the HRA should be calculated using the latest emission factors obtained from CARB's latest EMFAC (currently EMFAC 2021) and off-road models.

Conclusion

To reduce the exposure of toxic diesel PM emissions in disadvantaged communities already impacted by air pollution, the final design of the Project should include all existing and emerging zero-emission technologies to minimize diesel PM and NO_x emissions, as well as the greenhouse gases that contribute to climate change. CARB encourages the City and applicant to implement the applicable measures listed in Attachment A of this letter.

Given the breadth and scope of projects subject to CEQA review throughout California that have air quality and greenhouse gas impacts, coupled with CARB's limited staff resources to substantively respond to all issues associated with a project, CARB must prioritize its substantive comments here based on staff time, resources, and its assessment of impacts. CARB's deliberate decision to substantively comment on some issues does not constitute an

admission or concession that it substantively agrees with the lead agency's findings and conclusions on any issues on which CARB does not substantively submit comments.

CARB appreciates the opportunity to comment on the NOP for the Project and can provide assistance on zero-emission technologies and emission reduction strategies, as needed. Please include CARB on your State Clearinghouse list of selected State agencies that will receive the DEIR as part of the comment period. If you have questions, please contact Stanley Armstrong, Air Pollution Specialist via email at *stanley.armstrong@arb.ca.gov*.

Sincerely,



Robert Krieger, Branch Chief, Risk Reduction Branch

Attachment

cc: State Clearinghouse
state.clearinghouse@opr.ca.gov

Yassi Kavezade, Organizer, Sierra Club
yassi.kavezade@sierraclub.org

Paul Cort, Staff Attorney, Earth Justice
pcort@earthjustice.org

Alison Kirk, Principal Environmental Planner, Bay Area Air Quality Management District
akirk@baaqmd.gov

Morgan Capilla, NEPA Reviewer, U.S. Environmental Protection Agency, Air Division, Region 9
capilla.morgan@epa.gov

Stanley Armstrong, Air Pollution Specialist, Risk Reduction Branch

Attachment A
Recommended Air Pollution Emission Reduction Measures for Warehouses and Distribution Centers

The California Air Resources Board (CARB) recommends developers and government planners use all existing and emerging zero to near-zero emission technologies during project construction and operation to minimize public exposure to air pollution. Below are some measures, currently recommended by CARB, specific to warehouse and distribution center projects. These recommendations are subject to change as new zero-emission technologies become available.

Recommended Construction Measures

1. Ensure the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electrical hookups) to support zero and near-zero equipment and tools.
2. Implement, and plan accordingly for, the necessary infrastructure to support the zero and near-zero emission technology vehicles and equipment that will be operating on site. Necessary infrastructure may include the physical (e.g., needed footprint), energy, and fueling infrastructure for construction equipment, on-site vehicles and equipment, and medium-heavy and heavy-heavy duty trucks.
3. In construction contracts, include language that requires all off-road diesel-powered equipment used during construction to be equipped with Tier 4 or cleaner engines, except for specialized construction equipment in which Tier 4 engines are not available. In place of Tier 4 engines, off-road equipment can incorporate retrofits, such that, emission reductions achieved are equal to or exceed that of a Tier 4 engine.
4. In construction contracts, include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) used during project construction be battery powered.
5. In construction contracts, include language that requires all heavy-duty trucks entering the construction site during the grading and building construction phases be model

year 2014 or later. All heavy-duty haul trucks should also meet CARB's lowest optional low-oxides of nitrogen (NO_x) standard starting in the year 2022.[1]

6. In construction contracts, include language that requires all construction equipment and fleets to be in compliance with all current air quality regulations. CARB is available to assist in implementing this recommendation.

Recommended Operation Measures

1. Include contractual language in tenant lease agreements that requires tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating on site.
2. Include contractual language in tenant lease agreements that requires all loading/unloading docks and trailer spaces be equipped with electrical hookups for trucks with transport refrigeration units (TRUs) or auxiliary power units. This requirement will substantially decrease the amount of time that a TRU powered by a fossil-fueled internal combustion engine can operate at the project site. Use of zero-emission all-electric plug-in TRUs, hydrogen fuel cell transport refrigeration, and cryogenic transport refrigeration are encouraged and can also be included in lease agreements.[2]
3. Include contractual language in tenant lease agreements that requires all TRUs entering the project-site be plug-in capable.
4. Include contractual language in tenant lease agreements that requires future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans.
5. Include contractual language in tenant lease agreements that requires all service equipment (e.g., yard hostlers, yard equipment, forklifts, and pallet jacks) used within the project site to be zero-emission. This equipment is widely available and can be purchased using incentive funding from CARB's Clean Off-Road Equipment Voucher Incentive Project (CORE).[3]
6. Include contractual language in tenant lease agreements that requires all heavy-duty trucks entering or on the project site to be model year 2014 or later, expedite a transition to zero-emission vehicles, and be fully zero-emission beginning in 2023. A list of commercially available zero-emission trucks can be obtained from the Hybrid

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1. In 2013, CARB adopted optional low-NOx emission standards for on-road heavy-duty engines. CARB encourages engine manufacturers to introduce new technologies to reduce NOx emissions below the current mandatory on-road heavy-duty diesel engine emission standards for model-year 2010 and later. CARB's optional low-NOx emission standard is available at: *https://ww2.arb.ca.gov/our-work/programs/optional-reduced-nox-standards*

2. CARB's technology assessment for transport refrigerators provides information on the current and projected development of TRUs, including current and anticipated costs. The assessment is available at: *https://www.arb.ca.gov/msprog/tech/techreport/tru_07292015.pdf*

3. Clean Off-Road Equipment Voucher Incentive Project. Accessible at: *https://californiacore.org/how-to-participate/*

and Zero-emission Truck and Bus Voucher Incentive Project (HVIP).[4] Additional incentive funds can be obtained from the Carl Moyer Program and Voucher Incentive Program.[5]

7. Include contractual language in tenant lease agreements that requires the tenant to be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation,[6] Advanced Clean Trucks Regulation,[7] Periodic Smoke Inspection Program (PSIP),[8] and the Statewide Truck and Bus Regulation.[9]
8. Include contractual language in tenant lease agreements restricting trucks and support equipment from idling longer than two minutes while on site.
9. Include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid.
10. Include contractual language in tenant lease agreements, requiring the installing of vegetative walls[10] or other effective barriers that separate loading docks and people living or working nearby.
11. Include contractual language in tenant lease agreements, requiring all emergency generators to be powered by a non-diesel fuel.
12. The project should be constructed to meet CalGreen Tier 2 green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking, and achieve a certification of compliance with LEED green building standards.

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4. Zero-Emission Truck and Bus Voucher Incentive Project. Accessible at: *https://californiahvip.org/*
5. Carl Moyer Program and Voucher Incentive Program. *https://ww2.arb.ca.gov/carl-moyer-program-apply*
6. In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at: *https://ww2.arb.ca.gov/our-work/programs/ttghg*
7. On June 25, 2020, CARB approved the Advanced Clean Trucks Regulation. The regulation requires manufacturers to start the transition from diesel trucks and vans to zero-emission trucks beginning in 2024. The rule is expected to result in about 100,000 electric trucks in California by the end of 2030 and about 300,000 by 2035. CARB is expected to consider a fleet regulation in 2021 that would be compatible with the Advanced Clean Trucks regulation, requiring fleets to purchase a certain percentage of zero-emission trucks and vans for their fleet operations. *https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks*
8. The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at: *https://www.arb.ca.gov/enf/hdvip/hdvip.htm*
9. The regulation requires that newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model-year engines or equivalent. CARB's Statewide Truck and Bus Regulation is available at: *https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm*
10. Effectiveness of Sound Wall-Vegetation Combination Barriers as Near-Roadway Pollutant Mitigation Strategies (2017) is available at: *https://ww2.arb.ca.gov/sites/default/files/classic//research/apr/past/13-306.pdf*

California Department of Transportation

DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
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April 7, 2022

SCH #: 2022030286
GTS #: 04-SF-2022-00361
GTS ID: 25835
Co/Rt/Pm: SF/280/4.984

Elizabeth White, Planner
City and County of San Francisco
49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103

Re: San Francisco Gateway Project – Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR)

Dear Elizabeth White:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Project. We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the March 2022 NOP.

Project Understanding
The proposed project would demolish four existing single-story buildings and construct two new multi-story production, distribution and repair buildings. Each building would be 97 feet tall with a maximum height of 115 feet, including rooftop appurtenances. An elevated portion of I-280 bisects the project site. The project would also construct new sidewalks, plant street trees, install stormwater control measures, and provide accessible curb ramps surrounding the project site. An elevated portion of I-280 bisects the project site.

Hydrology
The Initial Study states that a certain percentage of the development would be constructed to encourage infiltration and reduce the amount of impervious surface. As proposed, the development would serve to improve on-site infiltration of surface flows. Caltrans looks forward to reviewing plans, reports and calculations demonstrating that post project surface flow runoff will be reduced in accordance

with the City and County of San Francisco's Stormwater Management Requirements and Design Guidelines.

It appears that existing flows from I-280 are conveyed to the City and County of San Francisco's combined stormwater and sewer systems. It does not appear that flow patterns from I-280 will be significantly altered or impeded due to the proposed development. However, if any proposed work will reduce or impede the ability for flow conveyance from the State drainage systems, Caltrans will need to review any changes. Drainage reports accompanied with plans and calculations will need to be provided to Caltrans to review.

Utilities
Any utilities that are proposed, moved or modified within Caltrans' Right-of-Way (ROW) shall be discussed. If utilities are impacted by the project, please provide site plans that show the location of existing and/or proposed utilities. Any proposed development should accommodate the State, City and County of San Francisco and any other utility provider's ability to easily access and maintain their facilities. Any proposed development that restricts easy access will also need to be provided for Caltrans to review as well.

Lead Agency
As the Lead Agencies, the City and County of San Francisco are responsible for all project mitigation, including any needed improvements to the State Transportation Network (STN). The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Equitable Access
If any Caltrans facilities are impacted by the project, those facilities must meet American Disabilities Act (ADA) Standards after project completion. As well, the project must maintain bicycle and pedestrian access during construction. These access considerations support Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.

Encroachment Permit
Please be advised that any permanent work or temporary traffic control that encroaches onto Caltrans' ROW requires a Caltrans-issued encroachment permit. As part of the encroachment permit submittal process, you may be asked by the Office of Encroachment Permits to submit a completed encroachment permit application package, digital set of plans clearly delineating Caltrans' ROW, digital copy of signed, dated and stamped (include stamp expiration date) traffic control plans, this comment letter, your response to the comment letter, and where applicable, the

following items: new or amended Maintenance Agreement (MA), approved Design Standard Decision Document (DSDD), approved encroachment exception request, and/or airspace lease agreement. Your application package may be emailed to D4Permits@dot.ca.gov.

Please note that Caltrans is in the process of implementing an online, automated, and milestone-based Caltrans Encroachment Permit System (CEPS) to replace the current permit application submittal process with a fully electronic system, including online payments. The new system is expected to be available during 2022. To obtain information about the most current encroachment permit process and to download the permit application, please visit https://dot.ca.gov/programs/traffic-operations/ep/applications.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, or for future notifications and requests for review of new projects, please email LDR-D4@dot.ca.gov.

Sincerely,

MARK LEONG
District Branch Chief
Local Development Review

c: State Clearinghouse

NATIVE AMERICAN HERITAGE COMMISSION

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March 10, 2022

Elizabeth White
San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103

Re: 2022030286, San Francisco Gateway Project, San Francisco County

Dear Ms. White:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

cc: State Clearinghouse

Greenaction for Health and Environmental Justice
Marie Harrison Community Foundation, Inc.
Bayview Hunters Point Mothers & Fathers Committee

April 21, 2022
Elizabeth White, Senior Environmental Planner
San Francisco Planning Department
Submitted via e-mail to CPC.SFGatewayProject@sfgov.org

Comments on Initial Study and Notice of Preparation of an Environmental Impact Report for the Proposed San Francisco Gateway Project (2015-012491ENV)

1. Introduction

Greenaction for Health and Environmental Justice, the Marie Harrison Community Foundation Inc., and the Bayview Hunters Point Mothers & Fathers Committee submit these comments on behalf of our members and constituents who reside in Bayview Hunters Point, San Francisco, and who would be significantly, negatively, and disproportionately impacted by the proposed project.

2. The Initial Study and project description are vague and lack sufficient detail about the proposed project's operations to enable proper evaluation

The project proponent and the Initial Study fail to provide a sufficient description of the proposed project to enable an adequate assessment of potential impacts as would be required for a proper CEQA review. Beginning the environmental impact review process is thus premature due to the wide range of potential industries and operations that might be part of the proposed project.

It would be improper and premature to begin the environmental impact review process based on such a vague project description found in the Initial Study (IS). The IS describes the proposed buildings' purpose is to "accommodate a variety of users including a combination of the uses [listed]" in the document, and these are expected to "change over time."[1] This is not a comprehensive project description, as it lacks content and specifics. At the same time, by stating that the proposed buildings will be utilized for any combination of uses, the project proponent is creating so many scenarios that it would be difficult if not impossible to properly analyze them all adequately in an EIR.

[1] *See* pg. 9 of the Initial Study.

We call on the Planning Department to at least temporarily halt the CEQA process, and it should require the project proponent to submit a more specific and detailed project description so that it is clear what is being proposed. Currently, the description of the proposed project is open-ended. Without a more comprehensive description, the public and government regulatory agencies would be unable to adequately assess all the potential impacts of the proposed project.

What is clear, however, is that the proposed project which appears to have a major freight and trucking component, would have an unacceptable, harmful, significant, and ongoing air pollution impact in an already heavily impacted community.

3. The San Francisco Planning Department must consider all cumulative impacts from multiple pollution sources and other environmental, health and socio-economic indicators when evaluating the proposed project

Though the Initial Study lists cumulative projects within a ¼ mile radius of the proposed project and sensitive receptors within 300 feet of it, the document fails to consider the impacts outside that range but within the area potentially impacted by the project. Limiting the analysis of cumulative impacts to a 300-foot distance is inadequate. The entire Bayview Hunters Point and adjacent areas need to be part of a cumulative impact analysis, as there would be numerous and widespread cumulative impacts from the proposed project if approved.

This project would clearly have a significant and harmful impact on air quality in this already highly impacted community. In fact, the Bay Area Air Quality Management District (BAAQMD) has designated Bayview Hunters Point and Southeast San Francisco as a "CARE" community. BAAQMD defines a "CARE" community as an area vulnerable to "Cumulative Impacts from Air Pollution" including 24-hour PM 2.5 exceedances.[2]

Bayview Hunters Point is a majority-minority community; one-third of residents are African American, 30% Asian/Pacific Islander, and almost 25% Hispanic/Latino. Residents suffer high rates of infant mortality, asthma, cardiovascular diseases, and cancer.

Very importantly, the EIR needs to include and consider the data from the California Environmental Protection Agency's CalEnviroScreen which evaluates and ranks

[2] *See* Bay Area Air Quality Management District, Community Air Risk Evaluation Program. https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program

communities statewide based on environmental, health, and socio-economic characteristics, indicators, and disparities to determine vulnerability. According to CalEnviroScreen 4.0, Bayview Hunters Point ranks in the 90th percentile in terms of pollution. This means that Bayview Hunters Point has a higher pollution burden than 90% of California. For diesel particulate matter, Bayview Hunters Point falls in the 99th percentile and the 97th percentile for groundwater threats. Additionally, most of Bayview Hunters Point is within the 90-100th percentile for hazardous waste facilities in the area, according to the CalEnviroScreen 4.0 Hazardous Waste Map. The effects of this pollution are reflected in the health of the community. Bayview Hunters Point lies in the 97th percentile for low birth weight and the 96th percentile for asthma.

It is thus clear, as confirmed by regional and state government agencies, that Bayview Hunters Point is already overwhelmed and heavily impacted by pollution. The last thing this community needs is another large pollution source.

4. <u>The proposed project would have harmful and significant and unavoidable air quality impact, including from freight transport and other trucking and fleet operations.</u>

While many aspects of the proposed project are vague and not described in detail, it is clear the proposed project would include major freight, trucking and fleet components that would further add to and exacerbate the already poor air quality and health impacts already experienced in Bayview Hunters Point.

Diesel trucks emit harmful Particulate Matter and carcinogens, and adding a large scale operation of enormous scope is reckless, irresponsible, and unacceptable.

5. <u>Environmental justice and civil rights impacts of proposed project.</u>

As this project would clearly have numerous significant and harmful impacts, including on air quality and health, in an already heavily impacted and vulnerable low-income, working class, and people of color community, an EIR must consider all environmental justice and civil rights impacts of the proposed project. The proposed project would benefit corporations yet harm a community that is entitled protection from disproportionate and discriminatory impacts. Approval of this project would constitute a violation of the civil rights of the people of color residents of Bayview Hunters Point.

As recipients of state and federal funds, this City and County of San Francisco are subject to civil rights laws and cannot approve a project that would have such a discriminatory and harmful impact.

6. Community involvement in the project review process

We encourage the Planning Department to provide effective public notices and opportunities for meaningful civic engagement, including language access, for this project and all other Planning Department processes.

Please include the following people in your notification list for this proposed project:
greenaction@greenaction.org
kamillah@greenaction.org (Kamillah Ealom)
a.harrison@tuchs.org (Arieann Harrison)
renay_jenkins@yahoo.com (Renay Jenkins)

Thank you for consideration of these comments.

Respectfully submitted,

Bradley Angel and Kamillah Ealom, Greenaction for Health and Environmental Justice

Arieann Harrison, Marie Harrison Community Foundation Inc.

Renay Jenkins and Leaotis Martin, Bayview Hunters Point Mothers and Fathers Committee

THE SF MARKET™
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THE SF MARKET
San Francisco's Wholesale Produce Market

2095 Jerrold Avenue, Suite 212
San Francisco, California 94124

PHONE
415.550.4495

FAX
415.821.2742

April 7, 2022

Via E-Mail

Elizabeth White

Environmental Planner

49 South Van Ness Ave., Suite 1400

San Francisco, CA 94103

E-Mail: Elizabeth.white@sf gov.org

Re: San Francisco Gateway, Case No. 2015.012491ENV
Comments Pursuant to Notice of Preparation of an Environmental Impact Report

Dear Ms. White:

On behalf of the San Francisco Market Corporation, which manages The SF Market (formerly known as The San Francisco Wholesale Produce Market, hereafter the "Market"), I submit the following comments pursuant to the Notice of Preparation of an Environmental Impact Report ("NOP") for the San Francisco Gateway Project, Planning Department Case No. 2015.012491ENV.

The Market thanks Prologis, the project sponsor, and the San Francisco Planning Department for their willingness to collaborate with us around a variety of issues of common interest to the City, Prologis and the Market.

The Market is a Vital Resource for San Francisco

The Market is the largest multi-tenanted produce wholesale and distribution facility in Northern California, and the only wholesale produce market of similar scale that is a

nonprofit, spanning over 20 acres and including 485,000 square feet of warehouse and logistics space. We were created in 1963 when the City and County of San Francisco (the "City") relocated independent produce merchants from downtown San Francisco and built a shared facility in the Bayview Hunters Point neighborhood to house them.

Since then, we have grown alongside the City and its produce and food industry. Our merchants, many of whom have been in operation for decades, sell and distribute a wide variety of produce to food businesses across the Bay Area. Today, the Market is the linchpin of San Francisco's world-class food and restaurant scene. We've become integral to the city's culinary fabric by providing the critical, behind-the-scenes infrastructure to wholesale and distribution businesses that link farmers to restaurants, independent grocery stores, and hotels.

Our work at the Market benefits the City in a number of key ways:

- Healthier Bay Area: The Market supplies food businesses throughout the Bay Area with fresh, healthy, and affordable produce.

- Food Security: Market supports food security through its award-winning Food Recovery Program, as well as its Emergency Food Program. Together, these programs have distributed almost nine million pounds of fresh produce to neighbors in need, while helping to reduce food waste and the Market’s climate impact

- Culinary Destination: The Market is central to the supply chain that makes the City a delicious place to live and visit.

- Business Incubator: Home to 26 businesses, the Market provides the space, expertise, and access to produce for anyone launching or growing a food business.

- Support for Farmers: The Market's merchants source from local and regional farms, providing critical market access for growing farms.

- Job Creation: The Market employs over 650 workers via its independent merchants, providing diverse employment opportunities within the important PDR sectors.

In 2013, the City and the Market finalized a long-term ground lease that envisions a comprehensive, phased replacement and expansion of the Market's facilities and infrastructure ("the Reinvestment Project"). Through the operations, improvement projects, and activities contemplated as part of the Reinvestment Project, the City has made a significant ongoing investment in the success of the Market. As such, the City has a strong interest in protecting its investment by ensuring that the Market can continue to operate successfully far into the future, even while it welcomes appropriate change and new development activities into this neighborhood.

We are in the process of completing design for the next new Reinvestment Project building, 1900 Kirkwood, and expect to be in construction in early 2024. It is possible that construction on the Gateway Project and 1900 Kirkwood occur at the same time. Whether or not that occurs, the Market and the Gateway Project will be neighbors and operating in close proximity to one another long into the foreseeable future.

Comments Pursuant to the NOP

The Market has been closely following the development of the Gateway Project over the last few years and has had ongoing discussions with the Prologis team aimed at coordinating our two development projects. We have also reviewed the NOP and the Initial Study published by the Planning Department for the Gateway Project. All of our comments pursuant to the NOP relate to the Transportation and Circulation topic to be studied in the focused EIR. They are as follows:

1) The Market's peak hours for operations are midnight to 9:00 am, during which a large number of vehicles enter and exit the Market's marshaling yard through entrances at Jerrold/Rankin and Jerrold/Toland. Please ensure the EIR adequately studies potential impacts on Market vehicle movements resulting from truck and other vehicle movements generated by a) activities associated with construction of the proposed project and b) activities associated with the operations of the proposed project.

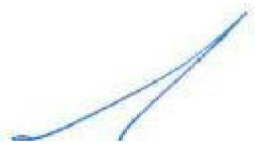
2) During the Market's hours of operations, a large number of pedestrians and small loading vehicles move around the vicinity of our facility, including Market employees and Market customers arriving and departing, as well as activity from other nearby businesses.

These movements take place largely in the hours before sunrise when visibility is low. Please ensure that the EIR adequately studies pedestrian safety and potential pedestrian conflicts with traffic generated by the proposed project.

3) We note that pursuant to Planning Code section 169, the proposed project is required to include a transportation demand management (TDM) plan. The Market wishes to collaborate with Prologis on these issues since the proposed project and the Market are adjacent neighbors.

Many thanks once again for the opportunity to comment on this NOP and to participate as a neighborhood stakeholder in the development of the project. Please do not hesitate to contact me at mjanis@thesfmarket.org or 415-550-4495 ext. 101 with any questions.

Very truly yours,



Michael Janis

General Manager,

m | r | wolfe
& associates, p.c.
attorneys-at-law

April 8, 2022

By E-Mail

Elizabeth White, Senior Environmental Planner
San Francisco Planning Department
49 South Van Ness Ave, Suite 1400
San Francisco, CA 94103
CPC.SFGatewayProject@sfgov.org

Re: Notice of Preparation of an EIR for San Francisco Gateway Project, Case No. 2015.012491ENV

Dear Ms. White:

On behalf of United Food & Commercial Workers Union Local 5 and International Brotherhood of Teamsters Joint Council 7, and their members who live and work in the Bayview, please accept the following comments addressing the scope of disclosure and analysis in the forthcoming environmental impact report (EIR) for the above-referenced Project, a multi-story production, distribution, and repair (PDR) complex covering 2,160,000 gross square feet in the Bayview Hunters Point Area Plan area. The site is zoned PDR 2 – Core Production, Distribution, and Repair Industrial Protection Zone Special Use District; 65-J Height and Bulk District. The notice of preparation (NOP) indicates that in addition to housing PDR uses such as "manufacturing and maker space," the Project would provide space for "parcel delivery and last-mile delivery, wholesale storage, and fleet management."

The significant environmental impacts associated with construction and operation of a Project of this scale are likely numerous and diverse. Of particular concern are the air quality and human health effects to people living and working in the Bayview near the site. According to the San Francisco Health Department, the site is within a designated Air Pollutant Exposure Zone pursuant to Section 3806 of the San Francisco Health Code. This means the neighborhood already experiences elevated pollutant concentrations that have resulted in a cancer risk to residents. The pollutants of concern include PM 2.5 and toxic air contaminants (TACs) including diesel particulate matter (DPM) from diesel truck traffic, a known carcinogen.

Depending on what kinds of manufacturing uses are ultimately housed in the Project's structures, emissions of air pollutants and/or releases of hazardous materials

and TACs into the ambient air at significant concentrations are reasonably foreseeable. Furthermore, parcel delivery and last-mile delivery facilities will foreseeably bring significantly more truck and van traffic into the area on a daily basis, including heavy diesel truck traffic. These additional sources of these emissions would increase pollutant concentrations, primarily of DPM, to the further detriment to Bayview residents' health and safety.

It is therefore important that the EIR disclose detailed information about the anticipated users/tenants of the Project, and the nature and extent of their operations, so that the public has a meaningful opportunity to critically evaluate the document. At a minimum, the EIR should disclose:

- The identities of any prospective tenants or occupants of the Project, including a description of their business operation, whether manufacturing, distribution, repair, or warehousing, or other uses not currently permitted under the current zoning classification.

- The number and type of diesel trucks expected to travel to and from the site (EMFAC vehicle class with fleet percent diesel), and the frequency of travel on an average daily and peak-hour basis.

- The number of top-mounted refrigeration units (TRUs) anticipated to be included among this number, with estimates of diesel engine idle-times.

- Daily and peak-hour trip generation rates for each expected occupant/user of the site.

- The number, type, and engine classification of all construction equipment and construction vehicles expected, including expected duration of operation for each.

- Expected truck travel/delivery routes that clearly identify the streets that will be used by parcel delivery/last-mile vehicles.

- An estimate of the existing ambient health risks, reflected as the number of excess cancers per one million individuals, at the nearest residential receptor locations, which appear to be on Oakdale Avenue to the South.

- A study of existing ambient noise levels at the closest residential receptor location, with an analysis of noise impacts from both construction of the Project and its operational phase.

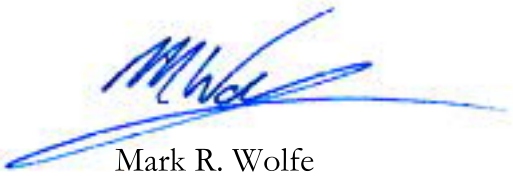
- An analysis of the Project's effects on the potential displacement of opportunities for housing development, including affordable housing, in the Bayview Neighborhood.

Please note that the above is not intended to be an exhaustive list of items that the EIR must be disclosed. We trust the City will comply fully with the information disclosure, analysis, and mitigation requirements of CEQA at the appropriate time.

Thank you for your consideration of these scoping comments. We look forward to reviewing the Draft EIR for this Project when it is released for public review.

Most sincerely,

M. R. WOLFE & ASSOCIATES, P.C



Mark R. Wolfe
On behalf of UFCW Local 5 and
IBT Joint Council 7

MRW:sa

APPENDIX B
INITIAL STUDY

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

INITIAL STUDY

Date:	March 9, 2022
Case No.:	2015-012491ENV
Project Title:	San Francisco Gateway Project
Project Address:	749 Toland Street and 2000 McKinnon Avenue
Zoning:	PDR-2 – Core Production, Distribution, and Repair Industrial Protection Zone Special Use District 65-J Height and Bulk District
Block/Lot:	5284A/008 and 5287/002
Lot Size:	743,800 square feet
Plan Area:	Bayview Hunters Point Area Plan
Project Sponsor:	Ken Sun, Prologis Inc., (510) 661-4027 ksun@prologis.com
Staff Contact:	Elizabeth White, (628) 652-7557 elizabeth.white@sfgov.org

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Acronyms and Abbreviations

AB	Assembly Bill
air board	California Air Resources Board
air district	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
board of supervisors	San Francisco Board of Supervisors
building department	Department of Building Inspection
Cal/EPA	California Environmental Protection Agency
CALGreen Code	California Green Building Standards Code
California Register	California Register of Historical Resources
CalRecycle	California's Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
city	City and County of San Francisco
CO_2e	carbon dioxide equivalents
Cornerstone	Cornerstone Earth Group
EIR	environmental impact report
general plan	San Francisco General Plan
HVAC	heating, ventilation, and air conditioning
I-280	Interstate 280
LEED	Leadership in Energy and Environmental Design
mgd	million gallons per day
MMT	million metric tons
mph	miles per hour
Muni	San Francisco Municipal Railway
NPDES	National Pollutant Discharge Elimination System
OPR	Office of Planning and Research
PDR	production, distribution, and repair
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas and Electric Company
planning code	San Francisco Planning Code
planning commission	San Francisco Planning Commission

planning department	San Francisco Planning Department
proposed project	proposed San Francisco Gateway project
SB	Senate Bill
SF Market	San Francisco Wholesale Produce Market
SFMTA	San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SSIP	Sewer System Improvement Program
TDM	transportation demand management
UCMP	U.C. Berkeley Museum of Paleontology
U.S. 101	United States Highway 101
U.S. EPA	United States Environmental Protection Agency
VMT	vehicle miles traveled
WSIP	Water System Improvement Program

INITIAL STUDY

San Francisco Gateway Project
Planning Department Case No. 2015-012491ENV

A. PROJECT DESCRIPTION

Introduction

The project sponsor, Prologis Inc., proposes to redevelop two parcels in a core industrial area of the City and County of San Francisco (city). The proposed San Francisco Gateway project (proposed project) would construct two new multi-story *production, distribution, and repair* (PDR)[1] buildings. The project site is located within the Bayview neighborhood. The site consists of two parcels that combine for a total gross site area of approximately 743,800 square feet (17.1 gross total acres).

Four one-story, metal clad buildings currently occupy approximately 448,000 gross square feet[2] of the project site. The project sponsor would demolish the four existing buildings and construct two three-story buildings (with active roof), buildings A and B. Each building would be approximately 97 feet tall from curb level to the highest point of the active roof level. Roof projections would be limited to the stair and elevator rooftop penthouse which would provide access and a solar array which would also screen the roof while generating electricity for onsite use. Including these elements, the maximum building height would be approximately 115 feet. The two new buildings (including PDR space, logistics yard, vehicular systems, and ground-floor retail spaces) would total approximately 2,160,000 gross square feet. This would result in 1,712,000 gross square feet of net new PDR and PDR support space on site.

The proposed project would provide space for several main types of PDR uses, each of which is described in detail below: manufacturing and maker space, parcel delivery service, including last-mile delivery,[3] wholesale and storage, and fleet management. Additionally, the project would allow for laboratory uses permitted in the PDR-2 zoning district, although this use is not part of the preferred project.[4] Each building would include a combination of enclosed and partially enclosed spaces, with a multi-level vehicular system (comprised of staging, circulation, and logistic yard areas) serving each level. In both buildings, all three levels of the PDR space would have direct vehicular access via a one-way ramp system for vehicles as large as tractor trailers. The roof level would provide a solar array and a screened, open-air multi-purpose deck that could be used for parking and/or material and vehicle staging. The proposed project would include a combined total of approximately 35,000 gross square feet of ground-floor maker space[5] and 8,400 gross square feet of ground-floor retail space in buildings A and B.

---

1 PDR use is a grouping of uses that includes but is not limited to all industrial and agricultural uses, ambulance services, animal hospital, automotive service station, automotive repair, automotive wash, arts activities, business services, cat boarding, catering service, commercial storage, kennel, motor vehicle tow service, livery stable, parcel delivery service, public utilities yard, storage yard, trade office, trade shop, wholesale sales, and wholesale storage.

2 Square footages presented for the existing and proposed uses are approximate.

3 Last mile delivery is defined as the movement of goods from a transportation hub to the final delivery destination (i.e., typically a personal residence or business).

4 Laboratory uses permitted in the PDR-2 zoning district do not include life sciences laboratories.

5 In the preferred use mix, all of the maker and manufacturing space would be on the ground floor (i.e., level 1). However, this use could also be on floors 2 and 3 in the future.

The existing warehouse buildings were built by the U.S. military circa 1943 and were transferred to private ownership sometime in the 1970s. Since then, the project site has contained a functional PDR complex, providing mostly wholesale and storage, vehicle storage, and fleet management spaces within the existing single-story buildings. The proposed project would demolish these four single-story buildings and replace them with two three-story buildings with active roofs that would allow large trucks to access fully functional, upper-level PDR spaces.

Project Location and Site Characteristics

As shown in Figure 1 (p. 3), the approximately 743,800-gross-square-foot (17.1 gross total acres), rectangular project site is located in the Bayview neighborhood of San Francisco, California. The street addresses of the existing buildings are 749 Toland Street and 2000 McKinnon Avenue. The project site consists of assessor's block 5284A, lot 008, and block 5287, lot 002, which are occupied by four structures totaling approximately 448,000 square feet of PDR space. The project site is relatively flat and rectangular. As shown in Figures 2 and 3 (pp. 4 and 5), the project site is fully developed and is covered in impermeable surfaces and has no existing landscaping.

The project site is bounded by Kirkwood Avenue to the north, Rankin Street to the east, McKinnon Avenue to the south, and Toland Street to the west. An elevated portion of Interstate 280 (I-280) bisects the project site, running in a north-south direction above the existing Selby Street right-of-way; the uppermost roadbed deck is approximately 55 feet above grade. Portions of the rights-of-way of the surrounding streets and Selby Street are included in the current lot configuration.

Existing Land Uses

Project Site

The project setting sections of the initial study and technical studies reflect conditions at the project site when the environmental evaluation process began in 2017. As of August 2020, the project sponsor submitted building permit applications for an interim use on the project site.[6] The interim use is a parcel delivery service use, focusing on last-mile e-commerce delivery, and occupies one half of the site (the two buildings west of I-280). One of the two buildings is used for vehicle staging and the other is used for warehousing of goods and loading of delivery vehicles. This use is temporary in nature and would ultimately be replaced by the proposed project, if it were to be approved. The environmental analysis of the initial study and technical sections analyze the changes between the proposed project and the uses at the project site prior to the operation of the interim use, resulting in a more conservative analysis.[7]

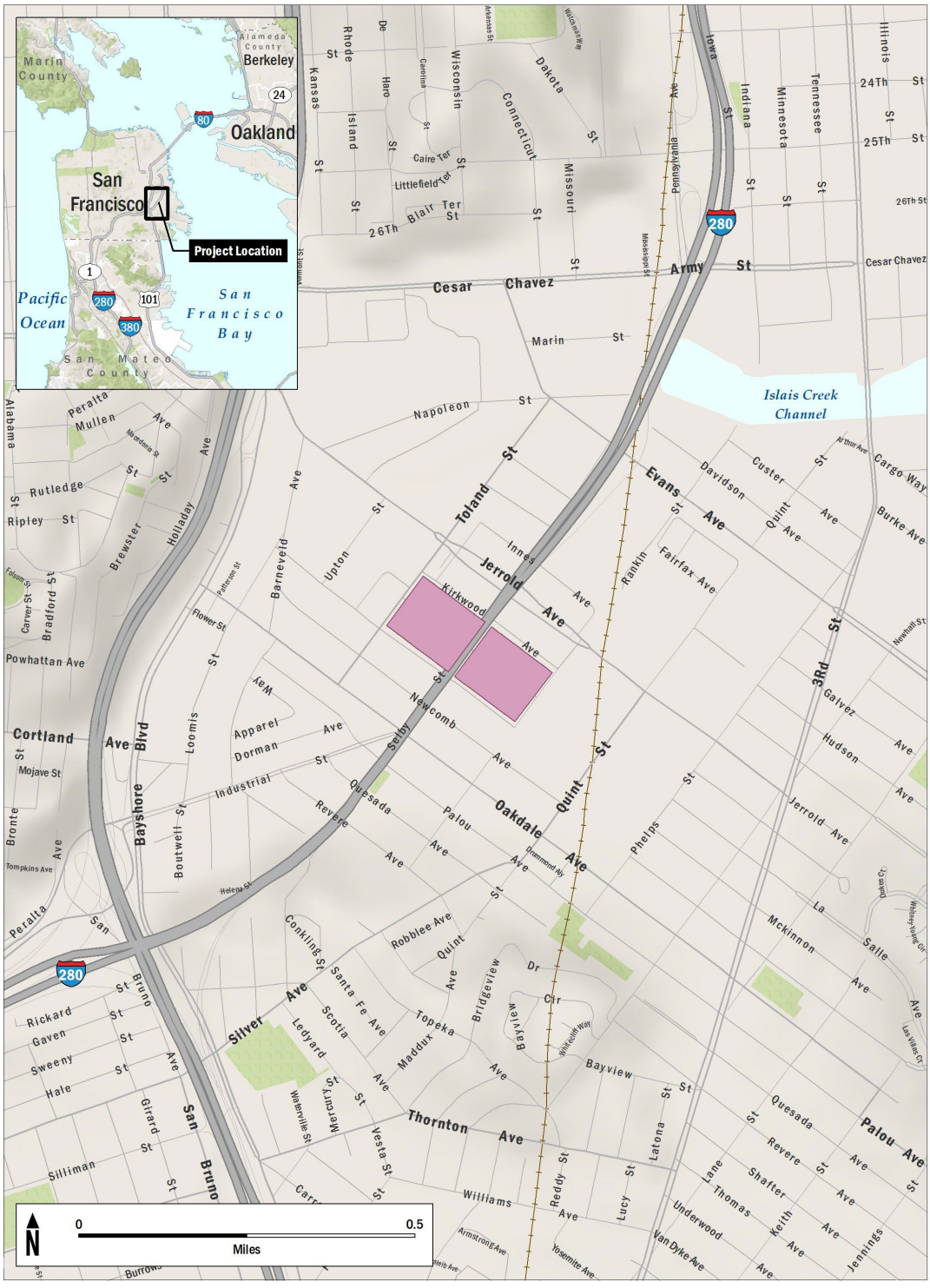
Table 1 (p. 6) lists uses that existed at the project site in 2017. As previously described, these uses included automotive storage, fleet management, general storage, food-related storage, temporary storage, and vacant spaces. The existing buildings are constructed of metal siding over a wood column and truss structure. An aerial California Department of Transportation (Caltrans) easement for I-280 is adjacent to both lots; the existing easement would be maintained.

---

[6] San Francisco Building Department Permit #202008272769 (Building 417 shell) and San Francisco Building Department #202008272770 (Building 418 shell).

[7] Analyzing the change in the environment from the uses that occupied the site in 2017 to the proposed use is considered conservative, or worst-case, because the interim use is more intensive than the uses that existed on site in 2017.

Figure 1 **Project Location**



Source: AECOM 2021

Figure 2 **Aerial View of Project Vicinity**



Legend

Project Site:
749 Toland Street and 2000 McKinnon Avenue

Source: JLA, 2017

Figure 3 **Existing Site Plan**

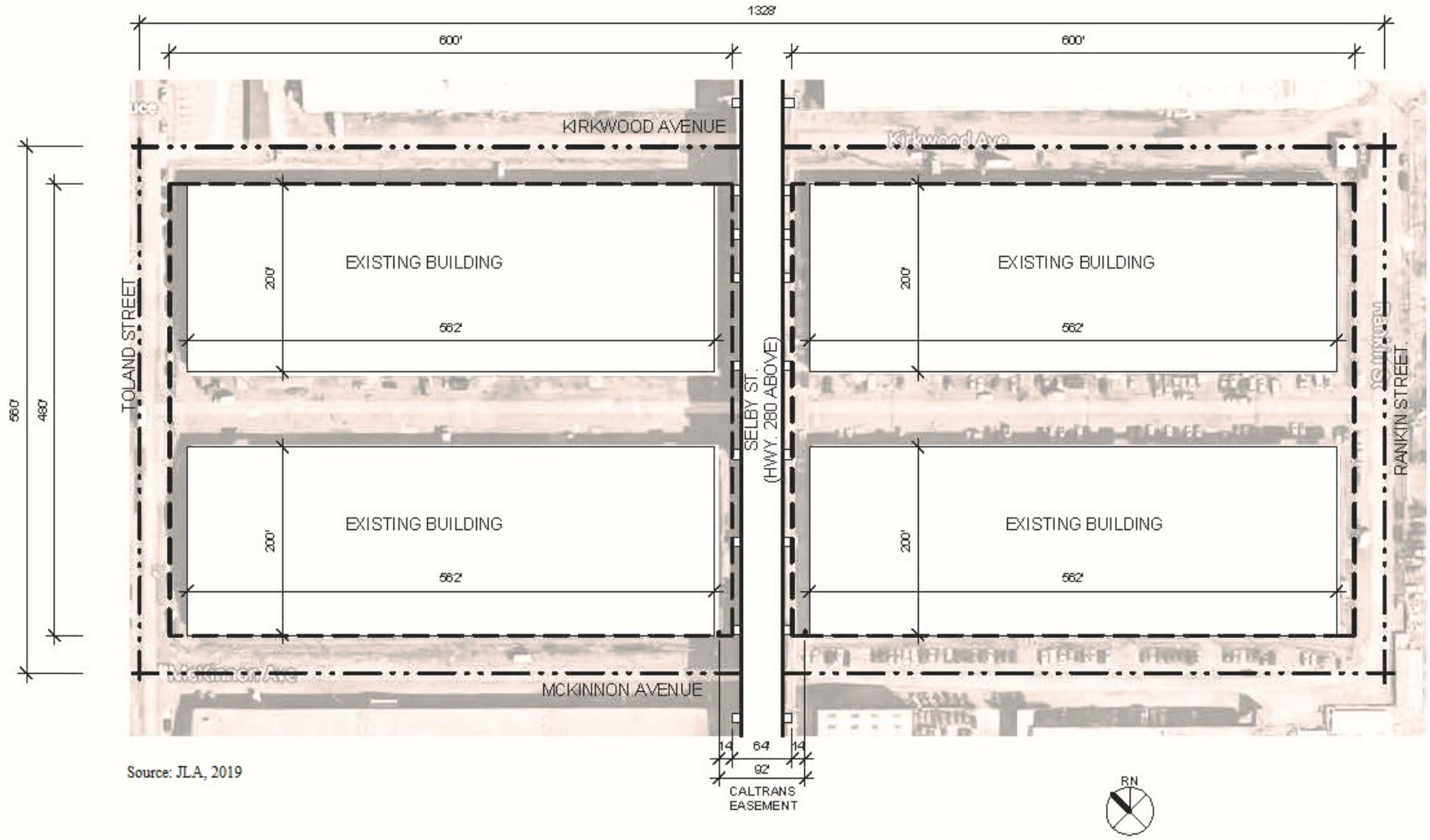


Table 1 Existing Uses at the Project Site

Use	Area (square feet)[1]
Automotive storage and fleet management	141,400
General storage (for contractors, supply companies, etc.)	184,400
Food-related storage and wholesale (multiple tenants)	77,100
Temporary storage	35,700
Vacant	9,400
Total	**448,000**

Source: Prologis, Inc., 2019

[1] These areas are approximations of uses that existed at the project site in December 2017.

The project site is developed and is currently covered by buildings or paved and gravel surfaces. There are no sidewalks surrounding the project site and the site does not contain any *curb cuts*, but vehicle access is designated at four access points. The entire site is fenced in and level with the surrounding road base. Additionally, the project site does not contain any street trees, only a small amount of vegetation and no open space.

The surrounding uses in the project vicinity include predominantly PDR and light industrial uses. The San Francisco Wholesale Produce Market (SF Market) is adjacent to the project site to the north along Kirkwood Avenue; wholesale flooring, art supply, and shipping services are located in the vicinity; and taxicab companies are northwest of the site along Toland Street. A warehouse space for crafts and art supplies, a door supplier, a pet supply store, a van storage company, and several fleet management uses are located south of the project site along McKinnon Avenue. San Francisco Public Utilities Commission (SFPUC) offices and the SF Market are located along Rankin Street east of the project site.

Land Use and Zoning

The project site is in the PDR-2 zoning district within the Bayview Hunters Point Area Plan. San Francisco Planning Code (planning code) section 210.3 states that the intent of the PDR-2 zoning district is to "encourage the introduction, intensification, and protection of a wide range of light and contemporary industrial activities," including industrial activities in enclosed structures, in partially enclosed structures, and in open areas that "may require trucking activities multiple times per day, including trucks with up to 18 wheels or more, and occurring at any time of the day or night."

The project site is in the 65-J height and bulk district (65 feet maximum height). The permitted floor area ratio[8] in the PDR-2 zone is 5:1. The existing floor area ratio of the project site is approximately 0.8:1 and the proposed floor area ratio for the site would be approximately 2.9:1. Because the proposed buildings would be taller than 65 feet, approval of a height and bulk district map amendment would be required for the proposed project. The proposed project would seek a new special use district designation to allow proposed modifications to the existing PDR-2 zoning.

[8] "Floor area ratio" is the gross floor area of a building or buildings on a zoning plot, divided by the area of the zoning plot. The floor area ratio is calculated to assist in determining whether the mass and scale of a project is compatible with the surrounding neighborhood. For the purpose of this calculation, rights-of-way have not been included in the total gross site area, and the open roof area has not been included in the gross floor area of the building.

Existing Parking, Circulation, and Loading

The project site currently has two approximately 600-foot-long by 80-foot-wide areas that are used for a truck court and parking. Adjacent to the project site, two sections of Toland Street and two sections of Rankin Street, each approximately 200 feet long, are nonstriped and do not have signed parking areas. These areas are presumed to be parallel on-street parking spaces. Adjacent to the site, two sections of Kirkwood Avenue and one section of McKinnon Avenue, each approximately 600 feet long, are also nonstriped and do not have signed parking areas and are presumed to be parallel on-street parking spaces. Total on-street parking capacity along the project site perimeter is estimated to be approximately 250 to 310 standard vehicles (approximately 50,000 square feet).[9]

The project site is served by one San Francisco Municipal Railway (Muni) light rail line (approximately four blocks to the east) and four bus lines. Transit stops in the project vicinity include stops for Muni bus lines 23-Monterey, 24-Divisadero, and 9-San Bruno, and San Mateo County Transit District bus line 292. The 23-Monterey Muni line operates immediately adjacent to the project site, with the closest stop at the corner of Toland Street and Oakdale Avenue, and the other bus lines operate within approximately four blocks of the site.[10] The proposed project would not directly affect any of these bus lines. The Third Street light rail line lies approximately 2,000 feet east of the project site; the closest stops are Kirkwood/La Salle, Hudson/Innes, and Oakdale/Palou. The closest Bay Area Rapid Transit (BART) station is the 24th Street Mission Station, approximately 1.5 miles to the northwest. The Glen Park BART Station is approximately 2.5 miles to the southwest. The 22nd Street Caltrain Station is located approximately 1.5 miles to the northeast.

I-280 and United States Highway 101 (U.S. 101) are the major regional roadways that serve the project site (Figure 4 on p. 8). Access to the project site is predominantly from Toland Street, from either the north or south. Toland Street provides connections to both Evans and Jerrold avenues north of the project site and to Oakdale Avenue south of the site. These three main east-west connecting streets provide further connections to key city streets and to the highway interchanges of U.S. 101 and I-280, both north and south of the project site.

Many occupants of the existing buildings use portions of the surrounding streets for both parking and movement of vehicles. The existing truck court and parking area serve as the primary vehicular staging area. This area provides space for loading and parking, both of which are organized in an informal manner. Additionally, Selby Street (below I-280) provides mid-site connectivity under the overpass.

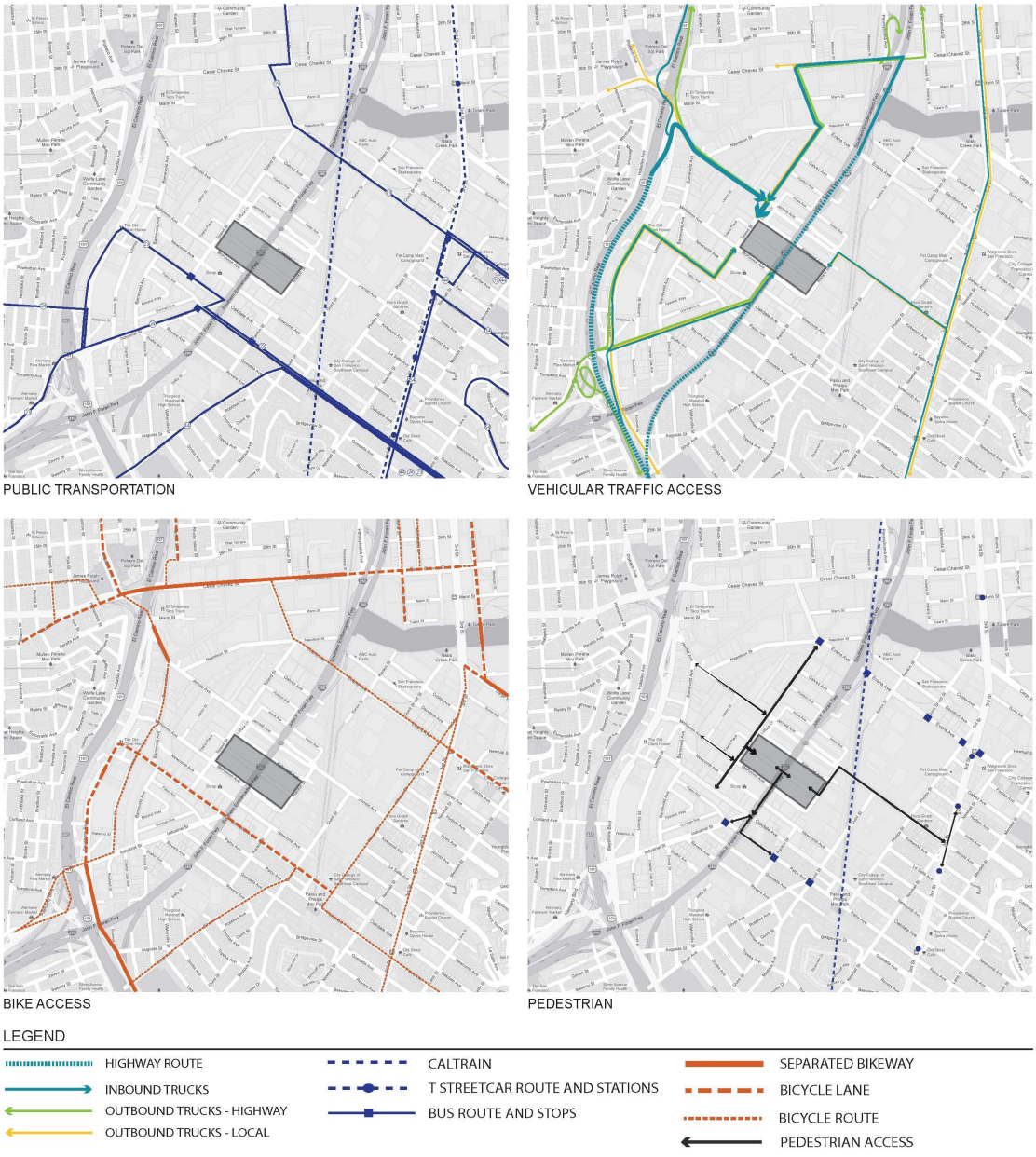
Pedestrians use the surrounding streets and the truck court to access specific tenants of the current buildings. Bicycle circulation uses the same facilities as pedestrians and other vehicles.

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9 There are currently no posted limitations to street parking along the project site perimeter.

10 As part of the Palou Avenue Streetscape Improvement Project, the 23-Monterey Muni line was rerouted three blocks south, from Jerrold Avenue to Palou Avenue. Construction of this project was completed in spring 2020. See *https://www.sfpublicworks.org/sites/default/files/Palou%20Avenue%20factsheet.pdf*.

Figure 4 Existing Access



Source: JLA, 2021

Pedestrian circulation offsite is fairly limited. Bicycle circulation is also limited; the closest formal *class III bicycle lane*[11] is located on Evans Avenue, five blocks to the north, and the closest *class II bicycle lane*[12] is on Oakdale Avenue, two blocks to the south. Connections to these two sets of bike lanes are provided via Toland Street.

Proposed Project

The proposed project would construct two new multi-story PDR buildings that would provide new PDR space in the industrial area of the Bayview neighborhood of San Francisco. The proposed PDR uses are explained further in the Proposed Project Uses section (p. 20).

The proposed project would demolish the existing four single-story PDR buildings onsite and would construct two new three-story buildings (with active roof), totaling approximately 2,160,000 gross square feet. Each building would have a maximum height of approximately 97 feet (115 feet with rooftop appurtenances included).[13] As depicted in Figure 5 (p. 10), the proposed building west of I-280 at 749 Toland Street is "building A" and the proposed building east of I-280 at 2000 McKinnon Street is "building B." As shown in Figure 5 (p. 10), buildings A and B would be approximately the same size, shape, and dimensions, and would be oriented similarly onsite. Each of these two buildings would include a one-way ramp system designed to provide full-service, upper-level truck access, and PDR spaces for its tenants.

Both building A and building B would include three levels of PDR space with direct access to vehicle circulation, logistics yards, and rooftop parking, vehicle staging, and storage. In addition, 8,400 gross square feet of ground floor retail space and 35,000 gross square feet of ground-floor maker space[14] would be included in the two buildings. The active roof would be a screened, open air, multi-purpose deck that could be used for materials staging and vehicle staging for box trucks, vans, and personal vehicles. Solar panels would be installed above the parking areas on the roof. Figures 6 through 12 (pp. 11 through 17) provide additional information and a visual representation of the typical building levels. Specifically, floor plans for the proposed project are provided in Figures 7, 9, and 11 (pp. 12, 14, and 16). Table 2 (p. 18) lists the proposed project's characteristics.

The buildings are intended to accommodate a variety of users including any combination of the uses below. It is anticipated that the assortment of PDR tenants would change over time. This initial study describes the project sponsor's preferred mix of PDR uses for the proposed project. Table 3 (p. 19) outlines the proposed project's preferred use mix.

As described above, the project site does not have any existing sidewalks or curb cuts. The proposed project would construct new 10-foot-wide sidewalks along the site's perimeter including Selby Street and would create seven new curb cuts for access to each new building. The new sidewalks would be designed in accordance with San Francisco's Better Streets Plan standards for industrial roads.

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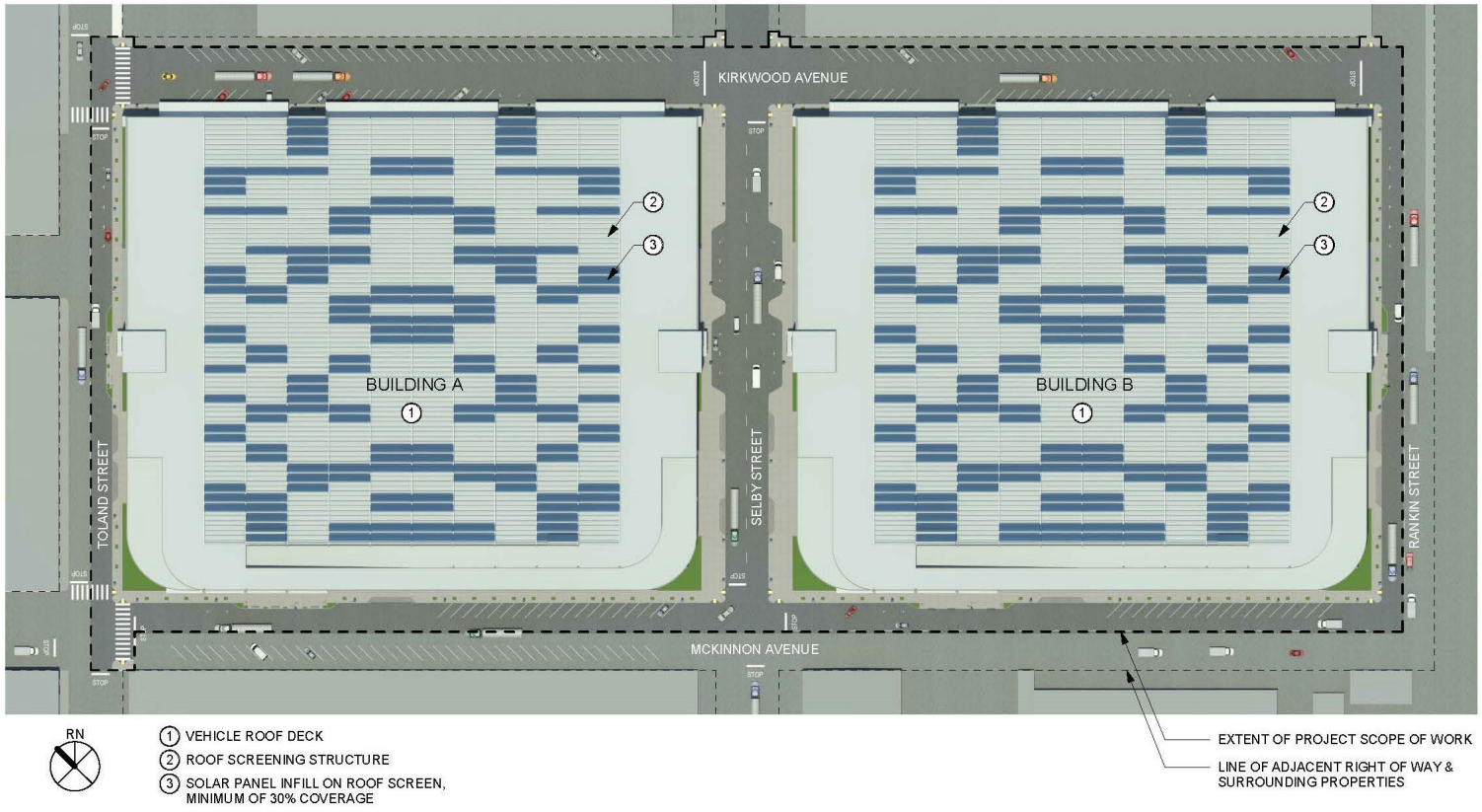
11 Class III bicycle lanes are signed bicycle routes that allow bicycles to share the travel lane with vehicles.

12 Class II bicycle lanes are bicycle lanes striped within the paved areas of roadways and established for the preferential use of bicycles.

13 Pursuant to section 260(b)(1)(B) of the planning code, the mechanical and elevator penthouses are exempt from the planning code's height limits. However, these features are considered in the context of environmental review.

14 In the preferred use mix, all of the maker and manufacturing space would be on the ground floor (i.e., level 1). However, this use could also be on levels 2 and 3 in the future.

Figure 5 **Site Plan for the Proposed Project**



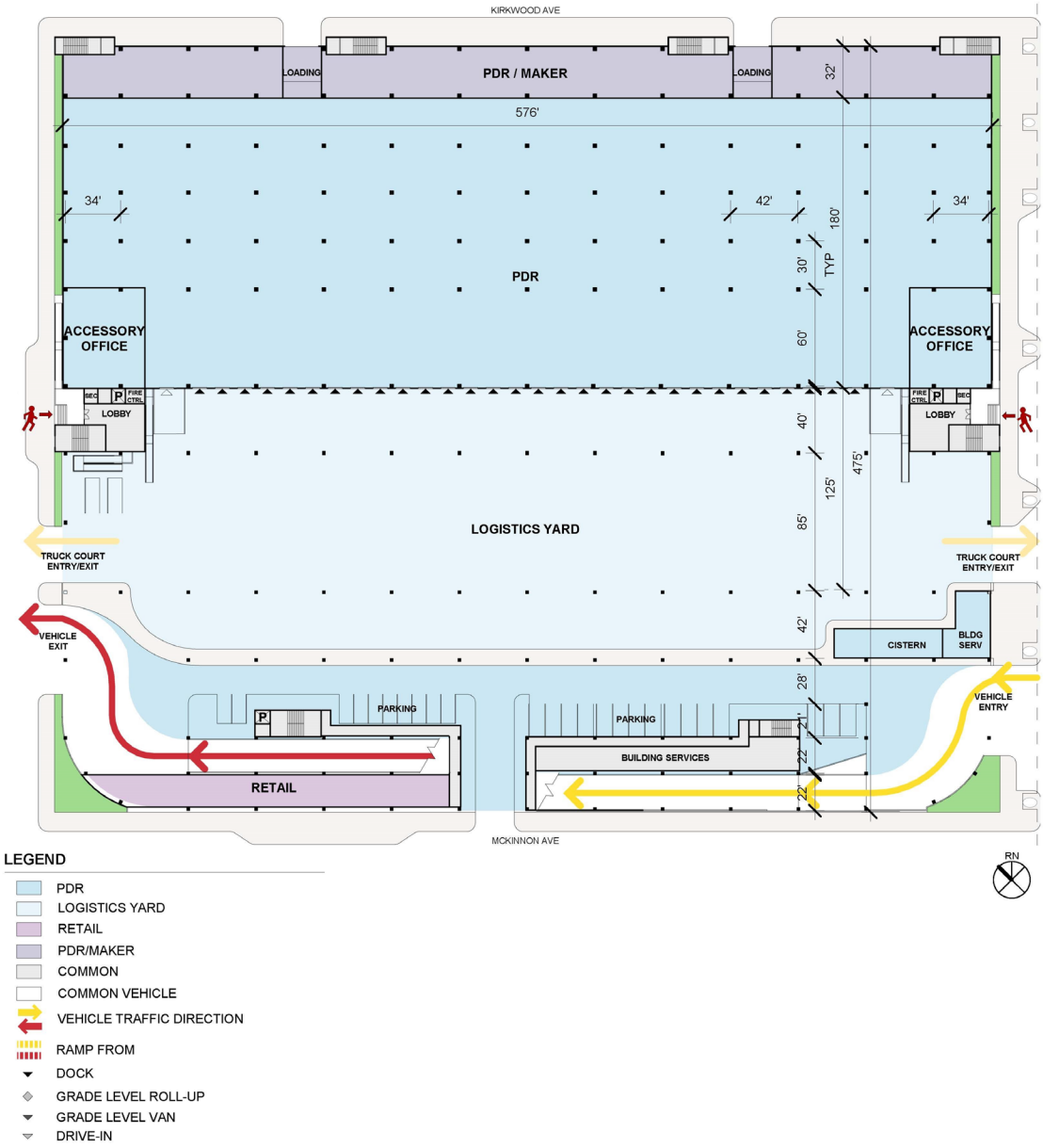
Source: JLA, 2021

Figure 6 **Proposed Project – Three Dimensional Illustration of Proposed Project (from Toland Street and McKinnon Avenue Looking East)**



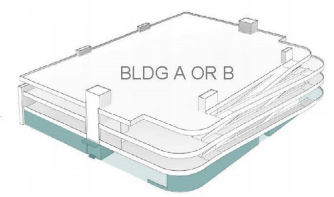
Source: JLA, 2021

Figure 7 Proposed Project Floor Plan – Level 1 (Buildings A and B)

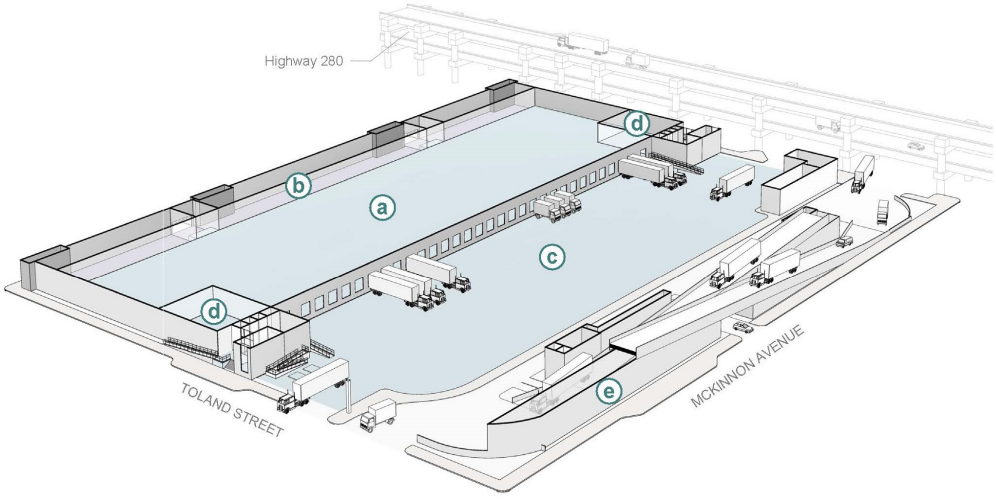


Source: JLA, 2021

Figure 8 Level 1 Description (Buildings A and B)



This level features traditional dock-high warehouse space to serve a variety of PDR uses and street-oriented maker and retail spaces to animate the surrounding streetscape. Separate ramp access to and from the upper levels provides direct unencumbered access to bring vehicles into the project staging areas.



a PDR
Dock-high space. 180' deep with a 24' clear height.

b PDR/Maker Space

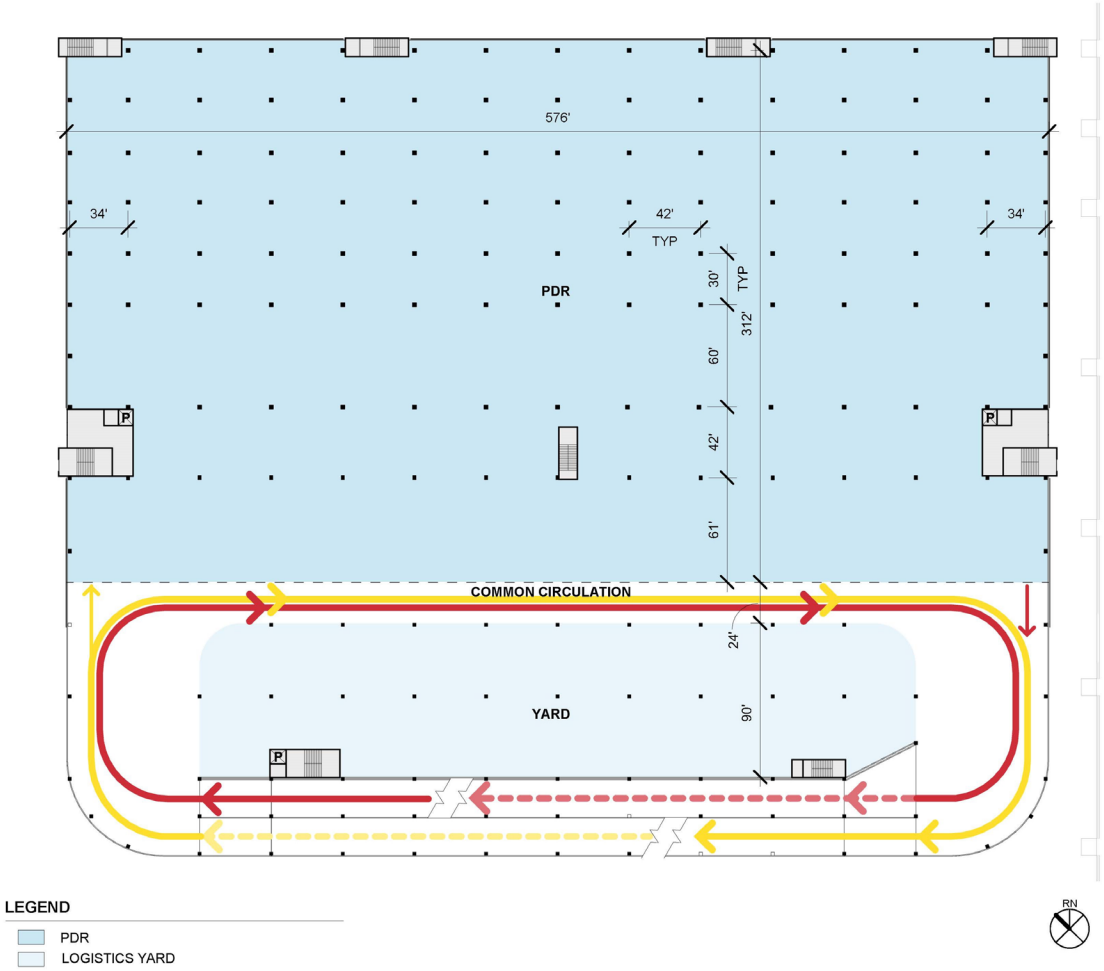
c Logistics Yard
An ample yard provides room for vehicle staging and space for flexible logistics support activities including fleet staging, storage, and goods transfer.

d Accessory Office
Flexible space to support PDR operations.

e Retail
Provide amenities (eg. cafe).

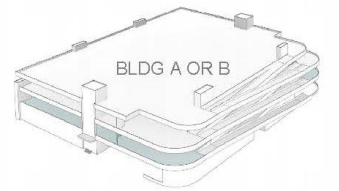
Source: JLA, 2021

Figure 9 **Proposed Project Floor Plan – Levels 2 and 3 (Buildings A and B)**

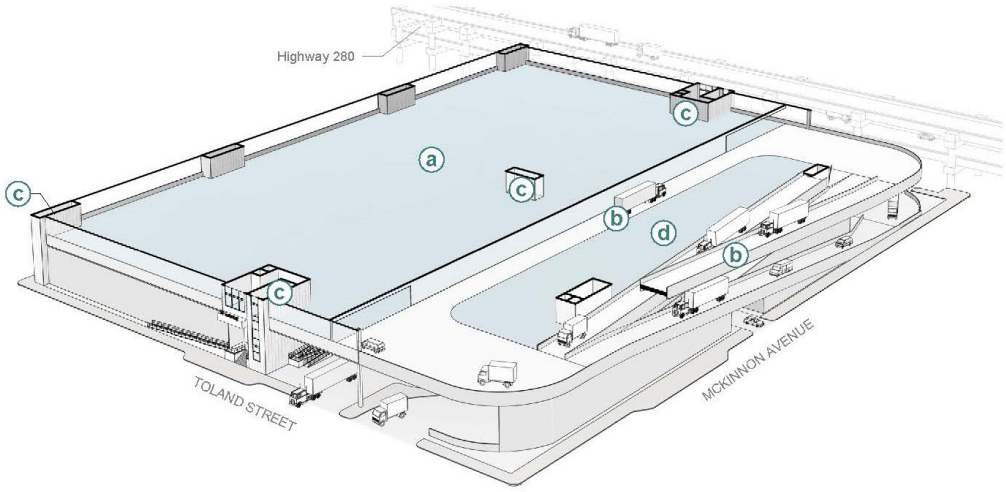


Source: JLA, 2021

Figure 10 Levels 2 and 3 Description (Buildings A and B)



This level features multi-functional space which supports a wide variety of PDR type users. This level is served by a ramp that accommodates vehicles up to the San Francisco legal limit, including trucks, buses and smaller vehicles.



a PDR
22'-24' high clear space at this level.

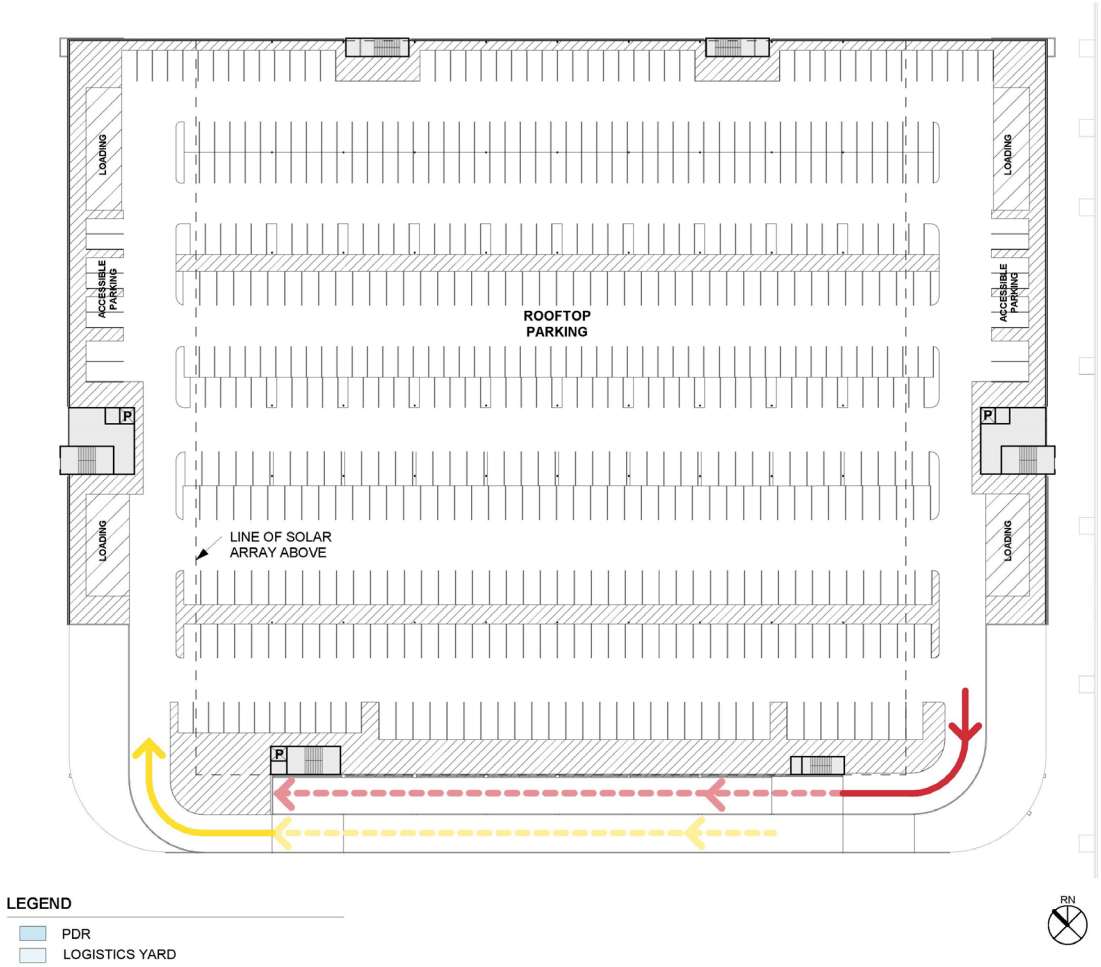
b Common Vehicle Circulation
Scissor ramp and bypass lane provide one-way circulation up and down throughout building.

c Elevators & Stairs
Common circulation cores connect all levels.

d Logistics Yard
Provides space for flexible logistics support activities including fleet staging, storage and goods transfer.

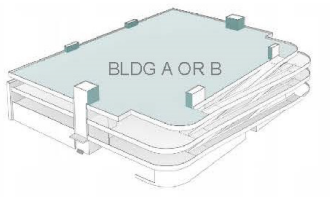
Source: JLA, 2021

Figure 11 Proposed Project Roof Plan – Level 4 (Buildings A and B)

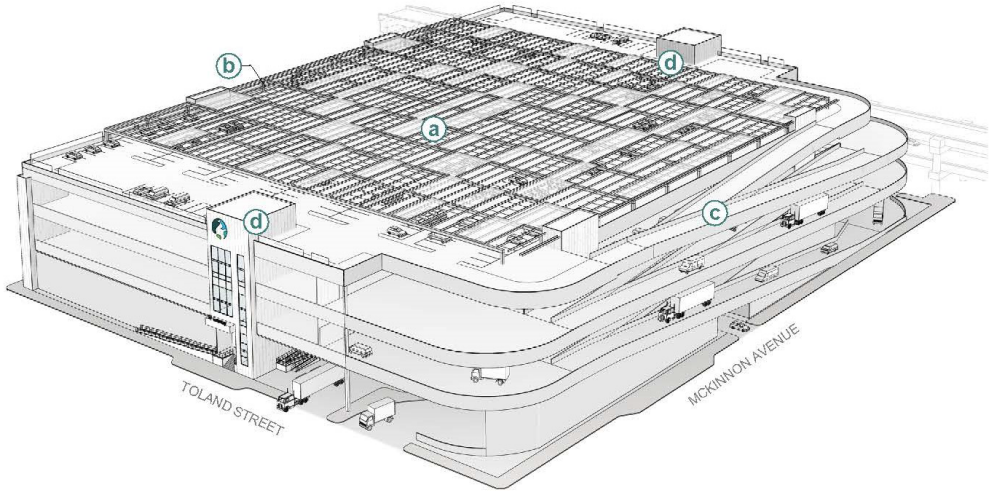


Source: JLA, 2021

Figure 12 Level 4 Roof Description (Buildings A and B)



This level features a screened, open air, multi-purpose deck that can be used for materials staging, vehicle staging for box trucks, vans, and personal vehicles. Additional screening is provided by a solar array. Ramps provide access to this level for vehicles as large as a 24' box truck.



a Vehicle Deck
Layout for staging box trucks and vans, and accessory automobile parking.

b Solar Array
Roof is screened by a solar array, which will generate electricity for vehicle charging.

c Ramps up to Roof
Scissor ramp provides one-way traffic access to and from roof.

d Elevators & Stairs
Provide common circulation to all levels.

Source: JLA, 2021

Table 2 Project Characteristics

	Building A	Building B	Project Total
Site Characteristics			
Gross Site Area[1]	371,900 square feet (8.55 acres)	371,900 square feet (8.55 acres)	743,800 square feet (17.1 acres)
Length	560 feet by 660 feet	560 feet by 660 feet	Each lot: 560 feet by 660 feet
Building Characteristics			
Number of Buildings	1	1	2
Stories (including active roof)[2]	4	4	4
Height	97 feet (115 feet maximum including rooftop appurtenances)		
Use	PDR (and other permitted) Uses		
Proposed Building	**Area (gross square feet)**	**Area (gross square feet)**	**Area (gross square feet)**
PDR (and other permitted) Uses	583,400	583,400	1,166,800
PDR Support Spaces			
Logistics Yard	72,900	72,900	145,800
Vehicle Circulation	119,800	119,800	239,600
Parking[3]	299,700	299,700	599,400
Retail	4,200	4,200	8,400
Total	**1,080,000**	**1,080,000**	**2,160,000**
Vehicle Parking Spaces	583	583	1,166
Vehicle Loading Spaces	36	36	72
Bicycle Parking Spaces[4]	56	56	112

Source: Prologis, Inc. 2020
Notes:
PDR = production, distribution, and repair

1. Total gross site area includes portions of the rights-of-way of the surrounding streets and Selby Street.
2. Fourth story consists of elevator and stair access structures which provide access to active roof.
3. Parking area includes 55,900 sf/building on the ground level and 243,800 sf/building on the roof level.
4. Bicycle parking: 100 *class I bicycle parking* spaces and 12 *class II bicycle parking* spaces. Class I bicycle parking spaces are spaces are in secure, weather-protected facilities intended for use as long-term, overnight, and workday bicycle storage by dwelling unit residents, nonresidential occupants, and employees. Class II bicycle parking spaces are bike racks in publicly accessible, highly visible locations and are intended for transient or short-term use by visitors, guests, and patrons to the building or use. Class II bike racks allow the bicycle frame and one wheel to be locked to the rack (with one U-shaped lock) and provide support to bicycles without damage to the wheels, frame, or components (planning code section 155.1).

No public open space is required or proposed for the project.
All numbers are rounded approximations.

Table 3 Preferred Project Use Mix

Uses below are a combination of areas in buildings A and B					
Uses	**Level 1**	**Level 2**	**Level 3**	**Roof**	**Project Total**
PDR Uses					
Light Manufacturing/Maker	35,000	0	0	0	35,000
Parcel Delivery/Last Mile	0	381,000	369,600	8,800	759,400
Wholesale and Storage	372,400	0	0	0	372,400
Fleet Management[1]	0	0	0	0	0
PDR Support Spaces					
Logistics Yard	0	72,400	73,400	0	145,800
Vehicle Circulation	13,800	112,800	95,400	17,600	239,600
Parking	111,800	0	0	487,600	599,400
Laboratory[2]	0	0	0	0	0
Retail	8,400	0	0	0	8,400
Total					**2,160,000**

Source: Prologis, Inc. 2019

1. Fleet management is not a component of the preferred project land use for the purpose of this environmental analysis. This is because the manufacturer and maker, parcel delivery and last mile, and the wholesale and storage uses would result in higher vehicle trip rates (and corresponding noise and air quality impacts associated with vehicle trips) compared to fleet management uses. However, should the project sponsor elect to have a fleet management component as part of the project in the future, the environmental analysis would have adequately evaluated the transportation (and related air quality and noise) impacts from this use.
2. Laboratory is not a component of the preferred project land use for the purpose of this environmental analysis. However, PDR-2 zoning districts do allow for specific laboratory uses.

PDR = production, distribution, and repair

Proposed Project Uses

The proposed project includes PDR (and other permitted uses in the PDR-2 zoning district) and retail uses as further described below.

Production, Distribution, and Repair Uses

Although tenants have not been selected yet, the project sponsor has identified four major types of PDR uses that could occur onsite under the proposed project:

1. manufacturing and maker space;
2. parcel delivery, including last-mile delivery;
3. wholesale and storage; and
4. fleet management.

The text below defines these uses and provides examples of each. Figure 13 (p. 21) presents a use matrix to further describe the proposed PDR and related uses for the proposed project. For all PDR uses, the building would be accessible to users 24 hours per day.

Manufacturing and Maker Space

This use is defined as a light industrial use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers, wholesalers, or the public. Makers are often characterized by their production and custom activities that usually involve individual or special design, handiwork, and/or design-related innovation and experimentation. Examples of this light industrial use include food and beverage processing, apparel and other garment products, furniture and fixtures, printing (including three-dimensional printing), prototyping, and publishing. Manufacturing and maker space tenants would require approximately 2,000 to 20,000 square feet of space per occupant, depending on the needs and size of the company. Accessory retail may be associated with this use. Receiving and shipping vehicles for this use type can range from personal vehicles to pickup trucks/box trucks/vans/cutaway buses to semitrucks (74-foot maximum length). Primary working hours would vary by tenant. Heating, ventilation, and air conditioning (HVAC) and venting requirements would also vary by tenant and would be negotiated with the project sponsor before execution of any lease agreements, as discussed in the Project Sponsor's Tenant Screening Process section (p. 25). The operating hours when most activities occur would vary but would typically be from 4 a.m. to 6 p.m. and would ultimately depend on the tenant.

Parcel Delivery and Last-Mile Delivery

This use is defined as a nonretail automotive use limited to facilities for the unloading, sorting, and reloading of merchandise for deliveries. This use includes both staging of delivery trucks and vans, and the use of small-scale, personal-type vehicles for last-mile deliveries. Examples of regional delivery services include UPS, FedEx, and OnTrac. Last-mile delivery services include services such as Amazon Prime, Google Express, and Good Eggs. Parcel delivery and last-mile delivery tenants would require more space for their operations than maker and manufacturing tenants, at approximately 20,000 to 400,000-plus square feet per occupant. No accessory retail would be necessary for this use. Receiving and shipping vehicles for this use type can range from personal vehicles to pickup trucks/box trucks/vans/cutaway buses to semitrucks (74-foot maximum length). HVAC would be required only for accessory office space, active vehicle areas would be ventilated, and other specialized ventilation equipment would not be required. Primary operating hours would typically be from 4 a.m. to 6 p.m., but would ultimately depend on the tenant.

Figure 13 **Production, Distribution, Repair, and Related Uses**

	USE TYPES	A MAKER + MANUFACTURING			B LABORATORY	C PARCEL DELIVERY		D WHOLESALE + STORAGE			E PRIVATE RETAIL VEHICLE STAGING + MAINTENANCE		F PRIVATE FLEET STORAGE, STAGING + MAINTENANCE	G PUBLIC FLEET STAGING + MAINTENANCE
OVERVIEW	description	A light industrial use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers, wholesalers, or public			A non-retail use centered around scientific research & innovation	Light industrial use typified by activities relating to the unloading, sorting, and reloading of merchandise for deliveries		A use typified by activities relating to providing goods or commodities for resale or business use, including both the storage and sales areas necessary for these types of businesses.			Storage of vehicles to be sold/rented and light maintenance for private vehicles that are operated by a single entity		Storage and potential light maintenance for shuttles servicing specific institutions, businesses, and/or independent shuttle service businesses	Storage and maintenance for buses, trolleys, and/or shuttles for a public transportation agency
	probable tenant type	A1 PDR incubator, craft, small assembly	A2 food + beverage	A3 advanced manufacturing large assembly	B1 scientific testing + development lab	C1 parcel hub	C2 last mile	D1 construction supplies - wholesale	D2 food + beverage - wholesale & distribution	D3 freight forward + storage	E1 vehicle dealer	E2 vehicle rental agency	F1 private company fleet	G1 public fleet management
	business examples	*Bryr Clogs Rickshaw Bags*	*Recchiuti*	*PCH Lime Lab*	*Applied Materials*	*FedEx, On-Track, UPS*	*Amazon Prime, Good Eggs*	*Russel Sigler*	*Chef's Warehouse*	*Geodis*	*Royal Motors, SF Toyota*	*Uhaul, Hertz*	*Google, Academy of Art University, Lyft, Bauer, UCSF*	*Muni Buses, SF Paratransit*
FACILITY	typical area (sf)	2,000-5,000 per maker within 20,000 incubator	5,000 - 20,000		10,000 - 40,000	20,000 - 200,000	40,000 - 400,000	20,000 - 100,000			35,000 - 100,000	35,000 - 100,000	30,000 - 100,000	400,000 - 1,200,000
	clear height (ft)	12' - 20'			12' - 20'	20' - 30'		24' - 30'			10' - 14'		10' - 20'	15' - 20'
OPERATIONS	employee ratio	3 per 1000 sf			5 per 1,000 sf	1.5 per 1000 sf		0.7 per 1000 sf	0.5 per 1000 sf	0.7 per 1000 sf	0.3 per 1000 sf		0.5 per 1000 sf	0.7 per 1000 sf
	office ratio	15 - 25%			15 - 25%	10 - 15%		5 - 10%	10 - 25%	5 -10%	5 - 10%		5 - 10%	10-15%
	typical normal hours	6:00am - 6:00pm swing shift possible	4:00am - 4:00pm swing shift possible	8:00am - 6:00pm	8:00am - 6:00pm	4:00am - 4:00pm swing shift possible		6:00am - 4:00pm	12:00am -4:00 pm	6:00am - 6:00pm	7:00am - 7:00pm		5:00am - 10:00pm	5:00am - 12:00 midnight
	accessory retail	preferred		possible	no	no		no			no		no	no
	venting required	code min + equipment needs	code min + vertical venting + hood exhaust	code min + equipment needs	code min + equipment needs	code min		code min	code min + additional venting if processing	code min	code min + maintenance specific ventilation requirements		code min + maintenance specific ventilation requirements	code req'd ventilation will vary per use requirements
	HVAC required	preferred, not required	climate controlled + hood exhaust + refrigeration	preferred, not required	required throughout	required in office only		required in office only	climate controlled + hood exhaust + refrigeration	required in office only	required in office only		required in office only	required in office only
TRANSPORTATION	recieving vehicle	personal vehicle/semi truck			box truck or van/semi truck	personal vehicle/box truck or van/semi truck		semi truck			personal vehicle/box truck or van		personal vehicle/box truck or van/bus	box truck or van/bus/articulated bus
	shipping vehicle	personal vehicle / semi truck	semi truck		box truck or van/semi truck	personal vehicle/box truck or van		box truck or van			-	-	-	-
	capacity	1 : 1,500			1:1,000	1 : 1,500		1 : 2,000	1 : 1,500	1 : 2,000	150 - 300 vehicles	60 - 300 vehicles	20 - 100 vehicles	200 - 400 vehicles
	mainte-nance req'd	-			-	-		-			light maintenance & employee support spaces required fuel & wash preferred		light maintenance & employee support spaces required fuel & wash preferred	full maintenance & employee support spaces required fuel & wash required
	loading req'd	drive-in doors / dock high beneficial			drive to doors / freight elevator	dock high, internal vehicle access		dock high roll up doors			-		-	-

Source: JLA, 2021

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Wholesale and Storage

This use is characterized by activities that relate to providing goods or commodities for resale or business use and include both the storage and sales areas necessary for these types of businesses. The use also includes the storage (in an enclosed building) of goods without an associated wholesale or retail component. Examples include building material suppliers, food-related wholesale businesses, and import- or export-related storage. Wholesale and storage tenants would typically occupy a space of approximately 20,000 to 100,000 square feet per occupant. No accessory retail would be necessary for this use. This use typically requires a semitruck (74-foot-maximum length) for receiving materials and a pickup truck/box truck/van/cutaway bus for shipping goods. HVAC and venting requirements would vary by tenant and would be negotiated with the project sponsor before execution of any lease agreements, as discussed in the Project Sponsor's Tenant Screening Process section (p. 25). The operating hours would typically be from 12 a.m. to 6 p.m., but could vary by each tenant type.

Fleet Management

This use would allow private and public fleets to be staged and maintained. Uses would range from private retail vehicle staging, to private fleet staging and maintenance, to public fleet staging and maintenance. Private retailers would store and maintain vehicles to be sold or rented. The private vehicles would be mostly parked and the space would be used as storage; light maintenance and washing would be associated with this use. The tenant for this type of use would most likely be a vehicle dealership or vehicle rental agency, such as local retail car dealerships like U-Haul or Hertz. These tenants could require approximately 35,000 to 100,000 square feet per occupant and the spaces would typically hold 60 to 300 vehicles, depending on vehicle type and size. Operating hours when most activities occur would typically be from 5 a.m. to 12 a.m., but would ultimately depend on the occupant.

Private fleet staging and maintenance would involve storage and potential light maintenance of shuttles servicing specific institutions, businesses, and/or independent shuttle services. The tenant could include private company fleets; examples of this user type could include companies such as Google, Academy of Art University, Bauer, and the University of San Francisco or similar tenants. These tenants could require approximately 30,000 to 100,000 square feet per occupant to accommodate approximately 20 to 100 vehicles. No accessory retail would be necessary for this use. The operating hours when most activities occur would typically be from 5 a.m. to 10 p.m., but would ultimately depend on the occupant.

Public fleet staging and maintenance would include the storage and maintenance of buses, trolleys, and/or shuttles for a public transportation agency, such as the San Francisco Municipal Transportation Agency (SFMTA) or San Francisco Paratransit. These tenants would require approximately 400,000 to 1,200,000 square feet to accommodate 200 to 400 vehicles. No accessory retail would be necessary for this use. The operating hours when most activities occur would typically be from 5 a.m. to 12 a.m., but would ultimately depend on the occupant.

Non-PDR Uses

In addition to these PDR uses, other types of uses permitted in the PDR-2 zoning district, such as laboratory (non-life sciences) and retail may occur in the proposed project. These uses are described below.

Laboratory

Laboratory space that is suitable for scientific research (i.e., non-life science laboratory) would complement the manufacturing and maker space component by fostering an atmosphere conducive to innovation and experimentation. The proposed project could support laboratory uses focused on engineering, development, support, quality assurance, and quality control, which are principally permitted in the PDR-2 zoning district. The proposed project would not include chemical testing, or life sciences laboratory uses such as biological research or animal testing (which are not permitted in the PDR-2 zoning district). Laboratory tenants would require approximately 10,000 to 40,000 square feet of space per occupant, depending on the needs and size of the company. Receiving and shipping vehicles for this use type can range from pickup trucks/box trucks/vans/cutaway buses to semitrucks (74-foot maximum length). HVAC and venting would be required throughout the space and requirements would be negotiated with the project sponsor before execution of any lease agreements, as discussed in the Project Sponsor's Tenant Screening Process section (p. 25). Primary operating hours would typically be from 8 a.m. to 6 p.m., but would ultimately depend on the tenant.

Retail

The proposed project would include approximately 4,200 gross square feet of ground floor retail space in each PDR building, resulting in a total of 8,400 gross square feet. The retail space would provide amenities and services to the employees at the project site and potentially workers in the surrounding area. Retail uses would include amenities such as a cafe, convenience store, or sandwich shop. Loading operations for the retail space would occur in the parking area on the ground floor. Primary hours would vary by tenant but would likely be 7 a.m. to 7 p.m.

Peak Times of Daily Activity in the Proposed Project

An average of up to 1,980 employees would be onsite on a typical day. While different types of uses would have varying hours and peak periods, the combined uses by tenants in the buildings would result in two peak periods when the highest number of employees would be onsite at one time as compared to the rest of the day. These two peak periods would include the hours from 7 to 9 a.m. and from 4 to 6 p.m., with the evening peak being the highest.

Mechanical Equipment

The proposed project would require a variety of mechanical system components that would perform specific functions. These systems would be designed to comply with the San Francisco Building Code and Leadership in Energy and Environmental Design (LEED) requirements. Mechanical ventilation in the vehicle circulation area (including ramps) and logistics yard would be provided as necessary to augment the natural ventilation of these unenclosed areas. Mechanical and natural ventilation would be provided to ventilate all enclosed storage areas. Buildings A and B would provide a base level of mechanical systems for each tenant; the project sponsor would facilitate the installation of additional systems as required to support specific tenant-related activities agreed upon during the leasing process. Many tenants for which the project is being designed are anticipated to require minimal additional mechanical systems.

Buildings A and B would each have one generator to accommodate the life safety needs of building users. The maximum capacity of each generator would be 400 kilovolt-ampere. Two additional 200-kilovolt-ampere generators per building would be used to serve the needs of future tenants.

HVAC would be provided for accessory office space and/or tenant spaces with specific process requirements. The accessory office space is limited to one-third or less of the PDR space, per section 204.3 of the planning code. Because of their size, the HVAC systems would likely be located inside the space to be conditioned and on the rooftop. Alternatively, some of the potential tenants would have specific HVAC requirements for their operations. Additional HVAC equipment for potential PDR uses could include mechanical ventilation for production hoods used during food and beverage production; HVAC equipment for laboratory spaces; refrigeration systems to support goods requiring storage at specific temperatures; and ventilation systems related to the production and/or repair of specific goods (e.g., woodworking, upholstery, furniture repair). For a detailed description of how the project sponsor would address tenant needs, see the Project Sponsor's Tenant Screening Process section below (p. 25).

Key Operational Equipment

Many PDR uses depend on a variety of equipment associated with the movement of goods. Goods movement can occur either inside a specific user's space (e.g., between storage and fabrication areas) or within the PDR facility. Because of the size of many PDR facilities, these travel distances can be lengthy (over 500 feet) and can require connecting process-related space. Thus, much of the associated equipment is mechanized.

In addition to moving goods and supplies over long horizontal distances, many PDR businesses take advantage of cubic volume. This is accomplished using a combination of high-bay racking systems and the equipment necessary to lift goods to targeted heights. The specific high-bay racking system and the movement of equipment are based on the products being stored and moved on pallets or being palletized.[15]

Project Sponsor's Tenant Screening Process

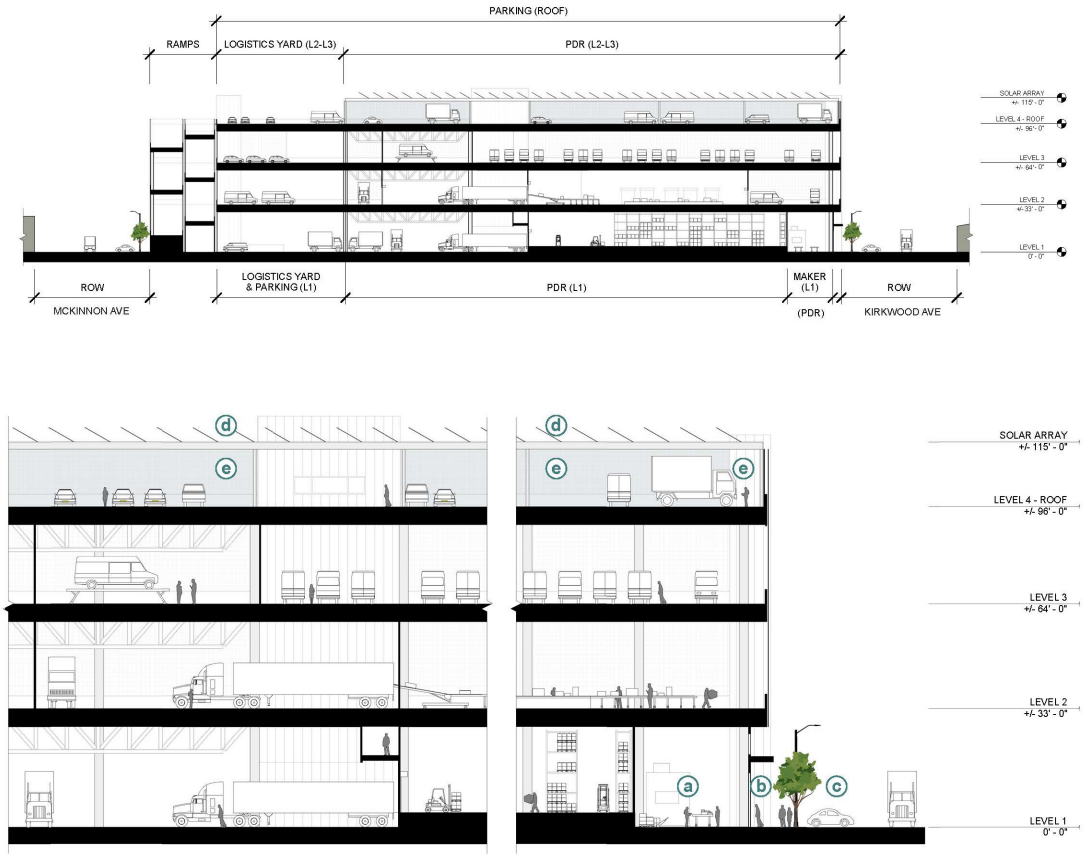
The project sponsor would regularly screen potential tenants to confirm that the potential tenants would fit within the context of the specific building or facility. This screening process would focus on an operations review followed by a business and financial review. The operations review would include an executive interview to determine the expected use, number of employees, parking and vehicle requirements, key operations requirements, equipment, hours of operation, and safety records and plans, as well as permits anticipated to be required from local, state, or federal agencies for operations (e.g., the Bay Area Air Quality Management District [air district]). Next, the project sponsor would tour the applicant's current locations to assess operations, the condition of the space and improvements, cleanliness, and equipment used, and to identify issues related to noise, odor, hazardous materials, or other operational issues. The project sponsor would determine whether the user is occupying other facilities and how the applicant has performed in other buildings. Finally, the project sponsor would review the published reputation of the applicant company and its operations.

Section and Elevations

Sections and elevations are included on Figures 14 through 16 (pp. 26 through 28).

[15] To "palletize" means to place, stack, or transport (goods) on a pallet or pallets.

Figure 14 Proposed Project – Building Sections



ⓐ Maker space

ⓑ Canopy and signage for Maker space

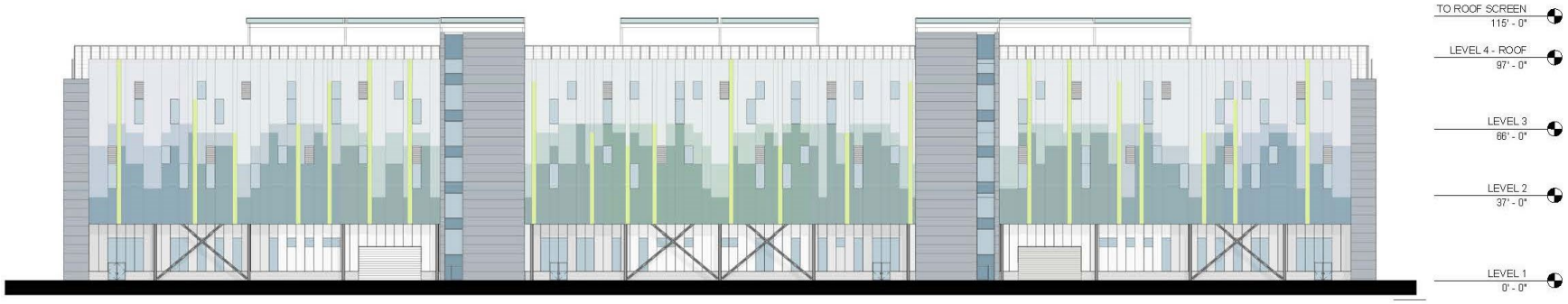
ⓒ Improved streetscape with 45° back-in parking

ⓓ Solar array to power building and fleet

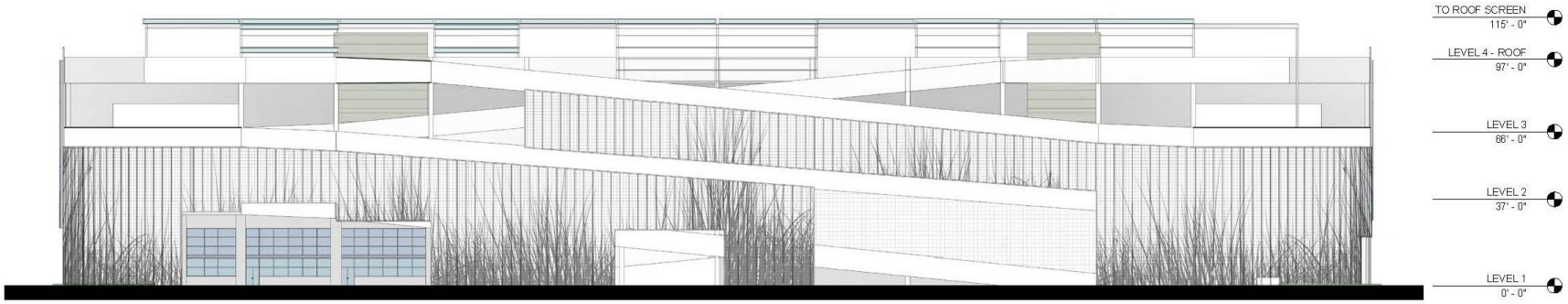
ⓔ Vertical screening element

Source: JLA, 2021

Figure 15 Proposed Project – Elevations (North and South)



Kirkwood Avenue Elevation *(single building, similar for both buildings)*



McKinnon Avenue Elevation *(single building, similar for both buildings)*

Source: JLA, 2021

Figure 16 Proposed Project – Elevations (East and West)



Selby Street Elevation *(similar for both buildings)*



Toland Street Elevation *(Rankin Street similar)*

Source: JLA, 2021

Proposed Parking, Loading, and Circulation

ON-STREET PARKING

The proposed streetscape improvements would provide 223 new striped parking spaces along the perimeter of the project site. The project would establish the following configurations for on-street parking:

- Striped parallel parking spaces on the eastern side of Toland Street, the eastern and western sides of Selby Street, and western side of Rankin Street, and
- Striped back-in, 45 degree parking spaces on the northern and southern sides of Kirkwood and McKinnon avenues.

OFF-STREET PARKING AND LOADING

The proposed project would include approximately 599,400 gross square feet of parking. Seven new proposed curb cuts per building (14 total) along the project site's perimeter would allow ingress and egress to and from the buildings. Approximately 1,166 parking spaces for standard automobiles would be provided, and each building would include 36 loading dock doors at level 1 with additional tenant-specific loading on the upper levels.

PROPOSED BICYCLE PARKING

The proposed project would provide 112 bicycle parking spaces in total: 100 class I and 12 class II spaces. The 100 class I bicycle parking spaces would be provided at ground level in buildings A and B, adjacent to the corner lobbies and retail areas of each building. Each building would provide approximately 50 class I spaces. The 12 class II bicycle parking spaces would be provided along the edges of the project site at pedestrian access points and near the building entrances, outside the corner lobbies and retail areas.

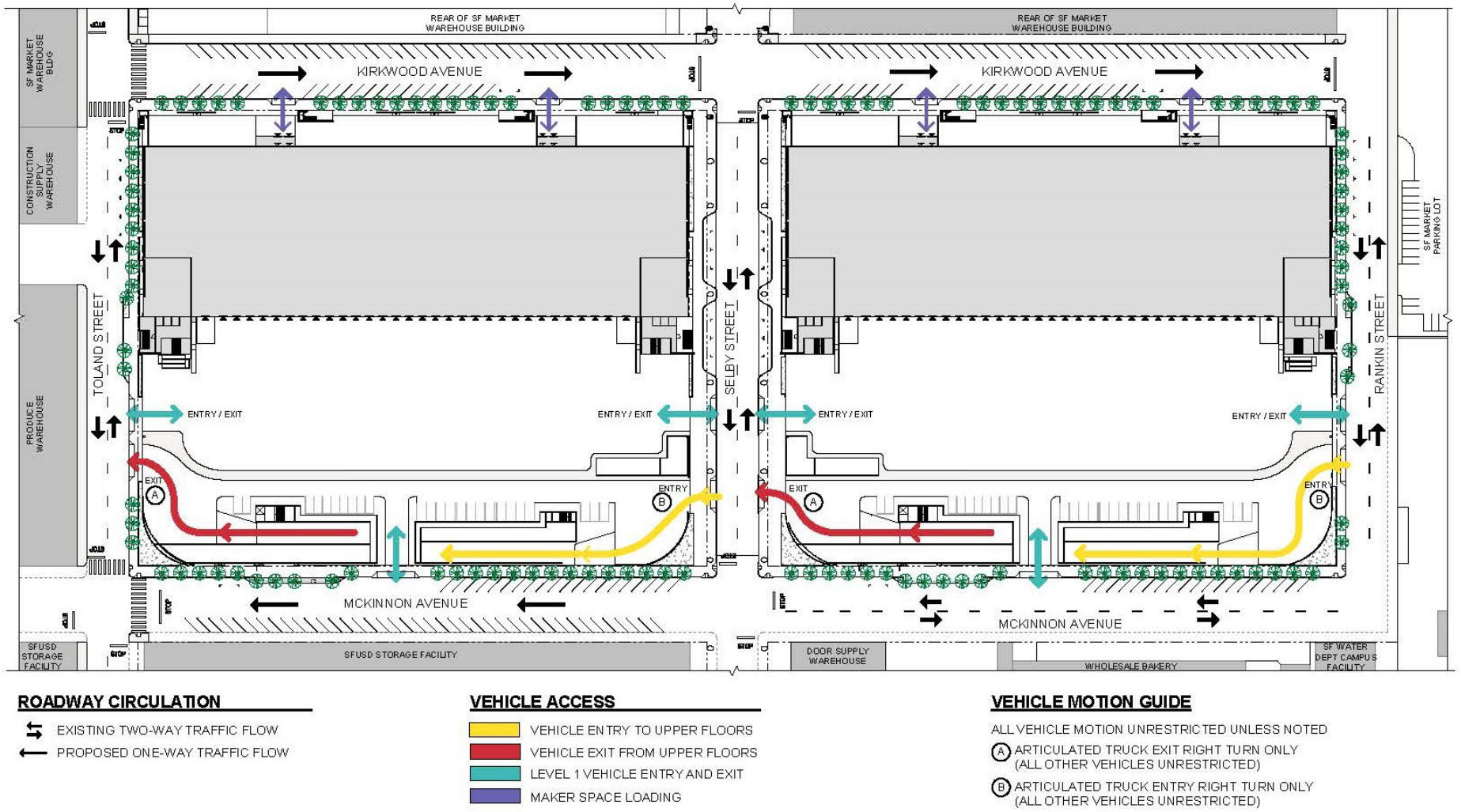
PROPOSED VEHICULAR ACCESS AND CIRCULATION

Vehicular access to the project site and circulation around its perimeter would be altered from existing conditions. Existing access for vehicles, pedestrians, bicyclists and people on public transportation is shown in Figure 4 (p. 8). Figure 17 (p. 30) illustrates the proposed roadway modifications adjacent to the project site. Proposed vehicle access and circulation is shown in Figure 18 (p. 31).

The project proposes converting Kirkwood Avenue from a two-way street to a single-lane, eastbound, one-way street, and converting a portion of McKinnon Avenue (between Toland and Selby streets) from a two-way street to a single-lane, westbound, one-way street. As discussed below in Required Approvals (p. 40), modifications to the roadway directions and lane configurations on the streets surrounding the project site would require approval by the SFMTA. Large vehicles (such as tractor trailers) traveling to and from the upper levels of both buildings would be restricted to right turns only to enter and exit the buildings, resulting in a clockwise circulation pattern around both buildings.

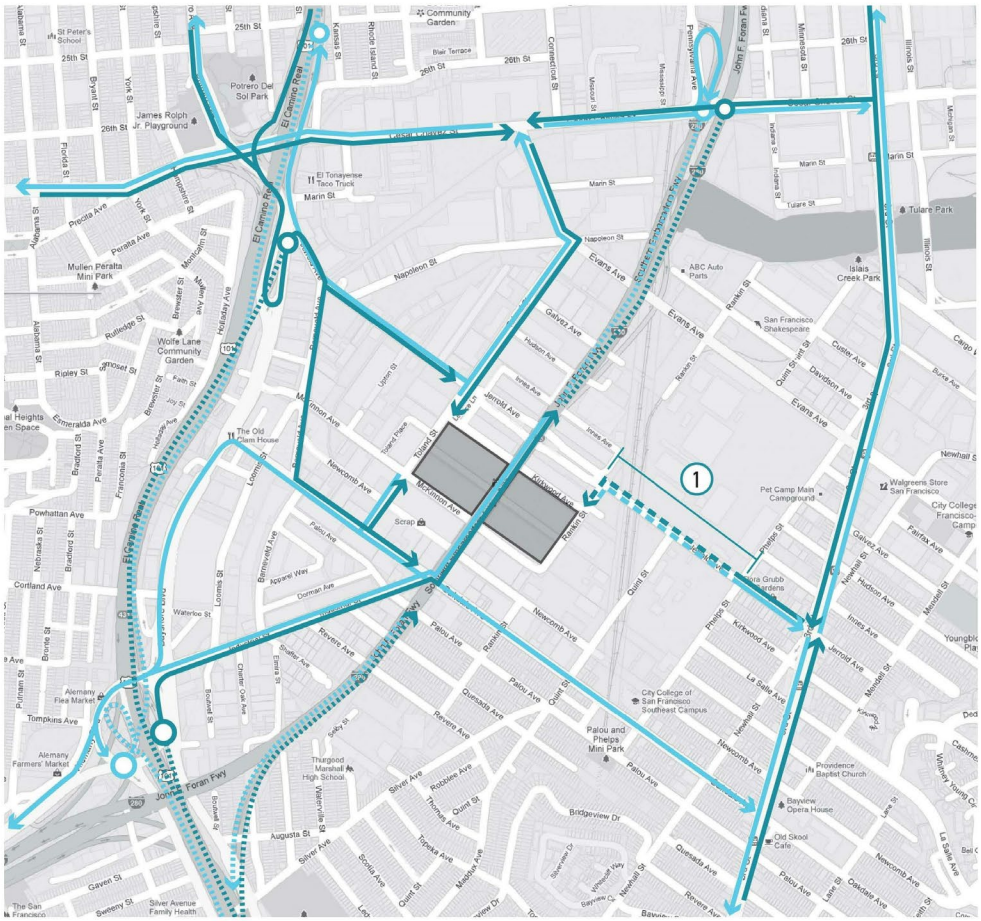
To access building A, vehicles traveling to the ground level would have two points of entry and exit; one on Toland Street and one on Selby Street. There would be no restrictions for vehicles entering and exiting the ground level (i.e., vehicles using these points of entry and exit could turn left or right). Vehicles traveling to the upper floors (via ramps) of building A would enter the site from Selby Street and exit at Toland Street. Although large trucks would be restricted to right-turn entry and exit, all smaller vehicle turning would be unrestricted.

Figure 17 **Proposed Roadway Modifications Surrounding the Project Site**



Source: JLA, 2021

Figure 18 Proposed Vehicle Access and Circulation



1. Portion of Jerrold to be closed during PUC construction

Source: JLA, 2021

To access building B, vehicles traveling to the ground level would have two points of entry and exit; one on Rankin Street and one on Selby Street. There would be no turning restrictions for vehicles entering and exiting the ground level. Vehicles traveling to the upper floors (via ramps) of building B would enter the site from Rankin Street and exit at Selby Street. Although large trucks would be restricted to right-turn entry and exit, all smaller vehicle turning would be unrestricted.

PEDESTRIAN ACCESS AND CIRCULATION

Pedestrian access to and from the project site would be primarily along Toland and Rankin streets. Secondary points of pedestrian access would be provided along Selby Street (Figure 17, p. 30).

Pedestrians walking around the project site would use the new sidewalks and specific pedestrian-designated walkways. The project proposes continuous sidewalks on all immediately adjacent street frontages (including Selby Street) to promote pedestrian access around the exterior of the site. New sidewalks are proposed on the eastern side of Toland Street, the southern side of Kirkwood Avenue, the western side of Rankin Street, the northern side of McKinnon Avenue, and along both sides of Selby Street.

Pedestrians would enter building A from adjacent streets through one of two ground-level lobbies: one on Toland Street and a second point of entry on Selby Street, both at mid-block. These lobbies would provide access to passenger elevators and stairs that would provide access to all parking and PDR levels of building A.

Pedestrian circulation at building B would be similar to pedestrian circulation at building A, except that the entry points to the main lobbies would differ. The pedestrian lobbies would be located mid-block along Rankin Street and a secondary point of entry mid-block on Selby Street.

Transportation Demand Management Plan

Pursuant to planning code section 169, the project sponsor is required to submit a transportation demand management (TDM) plan application to the San Francisco Planning Department (planning department). The project sponsor expects to meet the TDM target points by implementing a combination of the following TDM measures:

- **Bicycle Parking (TDM Measure ACTIVE-2):** Bicycle parking would be provided for PDR and retail uses. The number of spaces provided for PDR and retail uses would comply with the planning code.
- **Showers and Lockers (TDM Measure ACTIVE-3):** Showers and clothes lockers would be provided with class I bicycle parking spaces. The number of showers and clothes lockers would meet planning code requirements.
- **Car-Share Parking (TDM Measure CSHARE-1):** Car-share spaces would be provided in buildings A and B in accordance with the planning code.

Streetscape Improvements and Wind Mitigation Measures

The proposed project would be required to comply with the city's Better Streets Plan (planning code, section 138.1).[16] Thus, a streetscape plan would be submitted to the planning department. On-street parking would also be provided in accordance with the Better Streets Plan; proposed on-street parking would be comprised of reverse-angle and parallel parking stalls.

[16] San Francisco Planning Department, *San Francisco Better Streets Plan* (2010), *http://www.sf-planning.org/ftp/BetterStreets/proposals.htm#Final_Plan* (also available in hard copy at the San Francisco Public Library), accessed February 10, 2018.

Pursuant to the Better Streets Plan, the proposed project would provide streetscape improvements to the streets immediately adjacent to the project site (Figure 19, p. 34). The project area is classified as an industrial street type under this plan and would require new sidewalks, street trees, stormwater control measures, and accessible curb ramps. There are currently no sidewalks adjacent to the project site. Pursuant to public works code section 806(d), the proposed project would be required to provide 216 street trees along the project's 4,300 linear feet of street frontages or to pay the appropriate in-lieu fees. Due to project and site constraints (e.g., curb cuts, I-280 overpass, line-of-sight restrictions, and location of site utilities), the project sponsor would plant approximately 124 street trees and pay the corresponding in-lieu fee for the remaining required trees that cannot be accommodated onsite.[17] These 124 street trees would be consistent with the Better Streets Plan and subject to the review and approval by the department of public works, Bureau of Urban Forestry. The nine street trees on the eastern sidewalk of Toland Street along the northern half of the building (from the building A entrance to Kirkwood Street) would serve as wind mitigation measures; they would be approximately 25-foot-tall evergreen street trees with a 15-foot diameter canopy.[18]

The streetscape improvements to Toland Street would involve constructing a new 10-foot-wide sidewalk with street trees. An approximately 6-foot-wide, mid-block *bulb-out*[19] with planters and street trees would be constructed along the main pedestrian entrance. This portion of the sidewalk would be 16 feet wide. The project would provide an improved vehicular travel lane and up to four on-street parallel parking spaces on the eastern side of Toland Street. In addition, two approximately 34-foot-wide driveways would be added along Toland Street to provide vehicular access onto the site. This portion of Toland Street would be resurfaced.

Along Kirkwood Avenue, a new 12-foot-wide sidewalk would be constructed, and street trees would be installed adjacent to the project site. Each building would provide two 24-foot wide curb cuts to access the PDR and/or maker space loading areas. A curb and gutter system would be installed on the northern side of Kirkwood Avenue. The full width of Kirkwood Avenue along the project limits would be resurfaced.

Along Rankin Street, new 10-foot-wide sidewalks with street trees would be installed. An approximately 6-foot-wide, mid-block bulb-out with planters and street trees would be constructed along the main pedestrian entrance. This portion of sidewalk would be 16 feet wide. The project would provide a vehicular travel lane and up to five striped parallel, on-street parking spaces on the western side of Rankin Street. In addition, two approximately 34-foot-wide driveways would be added along Rankin Street to provide site access. This portion of Rankin Street would be resurfaced.

Along McKinnon Avenue, a new 12-foot-wide sidewalk would be constructed, and street trees would be installed adjacent to the project site. Two approximately 6-foot-wide mid-block bulb-outs with planters and street trees would be installed adjacent to each building's retail space. These two portions of the sidewalk would be 18 feet wide. Each building would provide a 40-foot-wide curb cut to provide site access. A 16-foot-wide travel lane would be provided and the portions of McKinnon Avenue that extend from the centerline of the right-of-way and the site. This portion of McKinnon Avenue would be resurfaced.

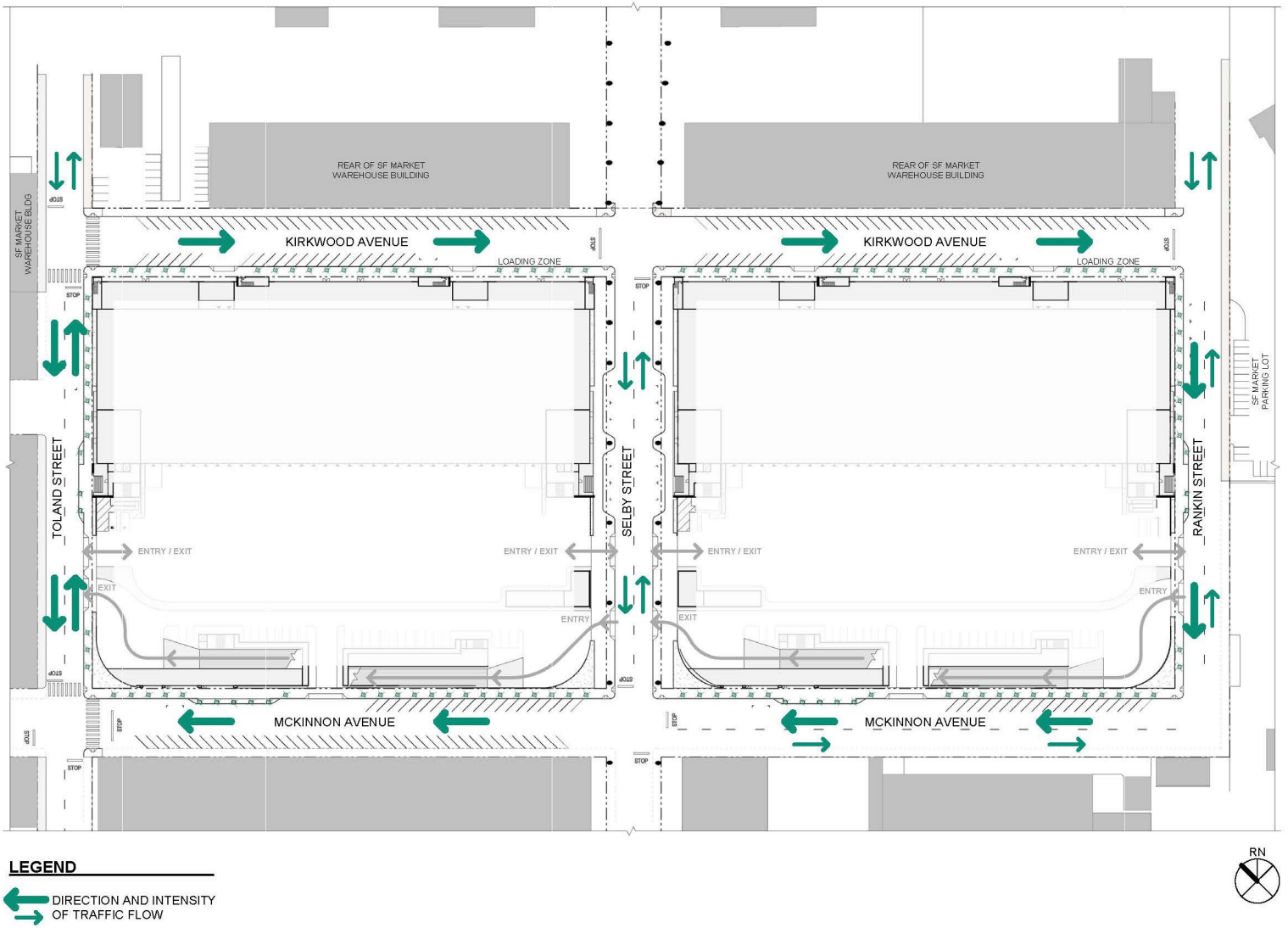
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17 San Francisco Planning Department, Greenhouse Gas Analysis: Compliance Checklist for the San Francisco Gateway Project (749 Toland Street and 2000 McKinnon Avenue, December 19, 2019. This document (and all documents cited in this initial study, unless otherwise noted) is available for review on the San Francisco Property Information Map, which can be accessed at http://sfplanninggis.org/PIM/?. Individual files can be viewed by clicking on the Planning Applications link, clicking on the "More Details" link under the project's environmental case number (2015-012491ENV), and clicking on the "Related Documents" link.

18 BMT, San Francisco Gateway Project Final Wind Microclimate Study, June 23, 2020.

19 Bulb-outs extend the sidewalk into the parking lane to narrow the roadway and provide additional pedestrian space at key locations; they can be used at corners and mid-block.

Figure 19 Proposed Streetscape Plan



Source: JLA, 2021

Sustainability

The proposed project has been designed to be sustainable and resilient by providing flexible PDR space that could accommodate an evolving mix of users and serve the changing needs in the city for a 100-year period or longer. Additionally, the project would seek LEED Gold certification or higher. Buildings A and B would be designed to contain sustainability features such as a rooftop screen containing a solar array. This array would be sized to meet the San Francisco Better Roof Ordinance requirements and would generate electricity that could be used to offset the electrical use of the building and/or the electric vehicles housed and/or visiting the site. In addition, all docking stations are being designed to support electric plug-in of trucks to reduce idling time during loading and unloading of trucks serving future land uses onsite, thereby further minimizing onsite idling and resultant fuel use. Additional features to achieve LEED Gold certification would include the use of sustainable building materials, water- and energy-efficient mechanisms in the building design, bicycle facilities to encourage alternate modes of transportation, and indoor air quality measures to ensure tenant safety.

Foundation and Excavation

The proposed project's foundation design is expected to be concrete spread footings and/or grade beams on improved and engineered soil, with excavation for the foundations likely to extend 10 feet below existing grade. Typical foundation excavation is expected to extend to 7 feet below grade, with elevator pits and utility trenching extending to 10 feet below existing grade.

Ground improvements, such as stone columns, drill displacement columns,[20] *geopiers*,[21] soil-cement mixing, or other similar methods, would provide vertical support through the existing soils to strengthen the undocumented fill that underlies the project site. Using drill rigs, approximately 7,000 vibratory replacement stone columns or drill displacement columns would be extended 25 feet deep and approximately 900 auger cast piles would be extended 60 feet deep to support the buildings onsite. The proposed project would not require pile-driving activities. Approximately 140,600 cubic yards of soil would be excavated for the proposed project.[22] Of this total, approximately 42,600 cubic yards would be improved and reused, and the remaining 98,000 cubic yards would be exported offsite. Ground improvements, such as extended piles, stone columns drill displacement columns, geopiers, soil-cement mixing, or other similar methods, would provide vertical support through the existing soils to strengthen the undocumented fill that underlies the project site. The proposed project would import approximately 2,000 cubic yards of soil to the site. At least four underground storage tanks were historically present on the project site along Selby Street and one additional underground storage tank may have been present near the site's easternmost corner.[23] Although the number of underground storage tanks present onsite is not known, the project sponsor would coordinate with the San Francisco Department of Public Health and comply with all permit requirements under the city's Hazardous Materials and Waste Program, which may result in the need for soil excavation and remediation activities. The total soil excavation volume (140,600 cubic yards) and the total volume of exported soil offsite (98,000 cubic yards) included in the estimates above would account for potential excavation, export, and remediation activities.

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20 Drill displacement columns (or controlled low-strength material columns) are formed in displaced soil cavities and displace liquefiable and compressible soil with cemented controlled low-strength material. Controlled low-strength material column ground improvement can mitigate liquefaction and settlement of heavy foundations and slabs. Controlled low-strength material columns are ideal for sensitive project sites such as those near critical structures that require low noise and no vibration construction methods.

21 "Geopier" is an engineering term used to refer to stiff rock columns drilled deep into the earth's surface, down to a hard nonyielding depth. They are used to support a building foundation and reinforce the soil when the existing ground is unstable, wet or unsuitable for building construction.

22 The proposed project would entail excavation of 140,600 cubic yards of soil. This total includes 134,000 cubic yards of soil onsite and 6,600 cubic yards of soil for street improvements.

23 Phase I and phase II ESAs, pp. v and 3.

Because of the presence of shallow groundwater 3 to 6 feet below ground surface, temporary dewatering and shoring of utility trenches is anticipated to be required in some areas of the site.[24]

Construction Schedule and Phasing

This section describes the construction activities for the proposed project. Construction is anticipated to occur over a total of approximately 31 months. The construction of each building would take approximately 27 months; however, the start of construction for building A would be approximately four months before the start of construction for building B, resulting in a total construction duration of approximately 31 months. As described in Table 4, construction would include demolition and site preparation, grading and ground improvements, building construction, building envelope and interior buildout, sitework, and startup and commissioning.[25] Construction work would typically occur five to six workdays per week for eight hours per day. Nighttime construction activities are anticipated to occur during specific phases of building construction—specifically, the building envelope and interior buildout phase, and the sitework phase. Nighttime construction activities, as defined by article 29 of the San Francisco Department of Public Health, are construction activities occurring between 8 p.m. and 7 a.m. The project sponsor would be required to obtain a permit from the San Francisco Public Works or the Department of Building Inspection (building department) to extend construction activities beyond the allowable construction hours (7 a.m. to 8 p.m.). The total number of temporary/short-term workers during the approximate 31-month duration of construction is anticipated to range from approximately 2,500 to 3,000.

Table 4 Construction Phasing

Construction Phase	Duration (weeks)
Demolition and Site Preparation	8
Grading and Ground Improvements	16
Building Construction	61
Building Envelope and Interior Buildout	60
Sitework	25
Startup and Commissioning	7
Total	**31 months[1]**

Note:

[1] Construction duration would total 31 months, which would include several months of overlapping phases, primarily during Building Construction, Building Envelope and Interior Buildout, and Site Work. In addition, the start of construction for building A would be approximately 4 months before the start of construction for building B.

On June 7, 2021, the project sponsor submitted a priority processing application under Planning Director's Bulletin No. 2, committing the project to use the lowest diesel emitting off-road equipment (Tier 4 interim or final) for the duration of construction.[26,27] On June 15, 2021, the planning department approved this application.[28]

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[24] Cornerstone Earth Group, *Preliminary Geotechnical Investigation, LaSalle Industrial Park, San Francisco*, April 22, 2015 (hereinafter referred to as "geotechnical investigation").

[25] In the final stages of construction, the project would undergo commissioning of building systems to ensure that they are complete and functioning properly as designed. In addition to the standard building commissioning, LEED components would undergo fundamental commissioning and verification.

[26] Prologis, *Application for Priority Application Processing for Director's Bulletin No. 2,* June 7, 2021.

[27] Prologis, *Priority Application Processing for Clean Construction Projects, Supplemental Application for Type 3 Priority Projects for Director's Bulletin No. 2,* June 7, 2021.

[28] San Francisco Planning Department, *Signed Application for Priority Application Processing for Director's Bulletin No. 2,* June 15, 2021.

Approximately 400 to 500 workers are expected to travel to the site daily at any given time during peak construction periods. Carpooling and use of public transportation would be encouraged. It is anticipated that construction parking would be located onsite, on Selby Street which would be temporarily closed during construction, and on surrounding city streets.

Construction access for truck haul routes are indicated on Figure 20 (p. 38). A traffic control plan established by the construction contractor would be necessary during construction to complete the streetscape improvements in the public right-of-way along with other features. Additionally, use of the right-of-way may be necessary during demolition; soil off-hauling; deliveries of steel, precast concrete, and concrete; and other construction phases.

Expanded Streetscape Variant

An expanded streetscape variant is analyzed in this environmental review (Figure 21, p. 39). The expanded streetscape variant comprises the same land uses and site plan as the proposed project but would improve the remainder of adjacent public rights-of-way to Better Streets standards. The variant would include improvements from the center line of each adjacent street outward to the property line of the adjacent lots. These improvements would include new roadways, curb cuts, sidewalks, street trees, and other amenities. These improvements are studied to provide environmental clearance in the event the improvements are carried out by the project sponsor or other parties in the future.

Along Toland Street, between Kirkwood Avenue and McKinnon Avenue, the variant would include resurfacing the southbound side of the street. It would include extending the existing 10-foot sidewalk and planting approximately 13 street trees from the Kirkwood intersection to the McKinnon intersection. New curb ramps would be provided at both sides of the Toland Place intersection. Curb ramps and crosswalks would be provided at the southern and western sides of the Toland and McKinnon intersection. Five curb cuts of varying widths (24 to 40 feet) would be provided to maintain existing building access points.

Along Kirkwood Avenue, the variant would include building a 12-foot sidewalk, installing a curb and gutter, and planting approximately 55 street trees on the northern side of the street.

Along Rankin Street, the northbound side of the street would be resurfaced. A 10-foot sidewalk with approximately 11 street trees and curb and gutter would connect the existing sidewalk at 901 Rankin Street to McKinnon Avenue. One 30-foot-wide curb cut would be added to maintain existing access to the 1900 Newcomb Avenue site.

Along McKinnon Avenue, between Selby and Toland streets, the variant would include resurfacing the southern side of the street, installing a new curb and gutter, providing approximately 16 back-in diagonal parking spaces, and building a 12-foot sidewalk with approximately 17 street trees. Six 24-foot-wide curb cuts would be added to maintain existing access to properties on the southern side of McKinnon Avenue. Curb ramps would be included on the southwestern and southeastern corners of the intersection with Selby Street. On McKinnon Avenue, between Selby and Rankin streets, the variant would include resurfacing the southern side of the street, installing a new curb and gutter, and building a 12-foot sidewalk with approximately 12 street trees. Eight curb cuts of varying widths (10 to 50 feet) would be added to maintain existing access to properties on the southern side of McKinnon Avenue.

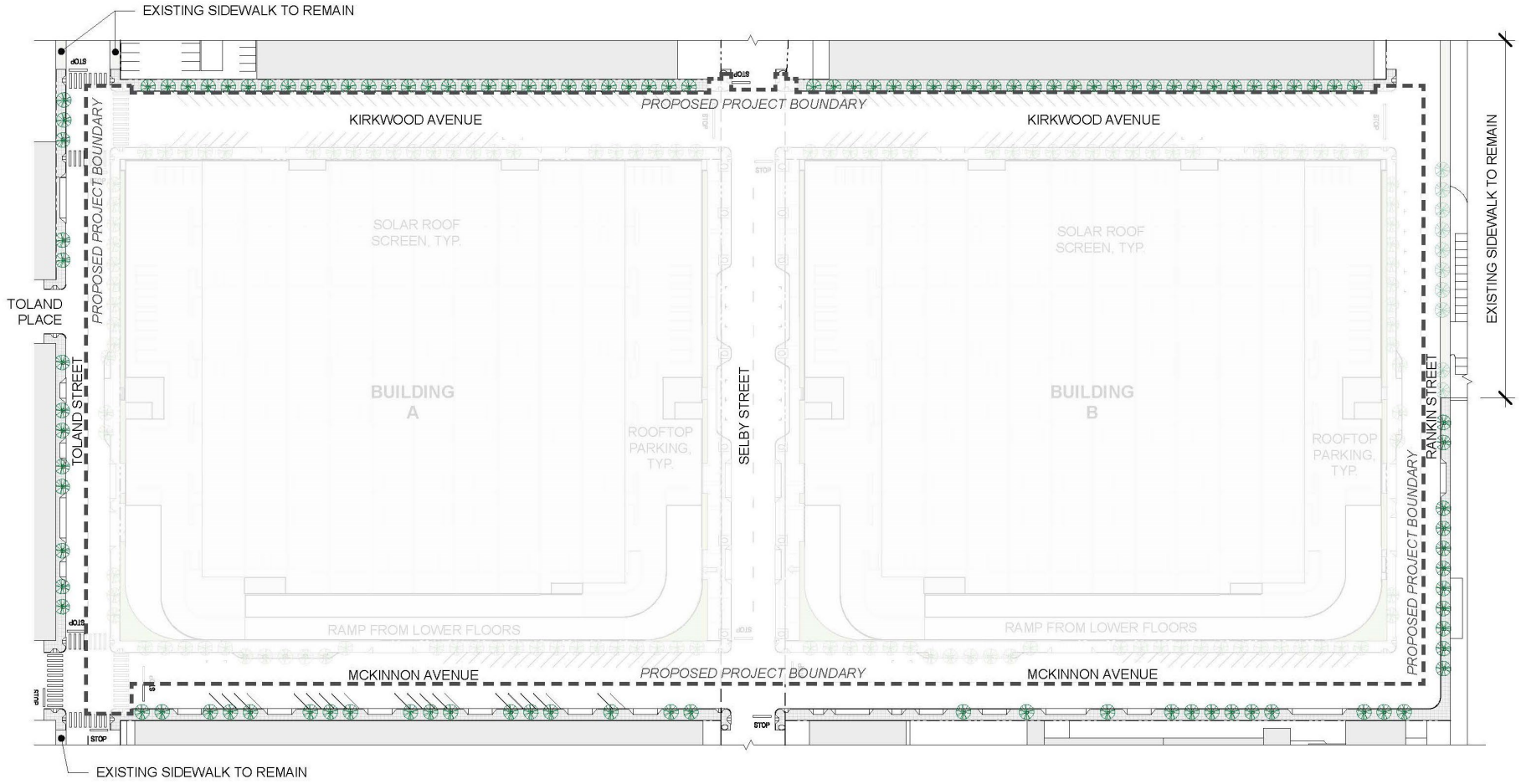
The maximum depth of ground disturbance associated with the streetscape improvements would be no more than 3 feet. Less than 100,000 square feet of surface area would be disturbed as part of the variant.

Figure 20 Proposed Construction Access



Source: AECOM 2019

Figure 21 Expanded Streetscape Variant



Source: JLA 2022

Required Approvals

Certification of the final environmental impact report (EIR) by the San Francisco Planning Commission (planning commission), which would be appealable to the San Francisco Board of Supervisors (board of supervisors), is required before any discretionary approvals or permits can be issued for the proposed project. The following is a preliminary list of anticipated approvals for the proposed project. The list would apply to the proposed project and the expanded streetscape variant and is subject to change.

Actions by the San Francisco Planning Commission

- Recommendation to the board of supervisors to approve the planning code and zoning map amendments for height district reclassification and to adopt a new special use district
- Approval of a Planned Unit Development-Conditional Use Authorization in accordance with planning code sections 303 and 304 to permit a large-scale development on a site larger than one-half acre
- Recommendation to the board of supervisors to approve a development agreement
- Adoption of findings under the California Environmental Quality Act (CEQA)
- Approval of a TDM plan (planning code section 169)
- Recommendation to the board of supervisors to adopt amendments to the San Francisco General Plan (general plan) (if determined to be required)

Actions by the San Francisco Board of Supervisors

- Approval of planning code and zoning map amendments for height district reclassification and to adopt a new special use district
- Approval of the development agreement

Actions by Other City Departments

- *San Francisco Planning Department and San Francisco Department of Building Inspection* – Approval of the site permit and addenda thereto
- *Department of Building Inspection* – Approval of demolition, grading, and building permits for the demolition of the existing buildings, and construction of the new building and night noise permit for work performed outside the normal 7 a.m. to 8 p.m. construction hours
- *San Francisco Department of Public Works* – Approval of street tree application, approval of temporary use permits during construction and permanent streetscape improvements, a permit to plant street trees and a partial waiver from Public Works Code section 806(d) to provide 92 fewer street trees than required, and night noise permit for work performed outside the normal 7 a.m. to 8 p.m. construction hours

- *San Francisco Municipal Transportation Agency* – Approval of temporary use permits during construction, permanent curb modifications, and modifications to the roadway directions and lane configurations on the streets surrounding the project site

- *San Francisco Department of the Environment* – Approval of a Demolition Debris Recovery Plan

- *San Francisco Public Utilities Commission* – Approval of any changes to sewer laterals; approval of a modified Stormwater Control Plan; approval of an erosion sediment control plan before the start of construction, compliance with postconstruction stormwater design guidelines, including a stormwater control plan, new curb and gutter system, cistern design, and groundwater dewatering wells per San Francisco Health Code article 12B (joint approval with the San Francisco Department of Public Health)

- *San Francisco Department of Public Health* – If applicable, approval of a hazardous materials release plan and inventory program pursuant to San Francisco Health Code articles 21 and 21A; approval of a dust control plan pursuant to San Francisco Building Code section 106 and San Francisco Health Code article 22B; approval of a site mitigation plan and soil mitigation plan in compliance with San Francisco Health Code article 22A (the Maher Ordinance), development and implementation of the article 29 guidelines, and review and approval of groundwater dewatering wells (joint approval with the SFPUC)

Actions by Other Agencies

- *Bay Area Air Quality Management District* – Issuance of permits for the installation and operation of emergency generators, and certification to the building department that all asbestos-containing building materials have been removed and properly disposed in accordance with the law before demolition of the existing buildings; additionally, approval of permits for installation, operation, and testing of individual air pollution sources associated with tenant-specific activities would be required on a case-by-case basis

- *Caltrans* – Coordination, review, and issuance of a Caltrans standard encroachment permit

B. PROJECT SETTING

EXISTING SETTING

The project site is bounded by Kirkwood Avenue to the north, Rankin Street to the east, McKinnon Avenue to the south, and Toland Street to the west. The project site is in the Bayview neighborhood and falls within the area covered by the Bayview Hunters Point Area Plan in the general plan. Because of the area's industrial use and specific transportation-related features, the surrounding street network is made up of relatively large blocks and many discontinuous streets with unregulated parking. Surrounding transportation features that shape access to the project site include the Caltrain right-of-way and associated berm and track; the two-level, elevated portion of the I-280 Caltrans right-of-way; and a number of discontinuous and/or uniquely configured surrounding streets. Evans and Jerrold avenues (north of the project site) and Oakdale Avenue (south of the project site) are the only east-west streets that cross the Caltrain tracks in the project area. This condition limits the east-west connectivity of Kirkwood and McKinnon avenues and encourages the flow of traffic from the project site westward onto Toland Street.

The project site is rectangular and is currently occupied by four single-story, 448,000-gross-square-foot PDR buildings. The project site and vicinity are relatively flat. View corridors are limited to streets, from which the most prominent features are the elevated segment of I-280 (approximately 55 feet in height) that bisects the project site and the hills west of U.S. 101 (Bernal Heights), east of Third Street, and south of Palou Avenue. The project vicinity is currently developed with commercial and industrial uses and features a number of large warehouse-type structures, along with some smaller, nonresidential buildings. Structures are one to three stories tall; are usually set close to the sidewalk or offset by paved parking areas, with little or no landscaping; and are constructed with steel frames and metal siding, a style similar to the existing buildings on the project site. The larger warehouse-type structures are generally windowless.

Two warehouses of the SF Market, each approximately 30 feet tall, are immediately adjacent to the project site on the northern side of Kirkwood Avenue to the east and west of Selby Street. Along the eastern side of Rankin Street, there are operations yards associated with the San Francisco Water Department and additional facilities of the SF Market. McKinnon Avenue, east of Selby Street, contains a variety of warehouse buildings that range in height from 20 feet to 30 feet. A warehouse building, with similar design to the buildings currently at the project site, is on McKinnon Avenue, west of Selby Street. There are two approximately 20- to 25-foot-tall warehouse buildings with multiple tenants along the western side of Toland Street, adjacent to Toland Place. North of these warehouses is a 35-foot-tall building occupied by the SF Market.

As part of their daily operations, PDR activities in these areas may produce noise, vibration, odor, and other emissions. Existing traffic from I-280 is a dominant noise source in the project vicinity. In general, the immediate vicinity of the project site is very noisy. New housing, large office developments, large-scale retail, and the heaviest industrial uses, such as incinerators, are not permitted in the PDR-2 district in which the site is located. Commercial and industrial uses are to the east toward the inlet for Islais Creek and San Francisco Bay. Residential uses primarily are to the north, west, and south of the PDR-2 use district where the proposed project would be located. The nearest residential use is approximately 450 feet southeast of the project site. There are no schools within 0.25 mile of the site.

The project site is currently served by the Third Street Muni light rail line and four bus lines. Transit stops in the project vicinity include stops for Muni bus lines 23-Monterey, 24-Divisadero, and 9-San Bruno, and San Mateo County Transit District bus line 292. The 23-Monterey Muni line operates immediately adjacent to the project

site,[29] with the closest stop at the corner of Toland Street and McKinnon Avenue, and the other bus lines operate within approximately four blocks of the site. The Third Street light rail line is approximately 0.4 mile east of the project site; the closest stops are Kirkwood/La Salle (0.6 mile southeast), Hudson/Innes (0.5 mile east), and Oakdale/Palou (0.7 mile southeast). The closest BART station is the 24th Street Mission station, approximately 1.5 miles to the northwest; the Glen Park BART station is approximately 2.5 miles to the southwest. The 22nd Street Caltrain Station is approximately 1.5 miles to the northeast.

CUMULATIVE SETTING

Cumulative projects within an approximately 0.25-mile radius of the project site are discussed below and mapped in Figure 22 (p. 44). As of publication of this initial study, each project is undergoing environmental review with the planning department.

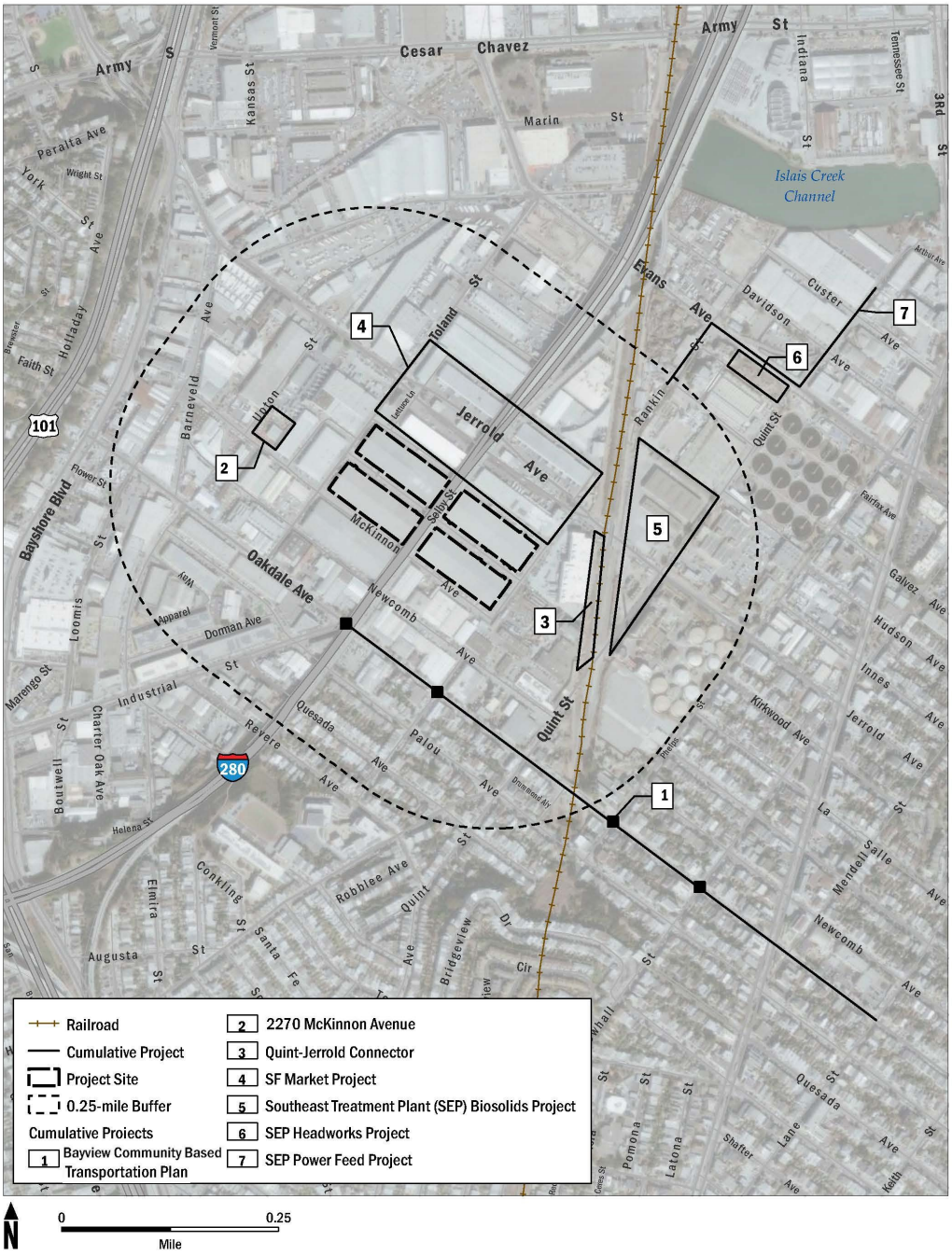
1. **Bayview Community Based Transportation Plan:** This is a community-driven planning effort funded through a Caltrans Sustainable Planning Grant. The SFMTA drafted this five-year investment plan for transportation infrastructure; the SFMTA Board of Directors approved it in February 2020. The Bayview Community Based Transportation Plan seeks to improve physical mobility in the Bayview community by focusing on solutions based on the needs of existing residents and businesses in the neighborhood. Through this community plan, the SFMTA proposes to implement a series of quick-build projects that improve pedestrian visibility and comfort at crossings and reduce vehicle speeds. Typical quick-build improvements include road diets (i.e., removing one or more travel lanes), paint, traffic delineators and street signs, parking and load adjustments, traffic signal timing, and transit boarding islands. As of publication of this initial study, Innes Avenue, Oakdale Avenue, and Phelps Street are locations proposed for quick-build improvements; however, only those on Oakdale Avenue are within the approximately 0.25-mile radius of the project site.

2. **2270 McKinnon Avenue (Planning Department Case No. 2021-001639ENV):** The project would demolish the existing accessory building to construct an approximately 119,900-square-foot building containing 111,100 square feet of self-storage use. The new building would be four stories and approximately 40 feet in height.

3. **Quint-Jerrold Connector (Planning Department Case No. 2013-0858E):** The proposed Quint-Jerrold Connector Road project would link Quint Street just north of Oakdale Avenue to Jerrold Avenue via a new road along the western side of the Caltrain tracks. This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue, which is now blocked by a Caltrain berm. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. In addition, the project would construct or install several other elements along or beneath the length of the new roadway. Along the western side of the new roadway, the project would construct a new 5.5-foot-wide to 20-foot-wide sidewalk, depending on location; construct a new 27-foot-wide curb cut along the SF Market property; and install street trees and street lighting. Along the eastern side of the new roadway, the project would construct a new 6.5-foot-tall reinforced concrete retaining wall. A new intersection would be constructed at Jerrold Avenue that would allow for turns in all directions, accommodate trucks, and integrate with the SF Market's planned street reconfiguration. New sewer and water pipelines would be installed beneath the new roadway to provide onsite drainage and overall system reliability. The new road could also support a potential new Caltrain station at Oakdale Avenue.

[29] As part of the Palou Avenue Streetscape Improvement Project, the 23-Monterey Muni line was rerouted three blocks south, off Jerrold Avenue and onto Palou Avenue. Construction of this project was completed in spring 2020.

Figure 22 Cumulative Projects near Project Site (0.25 Mile)



AECOM

San Francisco Gateway Project

4. **2270 McKinnon Avenue (Planning Department Case No. 2021-001639ENV):** The project would demolish the existing accessory building to construct an approximately 119,900-square-foot building containing 111,100 square feet of self-storage use. The new building would be four stories and approximately 40 feet in height.

5. **Quint-Jerrold Connector (Planning Department Case No. 2013-0858E):** The proposed Quint-Jerrold Connector Road project would link Quint Street just north of Oakdale Avenue to Jerrold Avenue via a new road along the western side of the Caltrain tracks. This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue, which is now blocked by a Caltrain berm. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. In addition, the project would construct or install several other elements along or beneath the length of the new roadway. Along the western side of the new roadway, the project would construct a new 5.5-foot-wide to 20-foot-wide sidewalk, depending on location; construct a new 27-foot-wide curb cut along the SF Market property; and install street trees and street lighting. Along the eastern side of the new roadway, the project would construct a new 6.5-foot-tall reinforced concrete retaining wall. A new intersection would be constructed at Jerrold Avenue that would allow for turns in all directions, accommodate trucks, and integrate with the SF Market's planned street reconfiguration. New sewer and water pipelines would be installed beneath the new roadway to provide onsite drainage and overall system reliability. The new road could also support a potential new Caltrain station at Oakdale Avenue.

6. **SF Market Project (Planning Department Case No. 2009.1153E):** The proposed project is a phased development plan to expand the existing SF Market on its current site and would reconfigure the roadways around the project site to improve site access and safety. This would entail redirecting Jerrold Avenue through-traffic around the Main Site onto Innes Avenue. The project would be constructed in various phases over an approximate 20-year period. The site is split into three subareas: the Main Site, the 901 Rankin Street site to the east, and the 2101 Jerrold Avenue site to the west. The maximum development scenario would demolish 12 of the 13 buildings currently on the site and construct four new warehouse structures on the Main Site and one new warehouse structure on the 901 Rankin Street site. No alterations are proposed at the 2101 Jerrold Avenue site. All warehouses would have accessory office space. The 901 Rankin Street site has been constructed and consists of PDR space and accessory office space. Of the four future warehouse structures to be built on the Main Site, two would have rooftop parking. In addition, a small (approximately 4,000-square-foot) Operations Center would be constructed on the Main Site. There would be a total of 440 parking spaces and 186 loading spaces.

San Francisco Public Utilities Commission Sewer System Improvement Projects in the Southeast Treatment Plant within approximately 0.25 mile of the Proposed Project:

7. **San Francisco Public Utilities Commission Southeast Treatment Plant Biosolids Digester Facility Project (Planning Department Case No. 2015-00644ENV):** The SFPUC Southeast Treatment Plant Biosolids Digester Facility Project would replace and relocate the solids treatment facilities with more efficient, modern technologies and facilities designed to produce Class A biosolids. Demolition activities began in fall 2019, and construction is anticipated through May 2026. Project construction will require a five-year closure of two blocks of Jerrold Avenue, starting at the Caltrain right-of-way and up to the Southeast Treatment Plant entrance west of Phelps Street. It is possible that this project will continue to

be under construction at the time the proposed project commences construction; therefore, this project is included as part of the proposed project's cumulative construction analysis.

8. **San Francisco Public Utilities Commission Southeast Treatment Plant Headworks Project (Planning Department Case No. 2015-006224ENV):** The SFPUC Southeast Treatment Plant Headworks Project is part of the Sewer System Improvement Program (SSIP), a 20-year citywide program to upgrade aging sewer infrastructure projects to ensure a reliable and seismically safe system. The project is on the northwestern portion of the Southeast Treatment Plant at the location of the existing headworks facility, near the intersection of Rankin Street with Evans Avenue. The project would construct a new headworks facility, modify the Bruce Flynn Pump Station, and construct a new odor control structure. The project would demolish the existing headworks facility and would construct a new 250 million gallon per day (mgd), all-weather headworks wastewater treatment facility in its place. Construction began in 2018 and is scheduled for completion in September 2023, with substantial completion in August 2023. Construction staging would be located in the Southeast Plant, in parking and travel lanes of Evans Street (two travel lanes would be maintained), in a lot adjacent to the Bruce Flynn Pump Station, on Southeast Plant property along Phelps Street, and potentially offsite at the Pier 94 Backlands, Pier 94, and/or Pier 96. It is possible that this project will continue to be under construction at the time the proposed project commences construction; therefore, this project is included as part of the proposed project's cumulative construction analysis.

9. **San Francisco Public Utilities Commission Southeast Treatment Plant Power Feed Project (Planning Department Case No. 2017-015855ENV):** The SFPUC Southeast Treatment Plant Power Feed Facility Project would upgrade the existing Southeast Treatment Plant electrical infrastructure from 9 to 12 megavolt-amperes. The proposed electrical building is at the Southeast Treatment Plant, at the corner of Evans Avenue and Phelps Street. The objective of the project is to increase reliability, redundancy, and capacity of the electrical system at Southeast Treatment Plant by upgrading the existing 12-kilovolt primary feed from Hunters Point switchyard and obtaining a new 12-kilovolt feed from Potrero switchyard to provide redundancy for Southeast Treatment Plant facilities. Project work consists of constructing a new two-story building over the existing switching station to house the new primary switchgear. In addition, aging substations would be replaced, and new power monitoring and control system would be installed for additional reliability and efficiency.

In addition, routine infrastructure repair, maintenance, and improvement projects (e.g., roadway repaving, water main replacements, and sewer upgrades) are ongoing throughout the city under existing conditions. It is anticipated that such projects will continue to be implemented through the construction of the proposed project or expanded streetscape variant.

C. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	Applicable	*Not Applicable*
Discuss any variances, special authorizations, or changes proposed to the Planning Code or Zoning Map, if applicable.	☒	☐
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	☒	☐
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	☒	☐

REQUIRED PROJECT APPROVALS

Required variances, special authorizations, and changes to the planning code or zoning map; approvals from city agencies (other than the planning department or building department); and approvals from regional, state, or federal agencies (if applicable) are discussed in Section A, Project Description, pp. 37 and 39 through 40.

CONFLICTS WITH ADOPTED PLANS AND POLICIES

This section discusses potential inconsistencies of the proposed project and expanded streetscape variant with applicable local plans and policies, as well as conflicts with regional policies (if applicable). Inconsistencies with existing plans and policies do not, in and of themselves, indicate a significant physical environmental effect within the meaning of CEQA. To the extent that adverse physical environmental impacts may result from such inconsistencies, these impacts are analyzed in this initial study under the specific environmental topic sections in Section E, Evaluation of Environmental Effects.

The proposed project would intensify land uses on an urban infill site, and to the extent that there are conflicts between the proposed project and applicable plans, policies, and regulations, those conflicts would be considered by city decision makers when they decide whether to approve, modify, or disapprove the proposed project. Similarly, the expanded streetscape variant would include additional improvements to local streets, sidewalks, parking, and landscaping, beyond the streetscape improvements of the proposed project. These changes would be similar to the streetscape improvements included as part of the proposed project. The staff reports and approval motions prepared for the decision makers as part of the entitlements approval process would include a comprehensive project analysis and findings regarding the consistency of the proposed project and the variant, if carried out by the project sponsor, with applicable plans and policies, independent of the environmental review process.

San Francisco General Plan

The general plan provides general policies and objectives to guide land use decisions. The general plan contains ten elements (Commerce and Industry, Recreation and Open Space, Housing, Community

Facilities, Urban Design, Environmental Protection, Transportation, Air Quality, Community Safety, and Arts) that set forth goals, objectives, and policies for the physical development of the city.

The general plan Urban Design Element, which guides the physical character and order of the city, addresses both new development and preservation of the landforms, views, and development patterns that define the city's character. This element aims to enhance and conserve the city's positive attributes and improve the living environment by protecting public views of open space and water bodies, and enhancing the aesthetic character of San Francisco.

The Urban Design Element, particularly Policies 3.5 and 3.6,[30,31] include general guidance on building heights and bulk. These policies focus on respecting the natural topography, tapering heights toward San Francisco Bay, and protecting views from major streets. Although the proposed project building height would exceed the existing 65-foot height limits of the site's height and bulk district and would be taller than the surrounding development pattern, it would not conflict with the Urban Design Element guidance allowing for taller buildings along I-280. The height would not substantially detract from views of the hills or open space in the neighborhood, because it would be viewed with the elevated I-280, and because views of the hills (to the west) and San Francisco Bay (to the east) are narrow, channelized views along the major streets. The street grid in the project vicinity is not continuous, so distant views to the hills and San Francisco Bay are blocked by intervening buildings. Policy 3.6 aims to relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction. The intent of this policy is not to limit the total floor space that could be built, but provide guidelines to avoid negative external effects such as encouraging efforts to articulate and soften building surfaces to reduce the appearance of large new buildings. The PDR-2-zoned buildings to the north, west, and south of the project site also consist of large, rectangular buildings with large floor plates.

The planning department, planning commission, board of supervisors, and other city decision makers would evaluate the proposed project and expanded streetscape variant for conformance with all objectives and policies of the general plan and would consider potential inconsistencies as part of the decision-making process. The consideration of general plan objectives and policies is carried out independent of the environmental review process, as part of the decision to approve, modify, or disapprove a proposed project.

San Francisco Planning Code

The planning code, which incorporates the San Francisco zoning maps, governs permitted uses, densities, and configuration of buildings in San Francisco. Permits to construct new buildings (or to alter or demolish existing ones) may not be issued unless the proposed project or expanded streetscape variant either conforms to the planning code or is granted an exception pursuant to provisions of the planning code.

Because the project proposes building heights greater than the 65-foot height allowed in the applicable 65-J height and bulk district (i.e., up to 97 feet, excluding exempted appurtenances), planning code amendments for height district reclassification and associated zoning map amendments would be required to permit the proposed project and expanded streetscape variant. Additionally, because the project site is greater than one-half acre in size, a Planned Unit Development-Conditional Use Authorization would be sought for

[30] San Francisco General Plan Urban Design Element, Policy 3.5: Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development.

[31] San Francisco General Plan Urban Design Element, Policy 3.6: Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction.

exceptions to the planning code. If the proposed changes to the planning code and zoning map and the Planned Unit Development-Conditional Use Authorization are approved, the proposed project and expanded streetscape variant would not conflict with the planning code.

Special Use District

The zoning changes and height and bulk district changes would be implemented through the creation of a special use district that would establish zoning controls for the project site. If the proposed special use district is approved, the proposed project and expanded streetscape variant would not conflict with applicable zoning regulations of the planning code.

The Accountable Planning Initiative

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added section 101.1 to the planning code to establish the following eight priority policies:

1. Preservation and enhancement of neighborhood-serving retail uses;
2. Protection of neighborhood character;
3. Preservation and enhancement of affordable housing (see Section E.3, Population and Housing, topic 3 (b), with regard to housing supply and displacement issues);
4. Discouragement of commuter automobiles (see Section E.5, Transportation and Circulation, topic 5 (a));
5. Protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership;
6. Maximization of earthquake preparedness (see Section E.15, Geology and Soils, topics 14 (a) through 14 (d));
7. Landmark and historic building preservation (see Section E.4, Cultural Resources, topic 4 (a)); and
8. Protection of open space (see Section E.10, Shadow, topic 10 (a); and Section E.11, Recreation, topics 11 (a) and 11 (b)).

Prior to issuing a permit for any project that requires an initial study under CEQA; issuing a permit for any demolition, conversion, or change of use; and taking any action that requires a finding of consistency with the general plan, the city is required to find that the proposed project or legislation would be consistent with the priority policies. As indicated above, the compatibility of the proposed project and expanded streetscape variant with general plan objectives and policies that do not relate to physical environmental issues would be considered by city decision makers as part of their decision whether to approve or disapprove the proposed project and expanded streetscape variant. Any potential inconsistencies identified as part of that process would not alter the physical environmental effects of the proposed project.

Bayview Hunters Point Area Plan

The project is in the Bayview Hunters Point Area Plan and in the Oakinba Activity Node. Activity nodes are “community-identified catalyst areas in which to focus public investment.” The Bayview Hunters Point Area Plan calls for maintaining industrial zones for PDR activities in the Oakinba subdistrict to strengthen the role of the Bayview’s industrial sector in the economy of the district, the city, and the region. The PDR nature of the proposed project and expanded streetscape variant are consistent with the objectives of the Bayview Hunters Point Area Plan and would not result in any inconsistencies with the Bayview Hunters Point Area Plan.

Bayview Hunters Point Redevelopment Plan

The project is in the Oakinba Activity Node of the Bayview Hunters Point Redevelopment Plan. The Bayview Hunters Point Redevelopment Plan provides the implementation tools to carry out many of the goals of the 2000 Bayview Hunters Point Community Revitalization Concept Plan. The Bayview Hunters Point Redevelopment Plan identifies the planning goals and objectives for the Bayview Hunters Point area and identifies more specific guiding policies for redevelopment and revitalization activity in the Oakinba Activity Node, including creating a vibrant commercial center, maintaining and expanding industry in the area to increase the job base, and developing employment opportunities for local residents. The proposed project and expanded streetscape variant would not result in any inconsistencies with the plan.

Other Plans and Policies

In addition to local plans and policies, there are several regional planning agencies whose environmental, land use, and transportation plans and policies consider the growth and development of the nine-county San Francisco Bay Area. Some of these plans and policies are advisory, and some include specific goals and provisions that must be adhered to when evaluating a project under CEQA. The regional plans and policies that are relevant to the proposed project and expanded streetscape variant are discussed below:

- The Association of Bay Area Governments/Metropolitan Transportation Commission Plan Bay Area 2050 is a state-mandated integrated long-range transportation and land use plan, establishing targeted growth areas and housing allocations, identifying priority transportation improvements, and setting forth directions and initiatives to reduce greenhouse emissions.

- The air district's 2017 Clean Air Plan – Spare the Air, Cool the Climate is a regional plan to protect public health and climate by reducing air pollution and greenhouse gas emissions and creating a vision for a year 2050 post-carbon economy.

- The San Francisco Regional Water Quality Control Board San Francisco Basin Plan is a state-mandated regional water quality control planning document that identifies beneficial uses for the region's water bodies and standards to achieve or maintain those beneficial uses.

The proposed project and expanded streetscape variant have been reviewed considering these regional plans and policies, and the proposed project and expanded streetscape variant would not obviously or substantially conflict with Plan Bay Area 2050 or the San Francisco Basin Plan. The air quality section in the EIR will evaluate whether the proposed project or the expanded streetscape variant would conflict with or obstruct implementation of the Clean Air Plan.

D. SUMMARY OF ENVIRONMENTAL EFFECTS

The proposed project and the expanded streetscape variant could potentially affect the environmental topics(s) checked below. The following pages present a more detailed checklist and discussion of each environmental topic.

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

APPROACH TO ANALYSIS

This initial study examines the proposed project and expanded streetscape variant to identify potential effects on the environment. For each item on the initial study checklist, the evaluation considered the impacts of the proposed project and expanded streetscape variant, both individually and cumulatively, with the exception of greenhouse gas emissions, which are evaluated only in the cumulative context. All items on the initial study checklist that have been checked "less-than-significant impact with mitigation incorporated," "less-than-significant impact," "no impact," or "not applicable" indicate that, upon evaluation, the planning department has determined that the proposed project and expanded streetscape variant could not have a significant adverse environmental effect related to that topic. A discussion is included for those topics checked "less-than-significant impact with mitigation incorporated" and "less-than-significant impact," as well as most items checked "no impact" or "not applicable." For items designated "no impact" or "not applicable," the conclusions regarding potential significant environmental effects are based on field observations, staff and consultant experience and expertise from similar projects, and/or standard reference materials available at the planning department. Such materials include the Transportation Impact Analysis Guidelines for Environmental Review; the California Natural Diversity Database; and maps published by the California Department of Fish and Wildlife, the California Division of Mines and Geology (e.g., Mineral Resource Zone maps and designations), and the California Department of Conservation's Farmland Mapping and Monitoring Program. Impacts identified as "potentially significant" are analyzed in the EIR or were evaluated in this initial study and found to be significant, but mitigation measures identified in this initial study and agreed to by the project sponsor would reduce those impacts to less-than-significant levels. The "potentially significant" designation used to identify topics that will be addressed in detail in the EIR does not reflect a determination that the proposed project or expanded streetscape variant would result in a significant impact related to a particular topic. Such topics are included in the EIR because additional analysis is needed to determine the potential effect with respect to that environmental topic.

The project setting sections of the initial study and technical studies reflect conditions at the project site when the environmental evaluation process began in 2017. As of August 2020, the project sponsor submitted

building permit applications for an interim use on the project site.[32] The environmental analysis of the initial study and technical sections analyze the changes that result from the construction and operation of the proposed project and the expanded streetscape variant, compared to the uses at the project site prior to the operation of the interim use, resulting in a more conservative analysis.[33]

Effects Found to Be Potentially Significant

On the basis of this initial study, topics for which there are project-specific effects that have been determined to be potentially significant are:

- Transportation and circulation
- Noise (all topics except aviation-related topics)
- Air quality

These environmental topics will be evaluated in the EIR prepared for the proposed project and expanded streetscape variant.

Effects Found Not to Be Significant or Not to Be Significant with Identified Mitigation Measures

The following potential individual and cumulative environmental effects would be less than significant or reduced to a less-than-significant level through implementation of identified mitigation measures included in this initial study and agreed to by the project sponsor:

- Land use and land use planning
- Population and housing
- Cultural resources
- Tribal cultural resources
- Greenhouse gas emissions
- Wind
- Shadow
- Recreation
- Utilities and service systems
- Public services
- Biological resources
- Geology and soils
- Hydrology and water quality
- Hazards and hazardous materials
- Mineral resources
- Energy
- Agriculture and forestry resources
- Wildfire

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[32] San Francisco Building Department (DBI) Permit #202008272769 (Building 417 shell) and San Francisco Building Department #202008272770 (Building 418 shell)

[33] Analyzing the change in the environment from the uses that occupied the site in 2017 to the proposed use is considered conservative, or worst-case, because the interim use is more intensive than the 2017 uses.

These items, along with appropriate mitigation measures, are discussed in Section E of this initial study and therefore require no further environmental analysis in the EIR. As indicated above, all identified mitigation measures listed in Section F, Mitigation Measures, have been agreed to by the project sponsor and would be incorporated into the proposed project and expanded streetscape variant as conditions of project approval.

CEQA SECTION 21099(B)(1) (SENATE BILL 743)

CEQA section 21099(b)(1) requires the Office of Planning and Research (OPR) to develop revisions to the CEQA Guidelines and establish criteria for determining the significance of the transportation impacts of projects that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." CEQA section 21099(b)(2) states that, upon certification of the revised guidelines for determining transportation impacts, pursuant to section 21099(b)(1), automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, OPR published for public review and comment its *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA,*[34] recommending that the transportation impacts of projects be measured using a vehicle-miles-traveled (VMT) metric. On March 3, 2016, based on compelling evidence in that document and the planning department's independent review of literature on level of service and VMT, the planning commission adopted OPR's recommendation to use the VMT metric instead of automobile delay in evaluating the transportation impacts of projects (resolution 19579). In December 2018, OPR released its *Technical Advisory on Evaluating Transportation Impacts in CEQA,*[35] finalizing these recommendations. Also, in December 2018, the Natural Resources Agency finalized updates to the CEQA Guidelines that replaced level of service with VMT as a transportation threshold in the Appendix. In December 2018, the Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the Guidelines section implementing Senate Bill 743 (CEQA Guidelines section 15064.3). Use of a VMT metric for evaluating the transportation impacts of a project is consistent with planning commission resolution 19579, adopted March 3, 2016, replacing level of service with VMT when evaluating the effects of a project on the transportation system. Accordingly, the EIR will not contain a discussion of automobile delay impacts based on level of service criteria; instead, a VMT and induced automobile travel impact analysis will be provided in the EIR.

Aesthetics and Parking Analysis

California Public Resources Code section 21099(d), effective January 1, 2014, provides that "aesthetics and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." Accordingly, aesthetics and parking are not considered in determining whether a project has the potential to result in significant environmental effects for projects that meet all of the following three criteria:

1. The project is in a transit priority area
2. The project is on an infill site

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[34] Governor's Office of Planning and Research (OPR), Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, *https://opr.ca.gov/docs/Revised_VMT_CEQA_Guidelines_Proposal_January_20_2016.pdf,* accessed December 22, 2021.

[35] Governor's Office of Planning and Research (OPR), Technical Advisory on Evaluating Transportation Impacts in CEQA, *https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf,* accessed December 22, 2021.

3. The project is residential, mixed-use residential, or an employment center

The proposed project and expanded streetscape variant meet each of the above three criteria because they (1) are within one-half mile of a major transit stop along the Third Street light rail line and several Muni bus lines,[36] (2) are on a developed site in an urban area and surrounded by urban development along the project site's boundaries, and (3) meet the definition of an employment center because they are on a property zoned for commercial use with a floor area ratio of no less than 0.75 and are in a transit priority area. Because the proposed project and expanded streetscape variant meet each of the above three criteria,[37] the initial study and the EIR do not consider aesthetics and the adequacy of parking in determining the significance of project impacts under CEQA. No aesthetics section is included; however, for informational purposes, the project description includes a three-dimensional rendering of the project in relation to its surroundings (Figure 6, p. 11), and elevations depicting the project (Figures 15 and 16, pp. 27 and 28). Additionally, parking will be addressed in the EIR only for purposes of analyzing whether the project or variant would result in a substantial parking deficit, the secondary effects of which would create potentially hazardous conditions, interfere with accessibility, or substantially delay public transit.

CUMULATIVE IMPACT ANALYSIS

Two approaches to a cumulative impact analysis are provided in CEQA Guidelines section 15130(b)(1): (a) the analysis can be based on a list of past, present, and reasonably foreseeable future projects producing closely related impacts that could combine with those of a proposed project; or (b) a summary of projections contained in a general plan or related planning document can be used to determine cumulative impacts. The analyses in this initial study employ both a list-based approach and projections from the general plan or other related planning documents, as appropriate for the specific environmental topic being analyzed.

The following factors were used to determine an appropriate level for cumulative analysis in this initial study:

- *Similar Environmental Impacts*. A relevant project contributes to effects on resources that are also affected by the proposed project or expanded streetscape variant. A relevant future project is defined as one that is "reasonably foreseeable," such as a proposed project for which an application has been filed with the approving agency or funding has been approved.

- *Geographic Scope and Location*. A relevant project is located in the geographic area within which effects could combine. The geographic scope varies on a resource-by-resource basis. For example, because wind impacts are generally localized, the cumulative context for wind analysis is the project site and vicinity within about 1,500 feet of the project site. In contrast, the geographic scope for evaluating cumulative effects on regional air quality consists of the affected air basin (i.e., the San Francisco Bay Area Air Basin).

[36] San Francisco Planning Department, San Francisco Transportation Information Map, *https://sfplanninggis.org/TIM/*, accessed December 19, 2018.

[37] San Francisco Planning Department, Eligibility Checklist: CEQA section 21099 – Modernization of Transportation Analysis, San Francisco Gateway Project, December 19, 2018.

- *Timing and Duration of Implementation*. Effects associated with activities for a relevant project (e.g., short-term construction or demolition or long-term operations) would most likely coincide with the related effects of the proposed project or expanded streetscape variant.

The cumulative projects within approximately 0.25 mile of the project site are identified in Section B, Project Setting, Cumulative Setting, pp. 43 through 46. However, additional projects more than 0.25 mile from the project site may also be considered in the cumulative analysis, as appropriate, for the environmental topic being analyzed.

E. EVALUATION OF ENVIRONMENTAL EFFECTS

E.1. Land Use and Planning

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Physically divide an established community?	☐	☐	☒	☐	☐
b) Cause a significant physical environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐	☐

Impact LU-1: The proposed project or variant would not physically divide an established community. (Less than Significant)

PROPOSED PROJECT

The division of an established community would typically involve the construction of a physical barrier to neighborhood access (such as a new freeway segment) or the removal of a means of access (such as a bridge or roadway). The proposed project would demolish four existing buildings and construct two multi-story PDR buildings within the existing lot configuration. The proposed project would not create a barrier or obstruction (such as a new freeway segment) that would physically divide the community or Bayview neighborhood. The proposed project would be developed within already-established city blocks and would not permanently close any streets or sidewalks. The project sponsor proposes converting Kirkwood Avenue from a two-way street to a single-lane, eastbound, one-way street, and converting a portion of McKinnon Avenue (between Toland and Selby streets) from a two-way street to a single-lane, westbound, one-way street. As discussed above in Section A, Project Description, modifications to the roadway directions and lane configurations on the streets surrounding the project site would require approval by the SFMTA. If approved, these proposed changes would change the circulation directly adjacent to the project site; they would not, however, create a barrier or obstruction or close either street, modifications that could physically divide the community. Selby Street would be temporarily closed during construction for equipment staging and construction worker parking. This street would reopen upon completion of construction and would not permanently impede the passage of persons or vehicles through the Bayview neighborhood. For these reasons, the proposed project would have a less-than-significant impact with respect to physically dividing the surrounding community, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, intensity, and site plan as the proposed project, but would extend streetscape improvements for the entire cross section of the streets along the project perimeter to Better Streets standards. Because these changes would not alter the proposed land uses, their intensities, or layout, or introduce new physical barriers that could alter local circulation or

access, the expanded streetscape variant would have land use impacts similar to those of the proposed project. No mitigation measures would be required. This topic will not be addressed in the EIR.

Impact LU-2: The proposed project or variant would not cause a significant physical environmental due to a conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

PROPOSED PROJECT

Land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect are those that directly address physical environmental issues and/or contain targets or standards that must be met to preserve or improve characteristics of San Francisco's physical environment. Applicable land use plans that regulate development on the project site include the general plan and the planning code. As discussed in Section C, Compatibility with Existing Zoning and Plans, the proposed project would not conform to the existing 65-J height and bulk district, and the project sponsor seeks amendments to the planning code and zoning map to allow taller buildings than permitted under the existing zoning district. Additionally, the project sponsor would apply for a Planned Unit Development-Conditional Use Authorization due to the size of the proposed project. If the proposed changes to the planning code and the Planned Unit Development-Conditional Use Authorization are approved, the proposed project would not conflict with the planning code. The proposed uses, however, are consistent with and allowed under the PDR-2 zoning district. Therefore, with the proposed planning code and zoning map amendments discussed in the project approvals section above, the proposed project would not conflict with relevant planning code regulations.

Conflicts with existing plans and policies do not, in themselves, indicate a significant environmental effect related to the topic of Land Use and Land Use Planning. A significant impact would occur only if the project substantially conflicts with a land use plan/policy that was adopted for the purpose of avoiding or mitigating an environmental effect and would result in a substantial adverse physical change in the environment. The proposed project would adhere to applicable environmental regulations and therefore would not conflict with land use policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Therefore, the proposed project would have a less-than-significant impact with regard to conflicts with existing land use plans, policies, or regulations adopted for the purpose or avoiding or mitigating an environmental effect, and no mitigation measures would be required. The physical environmental impacts from implementation of the proposed project, including the project's proposed building heights, are analyzed in each of the environmental topic sections in this initial study and in the EIR. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have land use impacts similar to those of the proposed project, which were less than significant with regard to conflicts with existing land use plans, policies, or regulations adopted for the purpose or avoiding or mitigating an environmental effect, and no mitigation measures would be required. The physical environmental impacts from implementation of the expanded

streetscape variant, including the proposed building heights (which would be the same as the proposed project), are analyzed in each of the environmental topic sections in this initial study and in the EIR. This topic will not be addressed in the EIR.

Impact C-LU-1: The proposed project or variant, in combination with cumulative projects, would result in less-than-significant cumulative land use impacts. (Less than Significant)

PROPOSED PROJECT

Section B, Cumulative Setting, p. 43, identifies cumulative projects that are within an approximately 0.25-mile radius of the project site. These projects are also shown on Figure 22 (p. 44).

With the exception of the project at 2270 McKinnon Avenue, the identified cumulative projects in the project vicinity are either pedestrian enhancement projects, or infrastructure improvement or replacement projects. The Bayview Community Based Transportation Plan would make the surrounding area more accessible for pedestrians in the Bayview neighborhood. The Quint-Jerrold Connector project would improve neighborhood connectivity and provide pedestrian safety features by connecting Quint Street to Jerrold Avenue adjacent to the Caltrain tracks. The cumulative projects in the Southeast Treatment Plant site (SFPUC Southeast Treatment Plant Biosolids Digester Facilities, SFPUC Southeast Treatment Plant Power Feed, and SFPUC Southeast Treatment Plant Headworks Project) would upgrade aging sewer infrastructure. These SFPUC projects are within the treatment plant boundaries and are largely in-kind replacements and/or interior system or infrastructure improvements. The 2270 McKinnon Avenue project would demolish the existing accessory building onsite and redevelop the site with a larger building that would contain self-storage units. All development for this project would be contained on the existing parcel and would not physically divide an established community.

Upon completion, the proposed project would operate in the existing parcels and would not physically divide an established community; therefore, it would have no potential to combine with cumulative projects to result in a significant physical environmental impact related to dividing an established community.

All projects must conform with the planning code, including its zoning maps, and are required to be generally consistent with general plan. Therefore, the proposed project in combination with cumulative projects would not result in a significant cumulative impact related to a conflict with a land use plan, policy, or regulations adopted for the purpose of mitigating an environmental impact. Conflicts with existing land use plans and policies are policy issues and do not, in themselves, give rise to a significant physical impact related to land use under CEQA. Therefore, the conflicts with plans and policies, considered with those of cumulative projects, could not combine to result in a significant cumulative impact related to land use. To the extent that the proposed project results in physical environmental effects that could combine with those of cumulative projects, the cumulative impact on the environment is addressed under each topic section in this initial study, or will be addressed in the EIR.

For these reasons, the proposed project would not combine with cumulative projects to result in cumulative land use impacts, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets

standards. Therefore, the expanded streetscape variant would have land use impacts similar to those of the proposed project. Upon completion, the expanded streetscape variant would operate in the existing parcels and adjacent streets and sidewalks and would not physically divide an established community; therefore, it would have no potential to combine with cumulative projects to result in a significant physical environmental impact related to dividing an established community. Additionally, conflicts with existing land use plans and policies are policy issues and do not, in themselves, give rise to a significant physical impact related to land use under CEQA. Therefore, the conflicts with plans and policies, considered with those of cumulative projects, could not combine to result in a significant cumulative impact related to land use.

For these reasons, the expanded streetscape variant would not combine with cumulative projects to result in cumulative land use impacts, and no mitigation measures would be required. This topic will not be addressed in the EIR.

E.2. Population and Housing

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐	☐
b) Displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing?	☐	☐	☐	☐	☒

Existing uses on the project site in 2017 consisted of automotive storage, fleet management, general storage, food-related storage, temporary storage, and vacant spaces. Because there are no residences on the project site, the proposed project or the expanded streetscape variant would not displace substantial numbers of existing people or housing that would necessitate the construction of replacement housing elsewhere. Therefore, topic 2 (b) is not applicable to the proposed project or the expanded streetscape variant and is not discussed below.

Impact PH-1: The proposed project or variant would not directly or indirectly induce substantial unplanned population growth. ***(Less than Significant)***

PROPOSED PROJECT

Population growth is considered in the context of local and regional plans and their population, housing, and employment projections. Substantial unplanned population growth is considered an increase in population that occurs without consideration of or planning for infrastructure, services, and housing needs to support new residents, employees, and visitors. Generally, a project that increases population is not viewed as having a significant impact on the environment unless the physical changes that would be needed to accommodate the project-related population growth would have adverse impacts on the environment. Project-related employment growth would result in direct physical environmental changes. Aside from noise, air quality, and transportation and circulation, these physical changes are described and analyzed in the various environmental topic sections in this initial study. The EIR will address noise, air quality, and transportation and circulation impacts associated with the physical changes caused by the proposed project.

An indirect environmental impact is a change to the physical environment that is not immediately related to a proposed project. Specifically, indirect project-related population growth includes ways in which a proposed project could foster economic or population growth in other locations or induce the construction of additional housing. Projects that would remove obstacles to population growth (e.g., a major expansion of a wastewater treatment plant or extension of roadways into a previously unserved area) might, for example, allow development to occur in an area that was not previously considered feasible for development because of infrastructure limitations. This type of development pattern typically occurs in

suburban or rural areas adjacent to undeveloped land and is not generally applicable to a site that is in a built urban environment that is already served by existing infrastructure, such as the proposed project site.

Construction

Construction of the proposed project is anticipated to occur over approximately 31 months (see Table 4, p. 36). During construction, the total number of temporary/short-term workers is anticipated to range from approximately 2,500 to 3,000. Approximately 400 to 500 workers are expected to travel to the site daily at any given time during peak construction periods. The number of construction workers would vary throughout the construction duration, depending on the specific construction phase. Construction of the proposed project would not cause substantial population growth or a substantial increase in housing demand in the region. It is anticipated that construction employees who are not already living in San Francisco would likely commute from their residences elsewhere in the Bay Area rather than permanently relocate to San Francisco from more distant locations; this is typical for employees in the various construction trades. Therefore, construction of the proposed project would not cause a substantial increase in the population of the city or region.

Operation

The proposed project would not involve the construction of residential units that would directly and substantially increase the population in San Francisco. The proposed project would create new employment opportunities through construction of two new multi-story PDR buildings consisting of 1,166,800 gross square feet of PDR uses and 8,400 gross square feet of retail uses. Under the proposed project, an average of up to 1,980 employees would be onsite on a typical day.[38] Prior to commencing the interim use of the project site in 2021, the project site consisted of 438,600 square feet of automotive storage, fleet management, general storage, food-related storage, and temporary storage (Table 1, p. 6). It is estimated that these uses employed 735 workers.[39] Therefore, the proposed project would result in a net increase in employment of 1,242 employees relative to pre-2021 conditions.

The Association of Bay Area Governments and Metropolitan Transportation Commission adopted Plan Bay Area 2050 on October 21, 2021.[40] Plan Bay Area 2050 projects that the Bay Area will add 1.4 million new jobs between 2015 and 2050. Approximately 17 percent of this regional job growth—approximately 236,000 new jobs—is anticipated to occur in San Francisco. Even if new employees relocated to San Francisco as a result of the project, the number of new employees would not be substantial relative to San Francisco's overall employment growth. The increase of 1,242 new employees attributed to the proposed project would represent less than 1 percent of San Francisco's projected employment growth between 2015 and 2050. This increase in employment would not exceed the Association of Bay Area Governments' projections for employment in San Francisco.

In San Francisco's 2019 Jobs Housing Nexus Analysis, San Francisco had an estimated 1.74 workers per household. Based on this number of workers per household, the proposed project's 1,242 new employees

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38 Assumes one employee per 570 gross square feet of PDR space (1,166,800 gross square feet/570 gross square feet = 1,954 employees) and one employee per 370 gross square feet retail space (8,400 gross square feet/370 gross square feet = 23 employees). This employment density is based on a May 2019 report prepared to update the city's nexus fees: Keyser Marston Associates, Jobs Housing Nexus Analysis, San Francisco, May 2019, *https://commissions.sfplanning.org/cpcpackets/2019-011975PCA.pdf*, accessed January 26, 2020.

39 Assumes one employee per 597 gross square feet of PDR space (438,600 gross square feet/597 gross square feet = 735 employees).

40 Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050, October 2021, https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf, accessed December 9, 2021.

would be equivalent to 714 households. The United States Census Bureau's American Community Survey 1-Year estimate for 2019 reports that approximately 78 percent of the employees in the city currently live in San Francisco.[41] Using this percentage, the new households attributed to the proposed project would generate a potential demand for approximately 557 new residential units in San Francisco.

As of May 2021, the California Department of Finance estimates that there were 408,212 housing units in San Francisco and a vacancy rate of 7.8 percent.[42] Additionally, as of the fourth quarter of 2020, the city estimates that 69,453 new housing units are in the development pipeline, of which 5,509 are under construction.[43] The city's existing available housing stock plus the new housing units under construction could accommodate the project's new employee-generated housing demand.

Extension of Roads and Infrastructure

The proposed project would not induce substantial population growth indirectly through the extension of roads or other infrastructure. The proposed project consists of redevelopment of two parcels in a core industrial area of San Francisco. The proposed project would not require extensions of existing roadways in the vicinity of the project site such as Toland Street, Rankin Street, Kirkwood Avenue, or McKinnon Avenue. As discussed in Section E.12, Utilities, existing utility infrastructure would have capacity to serve the proposed project, and other than tying into these utilities, no new infrastructure or new extension of existing utility infrastructure is required.

Conclusion

In summary, the proposed project would not involve the construction of residential units that would directly increase the population in San Francisco. The overall increase in the number of employees resulting from the proposed project would be consistent with the employment forecasts for San Francisco and would not result in housing demand that would exceed vacant housing units plus housing units currently under construction in San Francisco. In addition, the proposed project would not induce substantial population growth indirectly through the extension of roads or other infrastructure that could support unplanned growth. Therefore, the proposed project would not directly or indirectly induce substantial unplanned population growth in San Francisco, this impact would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, intensities, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The variant may result in a relatively small increase in construction personnel to improve streets, sidewalks, and landscaping compared to the proposed project. However, because the proposed expanded streetscape variant would not include new building square footage, involve changes in operations, or require additional employees during operations, it would have the same population and housing impacts as the proposed project and would not directly or indirectly induce substantial unplanned

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41 U.S. Census Bureau 2019 American Community Survey 1-Year. Table S0802, *https://data.census.gov/cedsci/table?t=Commuting%3AEmployment&g=0500000US06075_1600000US0667000&tid=ACSST1Y2019.S0802&hidePreview=false*, accessed October 16, 2020.

42 California Department of Finance, May 2021, E-5 Population and Housing Estimates for Cities, Counties, and the State, *http://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-5/*, accessed November 11, 2021.

43 City of San Francisco, 2020 Q4 Pipeline Report, January 2021, *https://sfplanning.org/project/pipeline-report#current-dashboard*, accessed November 11, 2021.

population growth in San Francisco. This impact would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-PH-1: The proposed project or variant, in combination with cumulative projects, would result in less-than-significant cumulative impacts related to unplanned population growth. (Less than Significant)

PROPOSED PROJECT

The geographic context for the analysis of cumulative impacts to population and housing is San Francisco. The proposed project would not construct residences but would contribute new PDR employment opportunities in San Francisco. Reasonably foreseeable future employment growth is based on development in the city's pipeline. As of the fourth quarter of 2020, the city estimates that nonresidential development in the city's pipeline could generate 73,288 new employees, inclusive of the proposed project.[44] The proposed project's contribution to citywide employment is 1,242 employees. As of 2019, the United States Census Bureau estimates that San Francisco had 673,488 employees. Therefore, the cumulative number of employees in San Francisco would be 748,018 (i.e., existing employees in 2019, the number of employees generated by development in the city's pipeline, and the employees generated by the proposed project). As stated previously, the Association of Bay Area Governments projects that new development in San Francisco would result in the addition of 236,000 new employees by the year 2050, resulting in a citywide total of 918,000 employees by 2050.[45] Thus, the increase in employment attributed to cumulative development would not exceed the Association of Bay Area Governments' planned employment growth in San Francisco. Therefore, the proposed project in combination with cumulative development projects would not result in unplanned employment growth, cumulative impacts related to employment would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, intensities, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Because the proposed expanded streetscape variant would have the same population and housing impacts as the proposed project, which would not result in unplanned employment growth, the cumulative impacts related to employment would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

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[44] City of San Francisco, Citywide Pipeline Report, January 2021, *https://data.sfgov.org/browse?Department-Metrics_Publishing-Department=Planning&category=Housing+and+Buildings&limitTo=datasets&sortBy=newest&tags=pipeline&utf8=%E2%9C%93*, accessed November 11, 2021.

[45] Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050, October 2021, https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf, accessed January 20, 2022.

E.3. Cultural Resources

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to section 15064.5, including those resources listed in article 10 or article 11 of the San Francisco Planning Code?	☐	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?	☐	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐	☐

Impact CR-1: The proposed project or variant would not cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5, including those resources listed in article 10 or article 11 of the planning code. (No Impact)

PROPOSED PROJECT

As defined in section 15064.5 of the CEQA Guidelines, historical resources (including both built-environment and archeological resources) include properties listed in, or formally determined to be eligible for listing in, the California Register of Historical Resources (California Register) or an adopted local historic register. Historical resources also include resources identified as significant in a historical resource survey and meeting one or more of the following criteria:

- Criterion 1 (Events): Is associated with events that have made a significant contribution to the broad pattern of California's history and cultural heritage;
- Criterion 2 (Persons): Is associated with the lives of persons important in our past;
- Criterion 3 (Architecture): Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values; or
- Criterion 4 (Information Potential): Has yielded, or may be likely to yield, information important to prehistory or history.

Properties that are not listed but otherwise determined to be historically significant, based on substantial evidence, would also be considered historical resources. Furthermore, resources that are listed in or formally determined to be eligible for listing in the National Register of Historic Places are automatically listed in the California Register and are thus considered historical resources for the purposes of CEQA compliance.

Articles 10 and 11 of the planning code pertain to individual city landmarks and historic districts, and to conservation districts in the city's downtown core area (C-3 zoning district), respectively. Article 10 of the planning code sets forth proposals for city landmark designations, with the aid of the National Register of Historic Places criteria in evaluating a resource's historic significance. Article 11, section 1102 of the planning code codifies the criteria for evaluating buildings in the C-3 zoning district of the city.

Baseline existing conditions for historic architectural resources on the project site and in the project vicinity are documented in the Historic Resource Evaluation Report.[46] The subject properties contain four large, one-story, rectangular industrial warehouses, each with their own building number; Buildings 417 and 418 are associated with the 749 Toland Street address; Buildings 427 and 428 are associated with 2000 McKinnon Avenue. The four warehouses were constructed in the early- to mid-1940s as part of the larger Marine Corps Depot. Each building is similar in appearance, being of wood-frame construction set on a concrete slab foundation. All four structures are clad in cement composite corrugated panels, patched with some corrugated metal panels. All of the buildings feature a combination of original (six-over-six wood sash) windows and replacement (aluminum sash) windows, as well as original wood paneled doors with glazing and replacement flush doors. The moderately pitched, side-gable roofs are clad in composite shingles. Many of the pedestrian doors on the façades facing La Salle Avenue are accessed via wooden stairs. Shed-style awnings clad in either asphalt shingles or corrugated plastic sheets cover many of the pedestrian entryways. The four buildings are utilitarian and have no distinct architectural style, according to the Historic Resource Evaluation Report. The planning department's preservation team reviewed the Historic Resource Evaluation Report and the planning department concurred with these findings, as documented in the Preservation Team Review Form.[47]

Additionally, the four warehouses do not appear to be individually historically significant under California Register criteria, nor do they appear to contribute to any known or potential historic districts.[48] Furthermore, the subject properties have not been identified in any of the older San Francisco listings or surveys, including the 1968 Junior League of San Francisco Architectural Survey, Here Today; the 1976 Department of City Planning Architectural Quality Survey; or the 1979 San Francisco Architectural Heritage Survey, Splendid Survivors. Therefore, they are not considered historical resources for the purposes of CEQA.

The project proposes to demolish the four existing buildings on the project site. As discussed above, none of these structures is a historical resource, either individually or as a contributor to a historic district. Because no historic resources would be demolished, destroyed, relocated, or altered, project implementation would have no impact to a historical resource (built environment only) as defined in section 15064.5, including those resources listed in article 10 or article 11 of the planning code. Furthermore, because the project site is not in or immediately adjacent to a listed historic district, the proposed new construction would not adversely affect any historic district listed in article 10 or article 11 of the planning code. No mitigation measures would be required. This topic will not be addressed in the EIR.

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46 ESA, Historic Resource Evaluation Report for 749 Toland Street and 2000 McKinnon Avenue San Francisco, California, report prepared for Prologis, 2018.

47 San Francisco Environmental Planning Department, Preservation Team Review Form, 2018.

48 ESA, Historic Resource Evaluation Report for 749 Toland Street and 2000 McKinnon Avenue San Francisco, California, report prepared for Prologis (page 8) 2018.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Although the expanded streetscape variant would have a slightly larger footprint than the proposed project, it would not physically alter surrounding structures or substantially modify their setting. Therefore, the expanded streetscape variant would have historical resource impacts similar to those of the proposed project. Similar to the proposed project, the expanded streetscape variant would not adversely affect any historic district listed in article 10 or article 11 of the planning code. No mitigation measures would be required. This topic will not be addressed in the EIR.

Impact CR-2: The proposed project or variant could cause a substantial adverse change in the significance of an archeological resource pursuant to section 15064.5. (Less than Significant with Mitigation)

PROPOSED PROJECT

As described in section 15064.5 of the CEQA Guidelines, archeological resources can be historical resources. In addition to assessing impacts to archeological resources meeting the requirements for listing as historical resources, impacts to unique archeological resources are also considered under CEQA, as described in section 15064.5, as well as under California Public Resource Code section 21083.2. If an archeological site does not meet the criteria for inclusion on the California Register but does meet the definition of a unique archeological resource as outlined in California Public Resource Code section 21083.2, a project that would materially change the resource in an adverse manner would result in a significant archeological impact. A unique archeological resource implies an archeological artifact, object, or site about which it can be clearly demonstrated that—without merely adding to the current body of knowledge—there is a high probability that it meets one of the following criteria:

- The archeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;
- The archeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- The archeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A nonunique archeological resource is an archeological artifact, object, or site that does not meet the above criteria. Impacts to nonunique archeological resources and resources that do not qualify for listing on the California Register receive no further consideration under CEQA.

Existing conditions for potential archeological resources in the project area are documented in the project's *Preliminary Archeological Review*.[49] According to the Preliminary Archeological Review, no archeological resources have been previously identified in the project site.[50] The project site has never been previously assessed for archeological resource potential, because the structures currently onsite were constructed

[49] San Francisco Environmental Planning Department, Environmental Planning Preliminary Archeological Review, 2018; rev. 2021.
[50] San Francisco Environmental Planning Department, Environmental Planning Preliminary Archeological Review, 2018, rev. 2021.

prior to the enactment of CEQA (or other federal, state, or local regulations focusing on the management or protection of archeological resources). Therefore, the lack of previously identified archeological resources is not indicative of the archeological sensitivity of the project site.

The Preliminary Archeological Review indicates that one previously identified prehistoric archeological site and one historic site have been recorded within one-quarter mile of the project area.[51] Although no archeological fieldwork has been conducted to date in the project area, the planning department uses a consultant-developed prehistoric archeological sensitivity model, which covers the entire city, as one tool for the assessment of the general archeological sensitivity of project sites.[52] This model is based on landform, geology, proximity to water sources and to known resources, and site history. The archeological sensitivities for both prehistoric and historic-era archeological resources are presented in the Preliminary Archeological Review.

According to the Preliminary Archeological Review, the project site is highly sensitive for near-surface prehistoric resources (that is, on the land surface below any imported fill, as it existed prior to development); moderately sensitive for buried prehistoric resources; and, variably, of very high to very low sensitivity for submerged prehistoric resources. Based on the depth of artificial fill, which geotechnical coring suggests is 14 feet or deeper over most of the project site, the potential for effects to prehistoric resources from project grading and excavation may be low, but the potential for impacts to prehistoric resources from pile installation and soil improvements is high to very high. Although the closest known prehistoric resource is more than 600 feet distant from the project site, the project location is a former bank on an infilled portion of Islais Creek and its estuary; this area would have been highly attractive for prehistoric occupation, except where the main stem of Islais Creek ran across the project site prior to infill.

The Preliminary Archeological Review further states that the potential for historic-period archeological resources to be present in the project site appears to be low, because the current project parcels were not developed until after the mid-twentieth century.[53] Although not reported in the Preliminary Archeological Review, this mid-twentieth century development only occurred after the project vicinity was reclaimed from marshland surrounding Islais Creek, further diminishing the potential for the project site to contain historic-period archeological materials.

Under CEQA Guidelines section 15064.5(b), a significant impact would occur if the project "demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance." As described in the Preliminary Archeological Review, there is a moderate to high potential that deeply buried prehistoric deposits occur below the surface of the project site. More specifically, the Preliminary Archeological Review indicates that project-related soil-disturbing activities, both near the surface and at depth, have the potential to impact prehistoric archeological resources. Submerged resources would consist of prehistoric cultural deposits situated on land surfaces that were exposed and available for human use prior to being inundated by rising sea levels between about 6,000 and 2,000 years ago. Archeological resources are not anticipated on the modern surface, because the project site

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51 San Francisco Environmental Planning Department, Environmental Planning Preliminary Archeological Review, 2018, rev. 2021.

52 Meyer, Jack and Paul Brandy, Far Western Anthropological Research Group, GeoArcheological Assessment and Site Sensitivity Model for the City and County of San Francisco, California, report prepared by Far Western for the Environmental Planning Division of the San Francisco Planning Department, 2019.

53 San Francisco Environmental Planning Department, Environmental Planning Preliminary Archeological Review, 2018.

sits on land reclaimed from bay marshes with imported fill. However, prehistoric resources that lay at the historic surface and along the shores of the marsh lands could be encountered during project excavations.

The proposed project's foundation design would involve concrete spread footings and/or grade beams set on improved and engineered soil, with excavation for the foundations likely to extend 10 feet below existing grade. Typical foundation excavation is expected to extend to 7 feet below grade, with elevator pits and utility trenching extending to 10 feet below existing grade. Although these disturbances are not deep enough to potentially impact deeply buried archeological deposits, they could affect resources buried at shallower depths, depending on the exact depth of twentieth century fill. In addition, it is anticipated that pile foundations would be necessary to support the buildings. Approximately 7,000 25-foot-deep stone columns and approximately 900 60-foot-deep auger-cast piles would be used for the entire site. Each of these auger cast piles would be extended approximately 60 feet below ground surface, and they would be of sufficient depth to potentially impact deeply buried or submerged prehistoric archeological resources. These proposed ground-disturbing construction activities have the potential to alter in an adverse manner the physical characteristics of archeological resources. Therefore, project implementation could result in a substantial adverse change in the significance of an archeological resource pursuant to CEQA guidelines section 15064.5, resulting in a significant impact.

To reduce potentially significant impacts on prehistoric archeological resources, Mitigation Measure M-CR-2 would require the project sponsor to retain the services of an archeologist from the planning department's qualified archeological consultants list to develop and implement an archeological testing program.

Mitigation Measure M-CR-2 **Archeological Testing.** Based on a reasonable presumption that archeological resources may be present in the project site, the following measures shall be undertaken to avoid any potentially significant adverse effects from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of an archeological consultant from the rotational qualified archeological consultants list maintained by the planning department. After the first project approval action or as directed by the environmental review officer, the project sponsor shall contact the department archeologist to obtain the names and contact information for the next three archeological consultants on the qualified archeological consultants list.

The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the environmental review officer. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the environmental review officer for review and comment and shall be considered draft reports subject to revision until final approval by the environmental review officer. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for a maximum of four weeks. At the direction of the environmental

review officer, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines section 15064.5 (a)(c).

Archeological Testing Program. The purpose of the archeological testing program shall be to determine to the extent possible the presence or absence of archeological resources and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

The archeological testing program shall be conducted in accordance with the approved archeological testing plan. The archeological consultant and the environmental review officer shall consult on the scope of the archeological testing plan, which shall be approved by the environmental review officer prior to commencing any project-related soils-disturbing activities. The archeological testing plan shall be submitted first and directly to the environmental review officer for review and comment and shall be considered a draft subject to revision until final approval by the environmental review officer. The archaeologist shall implement the testing as specified in the approved archeological testing plan prior to and/or during construction.

The archeological testing plan shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project and lay out what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The archeological testing plan shall also identify the testing method to be used, the depth or horizonal extent of testing, the locations recommended for testing, and the archeological monitoring requirements for construction soil disturbance, as warranted.

Paleoenvironmental Analysis of Paleosols. When a submerged paleosol is identified during the testing program, irrespective of whether cultural material is present, samples shall be extracted and processed for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction.

Discovery Treatment Determination. At the completion of the archeological testing program, the archeological consultant shall submit a written summary of the findings to the environmental review officer. The findings memorandum shall describe and identify each resource and provide

an initial assessment of the integrity and significance of encountered archeological deposits.

If the environmental review officer, in consultation with the archeological consultant, determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, the environmental review officer, in consultation with the project sponsor, shall determine whether preservation of the resource in place is feasible. If so, the proposed project shall be redesigned so as to avoid any adverse effect on the significant archeological resource, and the archeological consultant shall prepare an archeological resource preservation plan, which shall be implemented by the project sponsor during construction. The consultant shall submit a draft archeological resource preservation plan to the planning department for review and approval.

If preservation in place is not feasible, a data recovery program shall be implemented, unless the environmental review officer determines that the archeological resource is of greater interpretive than research significance, and that interpretive use of the resource is feasible. The environmental review officer, in consultation with the archeological consultant, shall also determine whether additional treatment is warranted, which may include additional testing and/or construction monitoring.

Consultation with Descendant Communities. On discovery of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, the environmental review officer and an appropriate representative of the descendant group shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the environmental review officer regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the archeological resources report shall be provided to the representative of the descendant group.

Archeological Data Recovery Plan. An archeological data recovery program shall be conducted in accordance with an archeological data recovery plan if all three of the following apply: 1) a resource has potential to be significant, 2) preservation in place is not feasible, and 3) the environmental review officer determines that an archeological data recovery program is warranted. The archeological consultant, project sponsor, and environmental review officer shall meet and consult on the scope of the archeological data recovery plan prior to preparation of a draft archeological data recovery plan. The archeological consultant shall submit a draft archeological data recovery plan to the environmental review officer. The

archeological data recovery plan shall identify how the proposed data recovery program shall preserve the significant information the archeological resource is expected to contain. That is, the archeological data recovery plan shall identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the archeological data recovery plan shall include the following elements:

- *Field Methods and Procedures*: descriptions of proposed field strategies, procedures, and operations
- *Cataloguing and Laboratory Analysis*: description of selected cataloguing system and artifact analysis procedures
- *Discard and Deaccession Policy:* description of and rationale for field and post-field discard and deaccession policies
- *Security Measures:* recommended security measures to protect the archeological resource from vandalism, looting, and unintentionally damaging activities
- *Final Report*: description of proposed report format and distribution of results
- *Curation:* description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities

Coordination of Archaeological Data Recovery Investigations. In cases in which the same resource has been or is being affected by another project for which data recovery has been conducted, is in progress, or is planned, to maximize the scientific and interpretive value of the data recovered from both archeological investigations, the following measures shall be implemented:

A) In cases where neither investigation has yet begun, both archeological consultants and the environmental review officer shall consult on coordinating and collaboration on archeological research design, data recovery methods, analytical methods, reporting, curation and

interpretation to ensure consistent data recovery and treatment of the resource.

B) In cases where archeological data recovery investigation is already underway or has been completed for a prior project, the archeological consultant for the subsequent project shall consult with the archeological consultant for the prior project, if available; review prior treatment plans, findings, and reporting; inspect and assess existing archeological collections/inventories from the site prior to preparation of the archaeological treatment plan for the subsequent discovery; and incorporate prior findings in the final report of the subsequent investigation. The objectives of this coordination and review of prior methods and findings shall be to identify refined research questions; determine appropriate data recovery methods and analyses; assess new findings relative to prior research findings; and integrate prior findings into subsequent reporting and interpretation.

Human Remains and Funerary Objects. The treatment of any human remains and funerary objects discovered during any soils-disturbing activity shall comply with applicable state laws, including Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.98. If human remains or suspected human remains are encountered during construction, the contractor and project sponsor shall ensure that ground-disturbing work within 50 feet of the remains is halted immediately and shall arrange for the protection in place of the remains until appropriate treatment and disposition have been agreed upon and implemented in accordance with this section. Upon determining that the remains are human, the project archeologist shall immediately notify the city's Medical Examiner of the find. The archeologist shall also immediately notify the environmental review officer and the project sponsor of the find. In the event of the Medical Examiner's determination that the human remains are Native American in origin, the Medical Examiner shall notify the California State Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall immediately appoint and notify a most likely descendant. The most likely descendant shall complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site.

If the remains cannot be permanently preserved in place, the land owner may consult with the project archeologist, project sponsor, and CEQA lead agency and shall consult with the most likely descendant on recovery of the remains and any scientific treatment alternatives. The land owner shall then make all reasonable efforts to develop a burial agreement with the most likely descendant, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). In accordance

with Public Resources Code 5097.98 (c)(1), the burial agreement shall address, as applicable and to the degree consistent with the wishes of the most likely descendant, the appropriate excavation, removal, recordation, scientific analysis, custodianship prior to reinterment or curation, and final disposition of the human remains and funerary objects. If the most likely descendant agrees to scientific analyses of the remains and/or funerary objects, the archeological consultant shall retain possession of the remains and funerary objects until completion of any such analyses, after which the remains and funerary objects shall be reinterred or curated as specified in the burial agreement.

Both parties are expected to make a concerted and good faith effort to arrive at an agreement, consistent with the provisions of Public Resources Code 5097.98. However, if the land owner and the most likely descendant are unable to reach an agreement, the land owner, environmental review officer, and project sponsor shall ensure that the remains and/or mortuary materials are stored securely and respectfully until they can be reinterred on the property, with appropriate dignity, in a location not subject to further or future subsurface disturbance, consistent with state law.

Treatment of historic-period human remains and/or funerary objects discovered during any soil-disturbing activity shall be in accordance with protocols laid out in the project archeological treatment document, and other relevant agreements established between the project sponsor, Medical Examiner, and environmental review officer. The project archeologist shall retain custody of the remains and associated materials while any scientific study scoped in the treatment document is conducted, after which the remains shall be curated or respectfully reinterred by arrangement on a case-by case-basis.

Archeological Public Interpretation Plan. The project archeological consultant shall submit an archeological public interpretation plan if a significant archeological resource is discovered during a project. If the resource to be interpreted is a tribal cultural resource, the archeological public interpretation plan shall be prepared in consultation with and developed with the participation of tribal representatives, including the Association of Ramaytush Ohlone and other interested Ohlone parties. The archeological public interpretation plan shall describe the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program. The archeological public interpretation plan shall be sent to the environmental review officer

for review and approval. The archeological public interpretation plan shall be implemented prior to occupancy of the project.

Archeological Resources Report. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the testing program to the environmental review officer. The archeological consultant shall submit a draft archeological resources report to the environmental review officer that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken, and if applicable, discusses curation arrangements. Formal site recordation forms (CA DPR 523 series) shall be attached to the archeological resources report as an appendix.

Once approved by the environmental review officer, copies of the archeological resources report shall be distributed as follows: California Archeological Site Survey Northwest Information Center shall receive one copy, and the environmental review officer shall receive a copy of the transmittal of the archeological resources report to the Northwest Information Center. The environmental planning division of the planning department shall receive one bound hardcopy of the archeological resources report. Digital files that shall be submitted to the environmental division include an unlocked, searchable PDF version of the archeological resources report, GIS shapefiles of the site and feature locations, any formal site recordation forms (CA DPR 523 series), and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. The PDF archeological resources report, GIS files, recordation forms, and/or nomination documentation should be submitted via USB or other stable storage device. If a descendant group was consulted during archeological treatment, a PDF of the archeological resources report shall be provided to the representative of the descendant group.

Curation. Significant archeological collections and paleoenvironmental samples of future research value shall be permanently curated at an established curatorial facility. The facility shall be selected in consultation with the environmental review officer. Upon submittal of the collection for curation, the sponsor or archeologist shall provide a copy of the signed curatorial agreement to the environmental review officer.

Significance after Mitigation. The project sponsor has agreed to implement Mitigation Measure M-CR-2: Archeological Testing. This measure would ensure that archeological resources that may be present in soils that would be disturbed by project construction would be identified and assessed. If a significant resource is present, the resource would be preserved in place or archeological data recovery would be carried out to preserve the important information it represents. With implementation of this measure, the potentially

significant impact to archeological resources would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have archeological impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measure M-CR-2: Archeological Testing. With implementation of this measure for the expanded streetscape variant footprint, the potentially significant impact to archeological resources would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

Impact CR-3 The proposed project or variant could disturb human remains including those interred outside of formal cemeteries. (Less than Significant with Mitigation)

PROPOSED PROJECT

No known human burials have been identified in the study area. However, the possibility cannot be discounted that human remains could be inadvertently disturbed during project excavations and pile extension activities in the project site, given the elevated sensitivity for the area to contain near-surface and deeply buried and submerged prehistoric resources. Therefore, project implementation could result in impacts on previously undiscovered human remains, including those interred outside of formal cemeteries, during ground-disturbing activities. If human remains are discovered during construction, this would be considered a significant impact. Implementation of Mitigation Measure M-CR-2: Archeological Testing, would ensure that if human remains are encountered during construction, they would be appropriately addressed and that respectful treatment and disposition would occur.

Significance after Mitigation

The project sponsor has agreed to implement Mitigation Measure M-CR-2: Archeological Testing. This measure would ensure that the treatment of human remains and of associated or unassociated funerary objects discovered during any soil-disturbing activity complies with applicable state and federal laws. This shall include immediate notification of the city's Medical Examiner and adherence to protocols laid out in the project's archaeological treatment documents. With implementation of these measures, the potentially significant impact to human remains would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have archeological impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface.

Similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measure M-CR-2: Archeological Testing. With implementation of this measure, the potentially significant impact to human remains would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

Impact C-CR-1: The proposed project or variant, in combination with cumulative projects, could result in cumulative cultural resource impacts. (Less than Significant with Mitigation)

PROPOSED PROJECT

As presented in Impact CR-1, project implementation would have no impact to historical resources of the built environment (i.e., historic architecture). Therefore, the proposed project would not contribute to cumulative impacts on this class of historical resources, and the proposed project would have no cumulative impact on historical resources of the built environment.

The geographic context for cumulative impacts to archeological resources and human remains is generally confined to projects that are close enough to the proposed project site that they could result in impacts to the same archaeological resources. The SF Market Project is adjacent to the project site, and the Quint-Jerrold Connector, 2270 McKinnon Avenue, the SFPUC Biosolids Digester projects are within approximately 500 feet. These are the only cumulative development projects that could affect the same archaeological resources as the proposed project.

Implementation of the proposed project has the potential to result in significant impacts to as-yet undiscovered buried archeological resources and to human remains, although no archeological resources or human remains are known to be present at the project site. The immediate project vicinity is similarly moderately to very highly sensitive for the presence of buried prehistoric archeological resources and human remains: although there are no known resources in the immediate vicinity, there is a known prehistoric site approximately 600 feet away. If a resource were found to be present at the project site, it is possible that its extent could include the adjacent project site, which is where the SF Market project is proposed. The SF Market project involves excavation for all project phases. In the event that both projects impact an archaeological resource during construction, a significant cumulative impact to the resource could occur. Under these circumstances, the proposed project and the SF Market could result in significant cumulative impacts on archaeological resources or human remains, and the project's impact could be cumulatively considerable. However, the project's potential impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure M-CR-2: Archeological Testing, above.[54] Implementation of these measures would ensure that the proposed project's contribution to the significant cumulative impact on archeological resources and human remains would not be cumulatively considerable. Therefore, cumulative impacts to archeological resources and human remains would be less than significant with mitigation. It is noted that the SF Market Project mitigated negative declaration and SFPUC Biosolids Digester Facilities Project EIR include mitigation measures requiring archaeological testing, monitoring, and data recovery similar to Mitigation Measure M-CR-2 for the proposed project.

[54] San Francisco Planning Department, San Francisco Wholesale Produce Market Project Mitigated Final Negative Declaration, Case No. 2009.1153E, July 2011, *https://archives.sfplanning.org/documents/8783-2009.1153E_SFWholesaleProduceMarketFMND.pdf*, accessed June 17, 2020.

Significance after Mitigation

Compliance with the procedures identified in Mitigation Measure M-CR-2 would ensure that in the event archeological resources or human remains are discovered on the project site, the important information they represent would be preserved and interpreted to the public. This would ensure that the project's contribution to a significant cumulative archeological and human remains impact would not be cumulatively considerable, resulting in a less-than-significant impact with mitigation.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have archeological impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. As presented in Impact CR-1, implementation of the expanded streetscape variant would have no impact to historical resources of the built environment (i.e., historic architecture). Therefore, the expanded streetscape variant would not contribute to cumulative impacts on historic architectural resources and would have no cumulative impact on historical resources of the built environment.

Similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measure M-CR-2: Archeological Testing. With implementation of this measure, the expanded streetscape variant's contribution to a significant cumulative archeological and human remains impact would not be cumulatively considerable, resulting in a less-than-significant impact with mitigation. This topic will not be addressed in the EIR.

E.4. Tribal Cultural Resources

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐	☐

Impact TCR-1: The proposed project or variant could result in a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074. (Less than Significant with Mitigation)

PROPOSED PROJECT

Public Resources Code section 21074.2 requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, in a national, state, or local register of historical resources. Pursuant to Assembly Bill (AB) 52 (Public Resources Code section 21080.3.1(d)), on October 17, 2019, the planning department contacted Native American individuals and organizations for the San Francisco area, providing a description of the project and requesting comments on the identification, presence, and significance of tribal cultural resources in the project vicinity.[55] During the 30-day comment period, no Native American tribal representatives contacted the planning department to request consultation.

[55] San Francisco Planning Department, Tribal Notification Regarding Tribal Cultural Resources and CEQA, San Francisco Gateway Project, October 17, 2019.

As discussed in Section E.3, Cultural Resources, there is a moderate to high potential that prehistoric archeological resources may be present, buried below the surface of the project site. Based on prior Native American consultation under AB 52, all archeological sites of Native American origin in San Francisco, including all prehistoric archeological sites, are considered to be potential tribal cultural resources. If tribal cultural resources are disturbed during project implementation (i.e., through project excavations or pile extension), this would be considered a significant impact. This impact would be mitigated to a less-than-significant level with implementation of Mitigation Measure M-CR-2: Archeological Testing (presented in Section E.3, Cultural Resources), which requires implementation of an archeological testing program; and Mitigation Measure M-TCR-1: Tribal Cultural Resources Interpretive Program, described below.

Mitigation Measure M-TCR-1 Tribal Cultural Resources Interpretive Program.

Preservation in Place. In the event of the discovery of an archeological resource of Native American origin, the environmental review officer, the project sponsor, and the local Native American representative shall consult to determine whether preservation in place would be feasible and effective. Coordination shall take place with local Native American representatives, including the Association of Ramaytush Ohlone and other interested Ohlone parties. If it is determined that preservation-in-place of the tribal cultural resource would be both feasible and effective, then the archeological consultant, in consultation with the local Native American representative, shall prepare an archeological resource preservation plan, which shall be implemented by the project sponsor during construction. The consultant shall submit a draft archeological resource preservation plan to the planning department for review and approval.

Interpretive Program. If the environmental review officer, in consultation with local Native American representatives (including the Association of Ramaytush Ohlone and other interested Ohlone parties) and the project sponsor, determines that preservation-in-place of the tribal cultural resources is not a sufficient or feasible option, then archeological data recovery shall be implemented as required by the environmental review officer and in consultation with affiliated Native American tribal representatives.

After data recovery, the project sponsor, in consultation with local Native American representatives, shall prepare a tribal cultural resources interpretation plan to guide the interpretive program. The tribal cultural resources interpretation plan may be prepared in tandem with the archeological public interpretation plan described in Mitigation Measure M-CR-2: Archeological Testing. The tribal cultural resources interpretation plan shall be submitted to the environmental review officer for review and approval prior to implementation of the program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a

long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, cultural displays, educational panels, or other interpretive elements agreed upon by the environmental review officer, sponsor, and local Native American representatives. Upon approval of the tribal cultural resources interpretation and prior to project occupancy, the interpretive program shall be implemented by the project sponsor. Local Native American representatives who are substantially involved in preparation or implementation of the interpretive program shall be appropriately compensated by the project sponsor.

Significance after Mitigation. Mitigation Measure M-CR-2: Archeological Testing (presented in Section E.3, Cultural Resources) would ensure that archeological resources that may be present in soils that would be disturbed by project construction would be identified and assessed. In the event that archeological resources are found, they would be assessed to determine whether they constitute significant tribal cultural resources in accordance with Mitigation Measure M-TCR-1. Preservation in place is the preferred mitigation for tribal cultural resources. However, if it is determined, through the process outlined above in Mitigation Measure M-TCR-1, that preservation in place is not feasible, archeological data recovery would recover a sample of the significant information represented by the resource and public interpretation would help to ensure that the other values represented by the resource are conveyed to the public. Mitigation Measures M-CR-2 and M-TCR-1 therefore would reduce the potential impact to tribal cultural resources to a less-than-significant level. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The proposed expanded streetscape variant would have tribal cultural resources impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measures M-CR-2: Archeological Testing; and M-TCR-1: Tribal Cultural Resources Interpretive Program. With implementation of these measures, the potentially significant impact to tribal cultural resources would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

Impact C-TCR-1: The proposed project or variant, in combination with cumulative projects, could result in cumulative cultural resource impacts. (Less than Significant with Mitigation)

PROPOSED PROJECT

The geographic context for cumulative tribal cultural resources impacts is generally confined to projects in the immediate vicinity of the project site that might affect resources that also could be affected by the project. As discussed under Impact C-CR-1, the SF Market Project is adjacent to the project site and would involve excavation for all project phases; and the Quint-Jerrold Connector, 2270 McKinnon Avenue, and SFPUC Biosolids Digester projects are within 500 feet. These are the only cumulative development projects

that could affect prehistoric archeological resources and potential tribal cultural resources that could also be affected by the proposed project.

As presented under Impact TCR-1, implementation of the proposed project has the potential to result in significant impacts to buried archeological resources, because this area of San Francisco is considered moderately to highly sensitive for the presence of buried prehistoric archeological resources. Such prehistoric archeological resources could also be tribal cultural resources, as explained above. Although no such resources are known at the project site and the closest known site is about 400 feet distant, construction activities at project sites in the immediate vicinity would have a similar potential to that of the project to result in significant impacts to buried prehistoric archeological resources that also may be tribal cultural resources. In this situation, a significant cumulative impact could occur. In the event of the discovery during construction of an archaeological resource that is determined to be a tribal cultural resource, the project's contribution to the cumulative impact would be cumulatively considerable.

However, if the proposed project were to encounter buried archeological resources that include tribal cultural resources, impacts to these resources would be addressed with implementation of Mitigation Measure M-CR-2: Archeological Testing (see Section E.3, Cultural Resources); and Mitigation Measure M-TCR-1: Tribal Cultural Resources Interpretive Program, above. With implementation of these mitigation measures, the proposed project's contribution to cumulative impacts on tribal cultural resources would be mitigated to a less-than-cumulatively-considerable level. Therefore, cumulative impacts on tribal cultural resources would be less than significant with mitigation. It is noted that other nearby projects are subject to the same or similar measures that, in each case, would mitigate each project's impacts to tribal cultural resources to a less-than-significant level.

Significance after Mitigation

Compliance with the procedures identified in Mitigation Measures M-CR-2 and M-TCR-1 would ensure that, if significant tribal cultural resources are discovered, the important values and information represented by these significant tribal cultural resources would be preserved and/or interpreted to the public in consultation with the affiliated Native American tribal representatives. This would reduce the proposed project's contribution to potentially significant cumulative impacts on these tribal cultural resources to a less-than-significant level.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the expanded streetscape variant would have tribal cultural resources impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measures M-CR-2: Archeological Testing; and M-TCR-1: Tribal Cultural Resources Interpretive Program. With implementation of these measures, the expanded streetscape variant would reduce the proposed project's contribution to potentially significant cumulative impacts on these tribal cultural resources to a less-than-significant level.

E.5. Transportation and Circulation

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Involve construction that would require a substantially extended duration or intensive activity, the effects of which would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit?	☒	☐	☐	☐	☐
b) Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations?	☒	☐	☐	☐	☐
c) Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access?	☒	☐	☐	☐	☐
d) Substantially delay public transit?	☒	☐	☐	☐	☐
e) Cause substantial additional vehicle miles traveled or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network?	☒	☐	☐	☐	☐
f) Result in a loading deficit, the secondary effects of which would create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit?	☒	☐	☐	☐	☐
g) Result in a substantial vehicular parking deficit, the secondary effects of which would create potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit?	☒	☐	☐	☐	☐

The proposed project and the expanded streetscape variant have the potential to result in significant impacts on transportation and circulation. Accordingly, this topic will be analyzed further and included in the EIR.

E.6. Noise

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐	☐
b) Generate excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☐	☒

There are no private airstrips or public or public use airports in the project vicinity, and the project is not in the vicinity of an airport land use plan. Therefore, topic 6 (c) is not applicable to the proposed project or expanded streetscape variant. However, the proposed project and expanded streetscape variant have the potential to result in significant temporary or permanent noise and vibration impacts. Accordingly, this topic, with the exception of exposing people residing or working near an airstrip or airport to excessive noise, will be analyzed further and included in the EIR.

E.7. Air Quality

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard?	☒	☐	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐	☐

The proposed project and expanded streetscape variant have the potential to result in significant impacts on air quality. Accordingly, this topic will be analyzed further and included in the EIR.

E.8. Greenhouse Gas Emissions

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

SETTING

Gases that trap heat in the atmosphere are referred to as greenhouse gases because they capture heat radiated from the sun as it is reflected back into the atmosphere. The accumulation of greenhouse gases from human activities contributes to global climate change. The primary greenhouse gases, or climate pollutants, are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. In addition to these primary gases, black carbon is a part of fine particulate air pollution and not a gas, but is an important climate pollutant.

Individual projects contribute to the cumulative effects of climate change by emitting greenhouse gases during demolition, construction, and operation. Emissions of carbon dioxide are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Black carbon has been identified as a major contributor to global climate change, possibly second only to carbon dioxide. Human activities produce black carbon as a result of the incomplete combustion of fossil fuels, biofuels, and biomass materials.[56] Nitrous oxide is a by-product of various industrial processes. Other greenhouse gases, including hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, are generated in certain industrial processes. Greenhouse gases are typically reported in "carbon-dioxide-equivalent" measures.[57]

It is unequivocal that human-caused increases in greenhouse gases have warmed the atmosphere, ocean, and land, and that human-induced climate change is affecting every inhabited region in the world, increasing the frequency and severity of extreme events, such as heat waves, precipitation, droughts, and tropical cyclones. Furthermore, the scale of changes observed across the climate system is unprecedented in the thousands of years for which we have data.[58] Secondary effects of climate change in California include impacts on agriculture, the state's electricity system, and the native ecosystems and biodiversity (especially

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56 Center for Climate and Energy Solutions, *What Is Black Carbon?* April 2010, *https://www.c2es.org/site/assets/ uploads/2010/04/what-is-black-carbon.pdf*, accessed November 19, 2019.

57 Because of the differential potential of various greenhouse gases to trap heat in the Earth's atmosphere, greenhouse gas emissions are frequently measured in "carbon dioxide equivalents," which present a weighted total, based on each gas's heat trapping (or "global warming") potential relative to that of carbon dioxide.

58 Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis*, *Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, *https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf*, accessed October 25, 2021.

those of freshwater and anadromous fish); increasing vulnerability of infrastructure (including levees, such as in the Sacramento-San Joaquin Delta); an increase in the frequency and intensity of extreme wildfires, flooding events, and drought conditions; and changes in disease vectors.[59,60]

EXISTING GREENHOUSE GAS EMISSION ESTIMATES

The California Air Resources Board (air board) estimated that in 2019, California produced about 418 million gross metric tons of carbon dioxide equivalents.[61] The air board found that transportation is the source of 40 percent of the state's greenhouse gas emissions, followed by industrial uses at 21 percent, and electricity generation (both in-state and outside generation) at 14 percent. Commercial and residential fuel use (primarily for heating) accounted for 10 percent of greenhouse gas emissions.[62] In San Francisco, motorized transportation and buildings (i.e., natural gas and electricity use in the buildings) were the two largest sources of greenhouse gas emissions, accounting for 47 percent (approximately 2.2 million metric tons of carbon dioxide equivalents) and 41 percent (1.9 million metric tons of carbon dioxide equivalents), respectively, of the approximately 4.6 million metric tons of carbon dioxide equivalents emitted in San Francisco in 2019.[63] Other sources include landfilled organics (approximately 7 percent), municipal emissions (approximately 3 percent, including both municipal buildings and fleets), and agriculture (approximately 1.8 percent).[64]

Electricity in San Francisco is provided primarily by SFPUC and Pacific Gas and Electric Company (PG&E). In 2019, electricity consumption in San Francisco totaled approximately 5.6 million megawatt-hours.[65] SFPUC produces approximately 80 percent of the City of San Francisco's power through Hetch Hetchy Power and CleanPowerSF, with the City's remaining energy demand being met by PG&E. CleanPowerSF was launched by the SFPUC in 2016 to provide renewable energy to residents and businesses. The organization was formed to achieve the city's ambitious targets regarding the delivery of completely emissions-free electricity by 2030.[66] PG&E's 2019 power mix was as follows: 2 percent natural gas and other, 45 percent nuclear, 25 percent eligible renewables (described below), and 28 percent large hydroelectric.[67]

SFPUC, which operates three hydroelectric power plants as part of San Francisco's Hetch Hetchy water supply system—as well as solar, biomass, and biowaste infrastructure—provides electrical power to the San

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59 Ibid.

60 California Climate Change Center, *California's Fourth Climate Change Assessment: Statewide Summary Report*, *https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf*, accessed January 5, 2022.

61 California Air Resources Board, *California Greenhouse Gas Inventory for 2000–2019 by Category as Defined in the Scoping Plan,* n.d., *https://www.arb.ca.gov/cc/inventory/data/data.htm*, accessed August 20, 2021.

62 Ibid.

63 San Francisco Department of the Environment, *San Francisco's Carbon Footprint*, n.d., *https://sfenvironment.org/carbonfootprint*, accessed August 20, 2021.

64 Ibid.

65 California Energy Commission, *Electricity Consumption by County*, 2019, *https://ecdms.energy.ca.gov/ elecbycounty.aspx*, accessed August 20, 2021.

66 Stark, Kevin, Power Switch: S.F. Builds Case for Pushing Out PG&E, *San Francisco Public Press,* 2019, *https://sfpublicpress.org/news/2019-06/power-switch-sf-builds-case-for-pushing-out-pge*, accessed November 20, 2019.

67 Pacific Gas and Electric Company, *Exploring Clean Energy Solutions,* 2019, *https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page?WT.mc_id=Vanity_ cleanenergy*, accessed November 19, 2019.

Francisco Municipal Railway, city buildings, and a limited number of commercial accounts in San Francisco.[68] Electricity generated by the Hetch Hetchy system achieves net-zero greenhouse gas emissions.[69]

REGULATORY SETTING

This section describes the regulatory framework for greenhouse gases, including policies and regulations applicable to greenhouse gas emissions.

Greenhouse Gas Reduction Goals

At the state level, Executive Order S-3-05[70] sets forth a series of target dates by which time statewide emissions of greenhouse gases would need to be progressively reduced, as follows:

- reduce emissions to 1990 levels by 2020 (approximately 427 million metric tons of carbon dioxide equivalents), and
- reduce emissions to 80 percent below 1990 levels by 2050 (approximately 85 million metric tons of carbon dioxide equivalents).

In 2006, after Executive Order S-3-05 was signed, the California Legislature passed AB 32,[71] also known as the California Global Warming Solutions Act. AB 32 requires the air board to design and implement emission limits, regulations, and other measures so that statewide greenhouse gas emissions are reduced to 1990 levels by 2020.

Pursuant to AB 32, the air board adopted the 2008 climate change scoping plan, which outlines measures to meet the 2020 greenhouse gas reduction limits. To meet the goals of AB 32, California needed to reduce its greenhouse gas emissions to 1990 levels by 2020 (equal to approximately 15 percent below 2008 levels).[72] In 2018, the air board announced that inventory year 2016 emissions had dropped below 1990 levels, which represented early achievement of the AB 32 goal.[73] Since inventory year 2016, emissions have continued to be below the 1990 level.[74]

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68 San Francisco Public Utilities Commission, *About the Power Enterprise*, n.d., *http://sfwater.org/index.aspx?page=391*, accessed November 18, 2019.

69 California Air Resources Board. 2020. Mandatory GHG Reporting – 2019 GHG Emissions Data, *https://ww2.arb.ca.gov/mrr-data*, accessed October 12, 2021.

70 Office of the Governor, *Executive Order S-3-05*, June 1, 2005, *http://static1.squarespace.com/static/549885d4e4b0ba0bff5dc695/t/54d7f1e0e4b0f0798cee3010/1423438304744/California+Executive+Order+S-3-05+(June+2005).pdf*, accessed November 20, 2019. Executive Order S-3-05 sets forth a series of target dates by which statewide emissions of greenhouse gases will need to be progressively reduced, as follows: by 2010, reduce greenhouse gas emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalents); by 2020, reduce greenhouse gas emissions to 1990 levels (approximately 427 million metric tons of carbon dioxide equivalents); and by 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels (approximately 85 million metric tons of carbon dioxide equivalents).

71 California Health and Safety Code division 25.5, section 38500 et seq.

72 California Air Resources Board, *AB 32 Global Warming Solutions Act of 2006*, *https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006*, accessed September 30, 2021.

73 California Air Resources Board, Climate pollutants fall below 1990 levels for the first time, 2018, *https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levels-first-time*, accessed April 23, 2020.

74 California Air Resources Board, *California Greenhouse Gas Inventory for 2000–2019 by Category as Defined in the Scoping Plan,* n.d., *https://www.arb.ca.gov/cc/inventory/data/data.htm*, accessed August 20, 2021.

For the 2030 horizon, Executive Order B-30-15, signed in 2015, sets an interim statewide greenhouse gas emissions reduction target of 40 percent below 1990 levels by 2030.[75] Executive Order B-30-15 also requires all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures within their statutory authority for achieving reductions in greenhouse gas emissions and meeting the 2030 and 2050 greenhouse gas emission reduction targets.

On August 24, 2016, the California Legislature passed Senate Bill (SB) 32,[76] thereby amending the California Global Warming Solutions Act of 2006. SB 32 directed the air board to adopt, to the extent technologically feasible and cost effective, the rules and regulations necessary to achieve a reduction in statewide greenhouse gas emissions (i.e., to 40 percent below 1990 levels by 2030). The passage of SB 32 codified the 2030 interim greenhouse gas emissions reduction target established by Executive Order B-30-15.

SB 32 was paired with AB 197 (2016), which amended the health and safety code.[77] AB 197 provides additional guidance on how to achieve the reduction targets established in Executive Order B-30-15 and SB 32. SB 32 and AB 197 became effective January 1, 2017.

In accordance with AB 32, the climate change scoping plan must be updated every five years to evaluate AB 32 policies and ensure that California is on track with respect to achieving long-term climate stabilization goals. The first scoping plan update was approved in 2014, and an additional update was approved in 2017.

The 2017 climate change scoping plan identifies specific measures to reduce greenhouse gas emissions to 1990 levels by 2020 and requires the air board and other state agencies to develop and enforce regulations and other initiatives for reducing greenhouse gases.[78] The plan also highlights California's progress toward meeting the 2030 greenhouse gas emissions reduction goals of SB 32 and evaluates how to align the state's longer-term greenhouse gas reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.[79] Specifically, the 2017 climate change scoping plan update articulates a key role for local governments, recommending that they establish greenhouse gas reduction goals for both their municipal operations and the community consistent with those of the state.

The 2017 climate change scoping plan estimates 385 million metric tons (MMT) of carbon dioxide equivalents (CO_2e) would be reduced from known commitments, leaving a gap of 236 MMT CO_2e that is needed to meet the 2030 target codified by SB 32. The air board concluded that the gap in emissions would need to be bridged by the cap-and-trade program's achievement of 236 MMT CO_2e. Table 5 shows the reductions that the air board is expecting from the known commitments of the scoping plan and the amount needed from the cap-and-trade program to achieve the 2030 target.[80]

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75 Office of the Governor, *Executive Order B-30-15,* April 29, 2015, *https://www.ca.gov/archive/gov39/2015/04/29/news18938/index.html*, accessed November 19, 2019.

76 California Health and Safety Code division 25.5, section 38566.

77 California Government Code, division 2 of title 2, article 7.6 of chapter 1.5, California Health and Safety Code sections 39510, 39607, 38506, 38531, and 38562.5.

78 California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, November 2017, *https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf*, accessed March 17, 2020.

79 Ibid.

80 Ibid.

Table 5 Cumulative Greenhouse Gas Reductions from the 2017 Scoping Plan Measures[81]

Scoping Plan Measure	Greenhouse Gas Reductions (MMT CO_2e)
Short-lived climate pollutants	217
Mobile sources, clean fuels, and technology and freight	64
Landfill methane energy efficiency	64
Biofuels	25
50% renewable portfolio standards	16
Cap-and-trade program	236
Total Scoping Plan Reductions to Meet SB 32 Target	**621**

Source: California Air Resources Board 2017.

Notes:

The values displayed in Table 5 do not mathematically sum to 621 MMT CO2e, as a result of embedded significant figures and rounding for graphic display purposes included in California's 2017 Climate Change Scoping Plan.

CO_2e = carbon dioxide equivalents
MMT = million metric tons

For the post-2030 period, Executive Order B-55-18 establishes a statewide goal of achieving carbon neutrality as soon as possible, but no later than 2045, and achieving and maintaining net negative emissions thereafter. The next update to the scoping plan, the 2022 climate change scoping plan, would assess progress toward achieving the SB 32 2030 target and laying out a path to achieve carbon neutrality by mid-century, pursuant to Executive Order B-55-18.[82]

At the regional level, the air district is responsible for attaining and maintaining federal and state air quality standards in the San Francisco Bay Area Air Basin, as established by the federal Clean Air Act and the California Clean Air Act. The acts require plans to be developed for areas that do not meet air quality standards. The most recent air quality plan, the Bay Area 2017 Clean Air Plan, includes a goal that calls for reducing greenhouse gas emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.[83] The air district also established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the air basin.[84] In addition, the air district's CEQA Air Quality Guidelines help lead agencies comply with the requirements of CEQA with respect to potentially adverse impacts on air quality. The air district advises lead agencies to consider adopting a greenhouse gas emissions reduction strategy that meets climate stabilization goals and then review projects for compliance with the greenhouse gas emissions reduction strategy as a CEQA threshold of significance.[85] This is consistent with the approach to analyzing greenhouse gas emissions described in CEQA Guidelines section 15183.5.

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81 California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* November 2017, *https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf*, accessed September 3, 2021.

82 California Air Resources Board, *AB 32 Climate Change Scoping Plan*, *https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan*, accessed October 12, 2021.

83 Bay Area Air Quality Management District, 2017 Clean Air Plan, April 2017, http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans, accessed November 19, 2019.

84 Bay Area Air Quality Management District, *Climate Protection Program*, 2017, *http://www.baaqmd.gov/plans-and-climate/climate-protection/climate-protection-program*, accessed November 19, 2019.

85 Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed November 19, 2019.

At the local level, the city adopted ordinance 81-08 in May 2008, amending the San Francisco Environment Code to establish greenhouse gas emissions targets and require departmental action plans. Ordinance 81-08 authorized the San Francisco Department of the Environment to coordinate efforts to meet the targets and established the following greenhouse gas emissions reduction limits and target dates:

- determine 1990 citywide greenhouse gas emissions by 2008 (i.e., the baseline level, with reference to which target reductions have been set);
- reduce greenhouse gas emissions to 25 percent below 1990 levels by 2017;
- reduce greenhouse gas emissions to 40 percent below 1990 levels by 2025; and
- reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050.[86]

In July 2021, the city adopted an updated greenhouse gas ordinance to demonstrate the city's commitment to the Paris Agreement by establishing greenhouse gas reduction targets for 2030, 2040, and 2050 and setting other critical sustainability goals. The updated ordinance sets goals for both sector-based emissions and consumption-based emissions. The greenhouse gas targets established under ordinance 81-08 applied solely to sector-based emissions, which are those emissions that are generated within the geographic boundaries of the city. The updated ordinance reflects a more comprehensive effort to reduce greenhouse gas emissions by setting consumption-based targets as well. Consumption-based emissions are those that are associated with producing, transporting, using, and disposing of products and services consumed by people in the city, even those emissions that are generated outside of the city boundaries. The city's updated greenhouse gas reduction targets are as follows:

- by 2030, reduce sector-based greenhouse gas emissions to 61 percent below 1990 levels;
- by 2030, reduce consumption-based greenhouse gas emissions to 30 metric tons of CO_2e per household or less, equivalent to a 40 percent reduction compared to 1990 levels;
- by 2040, reach net-zero sector-based emissions and sequester any residual emissions using nature-based solutions;[87] and
- by 2050, reduce consumption-based greenhouse gas emissions to 10 metric tons of CO_2e per household or less, equivalent to an 80 percent reduction compared to 1990 levels.

These sector-based greenhouse gas reduction targets are more ambitious than those set forth in Executive Order B-30-15 (e.g., a 61 percent reduction in sector-based greenhouse gas emissions by 2030 rather than a 40 percent reduction by 2030) and Executive Order B-55-18 (e.g., achieving carbon neutrality by 2040 rather than by 2045). The consumption-based targets are consistent with the 2030 goal of Executive Order B-30-15 and the 2050 goal of Executive Order S-3-05 (80 percent below 1990 levels, by 2050).

The updated greenhouse gas ordinance also serves to codify the city's "0-80-100-Roots" climate action framework, which comprises climate and sustainability goals in these key areas: waste, transportation, energy, and carbon sequestration. The framework also emphasizes the importance of housing in implementing meaningful climate solutions, which require an increased supply of high-quality housing that

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[86] City and County of San Francisco, *Greenhouse Gas Emissions Targets and Departmental Action Plans*, May 13, 2008, *https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_environment/0-0-0-908*, accessed November 19, 2019.

[87] Nature-based solutions are those that remove remaining emissions from the atmosphere by storing them in natural systems that support soil fertility or employing other carbon farming practices.

is both affordable and near transit service. The goals in the 0-80-100-Roots framework are defined as follows:

- Zero Waste (***0***-80-100-Roots)
  - By 2030, reduce the generation of solid waste to 15 percent below 2015 levels and reduce the amount of solid waste that is incinerated or sent to landfill to at least 50 percent below 2015 levels.

- Transportation (0-***80***-100-Roots)
  - By 2030, increase the percentage of low-carbon trips to at least 80 percent of measured trips and increase the number of electric vehicles to at least 25 percent of all registered private vehicles.
  - By 2045, increase the number of electric vehicles to 100 percent of all registered private vehicles.

- Energy (0-80-***100***-Roots)
  - By 2025, supply 100 percent renewable electricity.
  - By 2045, supply 100 percent renewable energy.

- Carbon Sequestration (0-80-100-***Roots***)
  - Sequester carbon through ecosystem restoration, including an increased urban tree canopy (i.e., tree roots), green infrastructure, and compost applications.

- Housing and Buildings
  - Build at least 5,000 new housing units per year, with at least 30 percent of these units provided as affordable units.
  - By 2021, require zero onsite fossil fuel emissions from all new buildings.
  - By 2035, require zero onsite fossil fuel emissions from all large existing commercial buildings.

To support the 2021 Housing and Buildings goal of zero onsite fossil fuel emissions from all new buildings, the board of supervisors passed an all-electric new construction ordinance in November 2020. The ordinance prohibits the installation of natural gas and propane space conditioning, water heating, cooking, and clothes drying equipment and appliances in all new residential and commercial buildings with initial building permit applications filed after June 1, 2021.[88]

San Francisco has developed many plans and programs for reducing the city's contribution to global climate change and meeting the goals of ordinance 81-08. The 2017 Greenhouse Gas Reduction Strategy Update[89] documents city actions related to pursuing cleaner energy, reducing energy consumption, supporting alternative transportation, and implementing solid waste policies. For instance, the city has implemented mandatory requirements and incentives that have measurably reduced greenhouse gas emissions, including but not limited to requirements for increased energy efficiency in new and existing buildings, requirements for the installation of solar panels or vegetation on roofs (i.e., living roofs), implementation of a green building strategy, implementation of a transportation sustainability program, adoption of a zero-waste strategy, adoption of a construction and demolition debris recovery ordinance, creation of a solar energy generation subsidy, incorporation of alternative-fuel vehicles in the city's transportation fleet (including

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88 San Francisco Department of Building Inspection, *All-Electric New Construction Ordinance, https://sfdbi.org/AllElectricNewConstruction Ordinance*, accessed August 20, 2021.

89 San Francisco Planning Department, *2017 Greenhouse Gas Reduction Strategy Update*, July 2017, *https://sfplanning.org/project/greenhouse-gas-reduction-strategies*, accessed October 29, 2021.

buses), and adoption of a mandatory recycling and composting ordinance. The strategy also includes specific regulations for new development, which would reduce greenhouse gas emissions generated by anticipated future development. These greenhouse gas emissions reduction actions resulted in a 41 percent reduction in greenhouse gas emissions in 2019 compared with 1990 levels.[90,91] This level of greenhouse gas emissions substantially surpasses the 2020 and 2030 goals in the air district's 2017 Clean Air Plan, Executive Orders S-3-05 and B-30-15, AB 32, SB 32, and the city's 2017 greenhouse gas emissions reduction goal.

The July 2021 greenhouse gas ordinance requires the San Francisco Department of the Environment to prepare and submit to the mayor a climate action plan by December 31, 2021. Accordingly, the San Francisco Department of the Environment released the 2021 Climate Action Plan.[92] The climate action plan, which is to be updated every five years, would carry forward the efforts of the city's previous climate action plans and align with the Paris Agreement (e.g., limit global warming to 1.5 degrees Celsius) as well as the reduction targets adopted in the greenhouse gas ordinance. The climate action plan also incorporates an equity framework to address historic inequities; prioritizes the social, economic, and environmental benefits from implementing the climate action plan; and ensures that those benefits are distributed equitably.

Transportation Sector Regulations

With respect to transportation-related emissions, the climate change scoping plan relies on the requirements of SB 375[93] (chapter 728, statutes of 2008), also known as the Sustainable Communities and Climate Protection Act of 2008, to reduce carbon emissions from land use decisions. SB 375 requires each of the state's 18 metropolitan planning organizations to incorporate a sustainable communities strategy in their regional transportation plans, which would then achieve the greenhouse gas emissions reduction targets set by the air board. Plan Bay Area 2050, the Metropolitan Transportation Commission's regional transportation plan, was adopted in October 2021 and serves as a roadmap for the San Francisco Bay Area's future through 2050.[94] For the San Francisco Bay Area, the per capita greenhouse gas emissions reduction targets applicable to Plan Bay Area 2050 are 19 percent by 2035 (i.e., emissions from vehicles and light-duty trucks compared with 2005 levels).[95]

The Governor's OPR implemented changes to the CEQA Guidelines, including the addition of section 15064.3, which requires CEQA transportation analyses to move away from a focus on vehicle delay and level of service. In support of these changes, OPR published its *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which states that the determination of a project's transportation impact should be based on whether project-related VMT per capita (or VMT per employee) would be 15 percent

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90 The City's greenhouse gas inventory is quantified in accordance with the Greenhouse Gas Protocol for Cities developed by the World Resources Institute, C40, and ICLEI. World Resources Institute, C40 Cities, ICLEI, Global Protocol for Community-Scale Greenhouse Gas Inventories, , accessed October 29, 2021. Additionally, the annual greenhouse gas inventory is submitted to global reporting entities (Carbon Disclosure Project, C40) and OpenDataSF.

91 San Francisco Department of the Environment, San Francisco's Carbon Footprint, 2017, *https://sfenvironment.org/carbon-footprint*, accessed November 19, 2019.

92 San Francisco Department of the Environment, San Francisco's Climate Action Plan 2021, *https://sfenvironment.org/sites/default/files/2021_climate_action_plan.pdf*, Accessed December 16, 2021.

93 California Government Code, sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, 14522.1, 14522.2, and 65080.01; California Public Resources Code, sections 21061.3 and 21159.28; chapter 4.2, division 13, section 21155.

94 Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050, October 2021, *https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf*, accessed November 17, 2021.

95 These targets became applicable on October 1, 2018. California Air Resources Board, *SB 375 Regional Plan Climate Targets*, *https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets*, accessed October 29, 2021.

lower than that of existing development in the region.[96] OPR's technical advisory explains that this criterion is consistent with CEQA section 21099, which states that the criteria for determining significance must "promote a reduction in greenhouse gas emissions." In addition, the 15 percent reduction is consistent with the VMT reduction that the air board has determined to be necessary to meet the state's 2030 and 2050 greenhouse gas goals.[97] This metric is intended to replace the use of vehicle delay and level of service for measuring transportation-related impacts.

In addition to actions to reduce VMT, the state has also adopted legislation to improve vehicle fuel efficiency. With the passage of AB 1493 (2002),[98] also known as Pavley I, California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change at the state level. AB 1493 amended the health and safety code and requires the air board to develop and implement regulations to reduce automobile and light-duty truck greenhouse gas emissions. Although litigation challenged these regulations and the U.S. Environmental Protection Agency initially denied California's related request for a waiver, the waiver request was granted.[99] Additional strengthening of the Pavley standards (referred to previously as Pavley II and now referred to as the Advanced Clean Cars measure) was adopted for vehicle model years 2017–2025 in 2012. Together, the two standards are expected to increase average fuel economy to roughly 54.5 miles per gallon in 2025. In 2020, the air board estimated that fleet-wide fuel economy in California would be 42.5 miles per gallon.[100]

Adopted in December 2018, the Innovative Clean Transit regulation[101] requires public transit agencies to gradually transition to 100 percent zero-emission bus fleets by 2040. According to the air board, this regulation benefits the state by:[102]

- reducing greenhouse gas emissions for all Californians, especially transit-dependent and disadvantaged communities (the majority of these benefits would be in the state's most populated and affected areas where transit buses are most prevalent);
- increasing penetration of the first wave of zero-emission heavy-duty technologies into applications that are well suited to their use to further achieve emission reduction benefits;
- saving energy and reducing dependency on petroleum and other fossil fuels;
- expanding zero-emission vehicle industry to bring high-quality green jobs to local communities and trained workforce to California; and

96 Governor's Office of Planning and Research (OPR), *Technical Advisory on Evaluating Transportation Impacts in CEQA,* November 2017, *http://www.opr.ca.gov/docs/20171127_Transportation_Analysis_TA_Nov_2017.pdf*, accessed August 16, 2021.

97 Ibid.

98 California Health and Safety Code, sections 42823 and 43018.5.

99 California's waiver to set state-specific standards is currently uncertain as a result of the SAFE Vehicles Rule.

100 California Air Resources Board, *Comparison of Greenhouse Gas Reductions for the United States and Canada under U.S. CAFÉ Standards and California Air Resources Board Greenhouse Gas Regulation, https://ww2.arb.ca.gov/sites/default/files/2020-03/pavleycafe_reportfeb25_08_ac.pdf*, accessed October 29, 2021.

101 California Code of Regulations, title 13, sections 2023 and 2023.1–2023.11.

102 California Air Resources Board, *Innovative Clean Transit – About*, *https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit/about*, accessed September 3, 2021.

- providing other societal benefits by encouraging improved mobility and connectivity with zero-emission transportation modes and reduced growth in light-duty VMT.

Energy Sector Regulations

For the energy sector, California established aggressive renewable portfolio standards under SB 1078[103] (chapter 516, statutes of 2002) and SB 107[104] (chapter 464, statutes of 2006) that required retail sellers of electricity to provide at least 20 percent of their electricity from renewable sources by 2010. These bills amended the California Public Resources Code and Public Utilities Code. Executive Order S-14-08 (November 2008) expanded the state's renewable portfolio standards, which call for 20 to 33 percent of electricity to come from renewable sources by 2020.

In April 2011, Governor Brown signed SB X1-2[105] (chapter 1, statutes of 2011), codifying greenhouse gas emissions reduction goals for energy suppliers (i.e., 33 percent of electricity from renewable energy by 2020) by amending the California Fish and Game Code, the Public Resources Code, and Public Utilities Code. Under SB X1-2, all electricity-supplying entities must adopt the goals of the new renewable portfolio standard (i.e., 20 percent of retail sales from renewable sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020).[106]

Eligible renewable sources include geothermal, ocean wave, solar photovoltaic, and wind sources but exclude large hydroelectric facilities (30 megawatts or more). Therefore, because the SFPUC receives more than 67 percent of its electricity from large hydroelectric facilities, the remaining electricity provided by the SFPUC is required to be 100 percent renewable.[107]

SB 350 (chapter 547, statutes of 2015),[108] signed by Governor Brown in October 2015, dramatically increased the stringency of the renewable portfolio standard and amended multiple state codes. SB 350 establishes a renewable portfolio standard that calls for 50 percent of electricity to come from renewable sources by 2030, along with interim targets of 40 percent by 2024 and 45 percent by 2027. SB 100[109] (2018) further accelerates the renewable energy targets that were set by earlier legislation by amending the California Public Utilities Code.

Short-Lived Climate Pollutant Regulations

SB 605[110] (2014) directed the air board, in coordination with other state agencies and local air districts, to develop a comprehensive Short-Lived Climate Pollutant Reduction Strategy; and SB 1383[111] (2016) directed the air board to approve and implement the Short-Lived Climate Pollutant Reduction Strategy to achieve the following reductions in short-lived climate pollutants:

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103 Chapter 2.3, part 1 of Division 1, California Public Utilities Code sections 387, 390.1 and 399.25.

104 California Public Resources Code, sections 25620.1, 25740–25743, 25745, 25746, 25749, 25751, 25470.5, and 25744.5. California Public Utilities Code, chapter 3, part 1, division 1, sections 387, 399.11–399.16, and 2854.

105 California Fish and Game Code, section 705; California Public Resources Code, sections 25740, 25740.5, 25741, 25742, 25746, 25747, 25751, 25519.5, and 25741.5; California Public Utilities Code, sections 399.11–399.20, 399.26, 399.30, 399.31, and 1005.1.

106 Ibid.

107 San Francisco Public Utilities Commission, *Adopt an Enforcement Program as required under the California Renewable Energy Resources Act,* December 13, 2011, *https://infrastructure.sfwater.org/fds/fds.aspx?lib=SFPUC&doc=741114&data=285328890*, accessed October 29, 2021.

108 California Health and Safety Code, section 44258.5; California Labor Code, section 1720; California Public Resources Code, sections 25310, 25943, 25302.2, and 25327; California Public Utilities Code, chapter 2.3, part 1, division 1, sections 359, 399.4, 399.11, 399.12, 399.13, 399.15, 399.16, 399.18, 399.21, 399.30, 454.55, 454.56, 701.1, 740.8, 9505, 9620, 337, 352, 237.5, 365.2, 366.3, 454.51, 454.52, 740.12, 9621, and 9622.

109 California Public Utilities Code, sections 399.11, 399.15, 399.30, and 454.53.

110 California Health and Safety Code, chapter 4.2, part 2, division 26, section 39730.

111 California Health and Safety Code, sections 39730.5–39730.8; California Public Resources Code, chapter 13.1, part 3, division 30, section 42652.

- 40 percent reduction in methane below 2013 levels by 2030;
- 40 percent reduction in hydrofluorocarbon gases below 2013 levels by 2030; and
- 50 percent reduction in anthropogenic black carbon below 2013 levels by 2030.

The bill also established the following targets for reducing organic waste in landfills and methane emissions from dairy and livestock operations:

- 50 percent reduction in organic waste disposal from the 2014 level by 2020;
- 75 percent reduction in organic waste disposal from the 2014 level by 2025; and
- 40 percent reduction in methane emissions from livestock manure management operations and dairy manure management operations below the dairy sector's and livestock sector's 2013 levels by 2030.

The air board and California's Department of Resources Recycling and Recovery (CalRecycle) are currently developing regulations to achieve the organic waste reduction goals under SB 1383. In January 2019 and June 2019, CalRecycle proposed new and amended regulations in titles 14 and 27 of the California Code of Regulations. Among other things, the regulations set forth minimum standards for organic waste collection, hauling, and composting. The final regulations include an incremental approach to implementation, which began January 1, 2022, with full implementation by 2025.

The air board adopted the Short-Lived Climate Pollutant Reduction Strategy in March 2017 as a framework for achieving the methane, hydrofluorocarbon, and anthropogenic black carbon reduction targets set by SB 1383. The Short-Lived Climate Pollutant Reduction Strategy includes 10 measures regarding short-lived climate pollutants, which fit within a wide range of ongoing planning efforts throughout the state, including the air board's and CalRecycle's proposed rulemaking on organic waste diversion.

APPROACH TO ANALYSIS

Greenhouse gas emissions are analyzed in the context of their contribution to the cumulative effects of climate change because individual actions could never generate enough greenhouse gas emissions to result in a noticeable change in the global average temperature. CEQA Guidelines section 15064.4 calls for a "good-faith effort" to "describe, calculate, or estimate" greenhouse gas emissions. CEQA Guidelines section 15064.4 also allows lead agencies to rely on a qualitative analysis to describe greenhouse gas emissions resulting from a project. In accordance with section 15064.4, the significance of greenhouse gas impacts should consider the extent to which the proposed action would increase or reduce greenhouse gas emissions, exceed a locally applicable threshold of significance, or comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." The CEQA Guidelines also state that a project may be found to have a less-than-significant impact if it complies with an adopted plan that includes specific measures to reduce greenhouse gas emissions (section 15064[h][3]). Similarly, the air district has prepared guidelines and methodologies for analyzing greenhouse gas emissions.[112] These guidelines are consistent with CEQA Guidelines sections 15064.4 and 15183.5, which pertain to the analysis and determination of significant impacts from a proposed project's greenhouse gas emissions.

[112] The air district is currently updating its existing CEQA Guidelines and the Thresholds of Significance for greenhouse gases. As detailed in the air district's December 9, 2021, public workshop on this update, the air district's proposed thresholds maintain the option to evaluate projects based on consistency with a local greenhouse gas reduction strategy that meets the criteria under CEQA Guidelines section 15183.5(b).

The air district has reviewed the city's Greenhouse Gas Reduction Strategy and concluded that "aggressive greenhouse gas reduction targets and comprehensive strategies like San Francisco's help the Bay Area move toward reaching the state's AB 32 goals and also serve as a model from which other communities can learn."[113] Although the AB 32 milestone year of 2020 passed just two years ago, San Francisco has already met the 2030 greenhouse gas reduction goal of SB 32 (40 percent below 1990 levels); San Francisco's updated greenhouse gas ordinance includes a pathway to reach the 2050 goals of SB 32 to ensure that the city continues to serve as a model for other communities. As discussed above, the climate change scoping plan adopted pursuant to SB 32 is the state's overarching plan for addressing climate change. Its recommendations are intended to curb projected business-as-usual increases in greenhouse gas emissions and reduce them to 40 percent below 1990 levels by 2030. Meeting the emissions targets of SB 32 as well as longer-term goals would result in an overall annual net decrease in greenhouse gas emissions compared with current levels and account for the projected increases in emissions resulting from anticipated growth.

Given that the city's greenhouse gas emissions reduction targets are more aggressive than the state's 2030 and 2045 greenhouse gas emissions reduction targets, the city greenhouse gas ordinance is consistent with the goals of statewide executive orders and bills (i.e., AB 32; SB 32; and Executive Orders S-3-05, B-30-15, and B-55-18). For example, and as detailed above in Section E.8.3, "Regulatory Setting," although the state's 2030 greenhouse gas emission reduction goal is 40 percent below 1990 levels, the city's 2030 reduction target is 61 percent below 1990 levels. Therefore, compliance with policies, programs, and ordinances that comprehensively makeup the city's actions to achieve the greenhouse gas emissions reduction targets of the city greenhouse gas ordinance would also be consistent with the state's greenhouse gas goals and would not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions. Similarly, the city's greenhouse gas strategy resulted in a 41 percent reduction in greenhouse gas emissions in 2019 compared with 1990 levels, [114,115] a level of greenhouse gas emissions that substantially surpasses the 2020 and 2030 goals in the air district's 2017 Clean Air Plan, Executive Orders S-3-05 and B-30-15, AB 32, SB 32, and the city's 2017 greenhouse gas emissions reduction goal. The city has developed a Greenhouse Gas Analysis Compliance Checklist to determine project compliance with greenhouse gas reduction regulations, including those specifically applicable to new development. Therefore, actions that are consistent with the city's comprehensive Greenhouse Gas Reduction Strategy and show compliance with the Greenhouse Gas Analysis Compliance Checklist would also be consistent with the state's greenhouse gas goals and would not conflict with an applicable plan or generate greenhouse gas emissions that would make a considerable contribution to global climate change.

Based on the city's comprehensive greenhouse gas reduction strategy, as detailed above, the proposed project is analyzed based on its consistency with applicable local, regional, and state plans, policies, and regulations adopted for the purpose of reducing greenhouse gas emissions and the cumulative impacts of climate change, including review under the planning department's Greenhouse Gas Analysis Compliance Checklist.

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113 Bay Area Air Quality Management District, Draft GHG Reduction Strategy Letter, 2010, *https://sfplanning.s3.amazonaws.com/sfmea/GHG/BAAQMD_Letter_GHGStrategy_2010.pdf*, accessed January 20, 2022.

114 The City's greenhouse gas inventory is quantified in accordance with the Greenhouse Gas Protocol for Cities developed by the World Resources Institute, C40, and ICLEI. World Resources Institute, C40 Cities, ICLEI, Global Protocol for Community-Scale Greenhouse Gas Inventories, *https://ghgprotocol.org/sites/default/files/standards/GPC_Full_MASTER_RW_v7.pdf*, accessed October 29, 2021. Additionally, the annual greenhouse gas inventory is submitted to global reporting entities (Carbon Disclosure Project, C40) and OpenDataSF.

115 San Francisco Department of the Environment, San Francisco's Carbon Footprint, 2017, *https://sfenvironment.org/carbon-footprint*, accessed November 19, 2019.

Impact C-GG-1: The proposed project or variant would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (Less than Significant)

PROPOSED PROJECT

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting greenhouse gases during construction and operational phases. Direct operational emissions include greenhouse gas emissions from new vehicle trips, other operational vehicle and equipment use, and area sources (minor landscape maintenance). Indirect emissions include emissions from electricity providers; energy required to pump, treat, and convey water; and emissions associated with waste removal, disposal, and landfill operations.

The proposed project would increase the intensity of use at the site by replacing four single-story, 30-foot-tall PDR buildings. Existing uses on the project site in 2017 consisted of storage and warehousing. These four buildings would be replaced with two new, larger, multi-story, 97-foot-tall (115-foot-tall with rooftop appurtenances included) PDR buildings (buildings A and B) that would support uses such as manufacturing and maker space, parcel delivery and last-mile delivery, wholesale and storage, fleet management,[116] and a small amount of retail and quick-service restaurant uses. Both buildings would include a one-way ramp system designed to provide full-service, upper-level truck access, and PDR spaces for its tenants. The proposed project would generate operational greenhouse gas emissions from a variety of sources, including area sources (landscape equipment), mobile sources (daily automobile and truck trips), other diesel-powered equipment (emergency generators and transportation refrigeration units supporting a portion of the truck trips), and energy sources (purchased electricity). During operations, the number of vehicles onsite would increase compared to 2017 conditions (i.e., conditions that existed prior to interim land use). Operation of the proposed project would contribute to an increase in greenhouse gas emissions generated at this site, with mobile sources as the primary source of greenhouse gas emissions resulting from the proposed project.

Construction activities would also result in temporary increases in greenhouse gas emissions. Construction activities that are likely to emit greenhouse gases include demolition of the existing buildings onsite, site preparation and grading, excavation and shoring, building construction, and site finishing work. During construction, there would be daily vehicle trips to transport materials to the site and construction workers traveling to the site to work. Equipment used for the construction activities listed above would be fueled by diesel, propane, and gasoline, which would contribute to emissions of nitrogen oxides, particulate matter, sulfur dioxide, carbon monoxide, methane, and carbon dioxide. Any temporary road obstructions caused by construction could lead to temporary traffic congestion and cause an increase in vehicles idling in the project vicinity.

The proposed project would be subject to regulations adopted to reduce greenhouse gas emissions, as identified in the city's greenhouse gas reduction strategy. As discussed below, compliance with the applicable regulations would reduce the proposed project's greenhouse gas emissions related to transportation, energy use, water use, waste disposal, and use of refrigerants.

[116] Fleet management is not a component of the preferred project land use for the purpose of this environmental analysis. This is because the manufacturing and maker, parcel delivery and last mile, and the wholesale and storage uses would result in higher vehicle trip rates (and corresponding noise and air quality impacts associated with vehicle trip rates) compared to fleet management uses. However, should the project sponsor elect to have a fleet management component as part of the project in the future, the environmental analysis would have adequately evaluated the transportation (and related air quality and noise) impacts from this use.

Compliance with the city's regulations that reduce greenhouse gases, as documented in the Greenhouse Gas Analysis Compliance Checklist, including the Commuter Benefits Program, TDM programs, Transportation Sustainability Program, bicycle parking requirements, low-emission car parking requirements, and car sharing requirements, would reduce the proposed project's transportation-related emissions. These regulations reduce greenhouse gas emissions from single-occupancy vehicles by promoting the use of sustainable transportation modes with zero or lower greenhouse gas emissions on a per capita basis. The project sponsor would incorporate multiple TDM measures into the design of the proposed project, such as an increased number of bicycle parking spaces, showers and locker facilities, and car-share parking measures (see Section A, Project Description, pp. 32 and 33). These design features would also contribute to reducing project-related greenhouse gas emissions and would further efforts to meet the city's targeted greenhouse gas reduction goals.

Although there would be an increase in mobile-source greenhouse gas emissions attributed to this site, siting a parcel and last-mile delivery use, as included in the proposed project, closer to its customer base would improve VMT efficiency compared to current locations and the majority of new development of last-mile delivery uses serving the San Francisco market, and minimize the regional greenhouse gas emissions for the portion of the project that may include parcel and last-mile delivery tenants. Currently, most of the last-mile delivery facilities serving customers in San Francisco are outside the city (e.g., South San Francisco, San Bruno, or Hayward). The demand for parcel and last-mile delivery facilities is expected to continue to grow to meet the customer demand for this service. Based on current services for existing demand, if a distribution center is not built at the project site, demand for parcel and last-mile delivery would continue to be served at a location outside San Francisco (e.g., Oakland or South San Francisco).

The siting of a new PDR site that is designed to accommodate parcel and last-mile delivery tenants in San Francisco would serve the existing and growing demand that would otherwise have to be met by more distant facilities and, therefore, would result in an opportunity to reduce regional VMT for parcel and last-mile delivery uses.[117] The relative comparison of miles per delivery route was evaluated in a study of e-commerce facility siting for the region, and the results are documented in Table 6. The change in VMT between a distribution center outside the city (e.g., South San Francisco, which was used in the analysis[118]) and one at the proposed project site was also calculated based on this information. Deliveries from the proposed project site by automobiles, vans, and smaller trucks, which would typically have a local destination, would have a shorter travel distance to the areas with the greatest existing and projected e-commerce market growth and last-mile delivery demand.[119] Larger trucks (such as tractor trailer trucks) making deliveries to the proposed project site would generally come from outside of the city and need to travel farther than would be necessary for such trucks serving a location outside San Francisco, resulting in an increase in VMT and greenhouse gas emissions from these trips compared to a facility in San Francisco.[120]

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117 Langan Engineering, Urban E-commerce Distribution Facility Selection Criteria, February 26, 2021.

118 South San Francisco was used in the analysis because there is an existing facility that serves San Francisco, and because it was described in the Langan Engineering August 15, 2019, technical memorandum that a facility could be located there based on zoning, proximity to delivery market, and availability of regional road network, among other factors. Other potential facilities that could be developed based on these factors would be located farther from the projected areas of e-commerce growth that would be served by the proposed project and would therefore result in additional mobile greenhouse gas emissions than a facility in South San Francisco.

119 Adavant and LCW Consultants, 749 Toland Street and 2000 McKinnon Avenue Project, Final Estimation of Project Travel Demand, December 10, 2021.

120 Ibid.

Table 6 Relative Comparison of Miles per Delivery Route

Site Location	Miles per Route to San Francisco County Line (one way)
South San Francisco	5.3 miles
Richmond	20.2 miles
Oakland	6.4 miles
San Leandro	20.9 miles
Hayward	25.4 miles

Source: Langan Engineering 2021 [121]

Overall, this lesser travel distance for the majority of parcel and last-mile delivery trips that could be accommodated by the proposed project would substantially reduce the greenhouse gas emissions that would result from existing or future similar operations outside the city. As one of the largest sources of greenhouse gas emissions for the city, improving efficiency and reducing regional VMT supports the city's general plan policy 36.1 to support urban goods movement networks in San Francisco, while simultaneously being in alignment with the city's overall strategy to integrate land use planning to reduce VMT and transportation-related greenhouse gas emissions.

The project site would support a variety of land uses in addition to parcel and last-mile delivery uses, including maker and manufacturing, warehousing, retail, and quick-service restaurant uses. The proposed project would be required to comply with other elements of the Greenhouse Gas Analysis Compliance Checklist, including the energy-efficiency requirements of the city's Green Building Code, Stormwater Management Ordinance, Water Efficient Irrigation Ordinance, and light pollution reduction requirements. The project would seek LEED Gold certification or higher. Such compliance would promote energy and water use efficiency, thereby reducing the proposed project's energy-related greenhouse gas emissions.[122] These regulations and standards are designed to promote principles that improve energy efficiency, water efficiency and conservation, material and resource conservation and efficiency, and environmental and public health, and have been shown to result in an overall reduction in greenhouse gas emissions compared to similar construction that does not incorporate such standards and practices. Because transportation is the largest source of greenhouse gas emissions from the land use development, the fact that the project is sited in a low-VMT region also contributes to a decrease in mobile-source emissions of greenhouse gas compared to similar projects elsewhere. The project site would be designed with electric docking stations to allow electric plug-in of trucks serving the various land uses, thereby reducing idling time during loading and unloading of trucks serving future land uses onsite, and further reducing the generation of mobile-source greenhouse gas emissions.

The proposed project would be required to meet the renewable energy criteria of the city's Green Building Code, including onsite renewable energy generation, further reducing the proposed project's energy-related greenhouse gas emissions. As discussed in Section A, Project Description (p. 1), the project includes a solar photovoltaic system on the top of each building. Furthermore, 8 percent of the proposed parking spaces would be equipped with electric vehicle charging stations, while other spaces would be electric-vehicle-

121 Langan Engineering, Urban E-commerce Distribution Facility Selection Criteria, February 26, 2021.
122 Compliance with water conservation measures reduce the energy (and greenhouse gas emissions) required to convey, pump, and treat water required for the project.

ready. Furthermore, the proposed project would not include natural gas infrastructure, consistent with the city's strategies to reduce natural gas emissions, which are the second-largest greenhouse gas emissions source in the city (after transportation). These design features would contribute to reducing project-related greenhouse gas emissions and would further efforts to meet the city's targeted greenhouse gas reduction goals.

The proposed project's waste-related emissions would be reduced through compliance with the city's Recycling and Composting Ordinance, Construction and Demolition Debris Recovery Ordinance, and Green Building Code requirements. These regulations reduce the amount of materials sent to a landfill, reducing greenhouse gases emitted by landfill operations. These regulations also promote reuse of materials, conserving their *embodied energy*[123] and reducing the energy required to produce new materials.

Compliance with the city's street tree planting requirements would serve to increase *carbon sequestration*.[124] There are no existing street trees on the project site. Based on public works code section 806(d), the proposed project would be required to plant approximately 216 street trees along its 4,300 linear feet of street frontage. However, due to project and site constraints, the project sponsor proposes to plant approximately 124 street trees and pay the corresponding in-lieu fee for the remaining required trees that cannot be accommodated onsite. These 124 net new street trees would increase carbon sequestration at the project site. Other regulations, including those limiting refrigerant emissions and requiring low-emitting finishes, would reduce emissions of greenhouse gases and volatile organic compounds,[125] respectively. Thus, the proposed project was determined to be consistent with the Greenhouse Gas Analysis Compliance Checklist and San Francisco's comprehensive greenhouse gas reduction strategy.[126]

The project sponsor is required to comply with these regulations, which have proven effective because San Francisco's greenhouse gas emissions have decreased measurably compared with 1990 emissions levels, demonstrating that San Francisco has exceeded Executive Order S-3-05, AB 32, and the Bay Area 2017 Clean Air Plan greenhouse gas emission reduction goals for 2020. Furthermore, the city has exceeded its goal to reduce greenhouse gas emissions to 25 percent below 1990 levels by 2017; emissions were reduced by 36 percent for that year. As of 2019, the city has reduced its greenhouse gas emission 41 percent below 1990 levels despite a population increase of 22 percent.[127]

In addition, San Francisco's local greenhouse gas emission reduction targets meet and exceed the long-term greenhouse gas emission reduction goals of Executive Order S-3-05, Executive Order B-30-15, SB 32, the Bay Area 2017 Clean Air Plan, and Executive Order B-55-18. Therefore, because the proposed project would be consistent with the city's greenhouse gas emission reduction strategy, [126] it would be consistent with the greenhouse gas emission reduction goals of Executive Order S-3-05, Executive Order B-30-15, SB 32, the Bay Area 2017 Clean Air Plan, and Executive Order B-55-18; would not conflict with these plans; and would not exceed San Francisco's applicable greenhouse gas threshold of significance. Therefore, the proposed

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123 Embodied energy is the total energy required for the extraction, processing, manufacture, and delivery of building materials to the building site.

124 Carbon sequestration is the long-term storage of carbon in plants, soils, geologic formations, and the ocean.

125 Although they are not greenhouse gases, volatile organic compounds are precursor pollutants that form ground-level ozone. Increased ground-level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing emissions of volatile organic compounds would reduce the anticipated local effects of global warming.

126 San Francisco Planning Department, Greenhouse Gas Analysis: Compliance Checklist for the San Francisco Gateway Project, 749 Toland Street and 2000 McKinnon Avenue, December 19, 2019.

127 San Francisco Department of the Environment, *San Francisco's Carbon Footprint*, https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan, accessed October 12, 2021.

project's contribution to cumulative greenhouse gas impacts would be less than cumulatively considerable, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, site plan, development intensity, and operations as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the proposed expanded streetscape variant would have greenhouse gas impacts similar to those of the proposed project, but would include a slightly larger footprint. The footprint would involve additional ground disturbance to improve the remainder of the adjacent public rights-of-way. As a result, the same construction equipment used for the street and sidewalk improvements for the proposed project would be used for the expanded streetscape variant but only for the limited area and time necessary to complete the roadway, curb cut, sidewalk, planting, and other upgrades. On the other hand, the expanded streetscape variant would also plant approximately 108 additional street trees, further contributing to carbon sequestration. For the same reasons cited for the proposed project, the expanded streetscape variant's contribution to cumulative greenhouse gas impacts would be less than cumulatively considerable, and no mitigation measures would be required. This topic will not be addressed in the EIR.

E.9. Wind

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Create wind hazards in publicly accessible areas of substantial pedestrian use?	☐	☒	☐	☐	☐

This section evaluates the wind impacts of the proposed project on public areas adjacent to the project site. The discussion of wind impacts in this section is supported by a wind microclimate study.[128]

WIND SETTING

In San Francisco, the primary wind directions are from the northwest, west-northwest, west, and west-southwest. These winds have the greatest frequency of occurrence and make up the majority of the strong winds, based on data collected at the old San Francisco Federal Building at 50 United Nations Plaza between 1945 and 1950. In general, wind speeds are higher in the spring and summer and lower in fall and winter. Daily variation in wind speed is evident, with the strongest winds in the mid- to late-afternoon and the lightest winds in the morning.

Planning code section 148, Reduction of Ground-level Wind Currents in Downtown Commercial (C-3) Districts, requires buildings in the C-3 downtown districts to be shaped so as not to cause ground-level wind currents to exceed defined comfort and hazard criteria. Because the project site is not in a C-3 district, it is not subject to planning code section 148. However, the wind hazard criterion is also used for the assessment of hazardous winds for the purpose of analysis under CEQA. This wind hazard criterion, especially the potential for a project to create new (or additional) locations where the wind hazard criterion would be exceeded, is used in the assessment as the CEQA significance threshold to determine whether the proposed project would substantially alter ground-level winds in public areas in an adverse manner. The hazard criterion of the planning code requires that buildings not cause equivalent wind speeds to reach or exceed the hazard level of 26 miles per hour, as averaged from a single full hour of the year. The hazard criterion is based on winds that are measured for one hour and averaged.

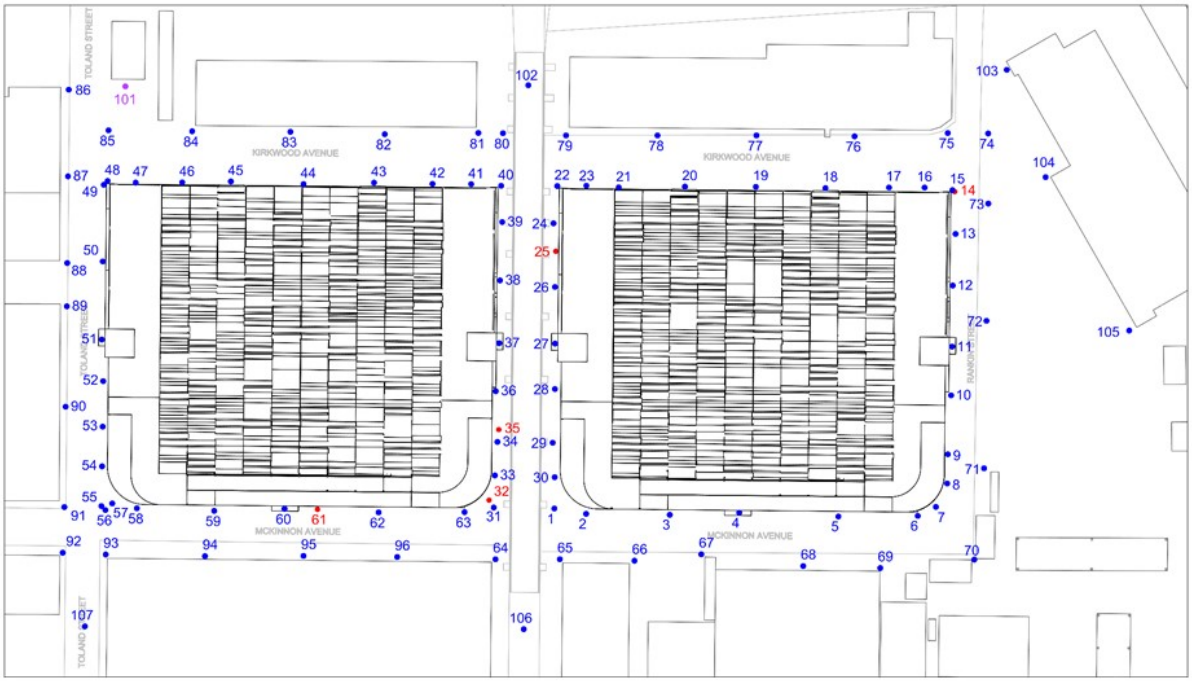
To predict wind speeds and frequencies, many factors are considered, including the geometry and orientation of proposed building(s), the position and height of surrounding buildings, the upwind terrain, and the local wind climate. Buildings taller than their surroundings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. Such a “downwashing” flow is often the main cause for wind accelerations around tall buildings at the pedestrian (or ground) level. These winds can be relatively strong and turbulent, especially around the downwind building corner. Winds can also accelerate between two closely spaced buildings and through a passage underneath a building or bridge. If these building/wind combinations occur for prevailing wind directions, there is a greater potential for increased winds.

[128] BMT, San Francisco Gateway Project Final Wind Microclimate Study, June 23, 2020.

APPROACH TO ANALYSIS

Wind tunnel testing was performed to quantify the pedestrian-level wind microclimate at and around the project site, in accordance with the city's standard test protocols. The testing first involved construction of a 1:300 scale model of the existing buildings at and surrounding the project site up to a 1,500-foot radius of the center of the site, along with a scale model of the project site. Wind speed measurements at assessment locations were made using probes capable of measuring fluctuating pressure differences that are calibrated against wind speed. A system of probes running simultaneously was used to obtain results from 98 test points at a height corresponding to 5 feet at full scale (i.e., pedestrian height). For the cumulative conditions, the total number of test points is reduced to 97 because location 101 would no longer be a publicly accessible ground-level location with the construction of the SF Market Project at 2095 Jerrold Avenue. The test points were selected in publicly accessible areas, including sidewalks, street intersections, and open spaces (Figure 23).

Figure 23 Wind Tunnel Test Point Locations



Source: BMT 2020

Measurements were taken for 16 wind directions in increments of 22.5 degrees (0 degrees represents the compass north). The methodology for quantifying the pedestrian-level wind microclimate of the site is summarized below:

- Measure the building-induced wind speeds at pedestrian level in the wind tunnel.
- Combine these with wind frequency statistics derived from the old San Francisco Federal Building at 50 United Nations Plaza to obtain the expected frequency and magnitude of wind speeds at pedestrian level.
- Compare the results with the section 148 wind hazard criteria to the conditions around the site.

The wind tunnel model compared the wind conditions for the following test scenarios:

1. **Existing Conditions (No Project)**: the existing condition, including buildings currently under construction or recently completed; this serves as the baseline for wind conditions in the study area without the proposed project
2. **Existing Conditions Plus Project**: the proposed project added to the existing conditions; this entails testing a 1:300 scale model of the proposed project in the existing setting to assess the change in ground-level wind conditions as a result of the proposed project
3. **Existing Conditions Plus Project with Wind Mitigation Measures:** wind mitigation measures (nine evergreen street trees; see Figure 24) added to the project in existing conditions to lessen wind hazard impacts
4. **Cumulative Conditions (No Project):** cumulative conditions anticipated in the project vicinity without the proposed project; this serves as the baseline for wind conditions in the study area with reasonably foreseeable development within a 1,500-foot radius from the project site
5. **Cumulative Conditions Plus Project:** the proposed project added to the cumulative conditions scenario—that is, the area and cumulative development that would be expected to contribute to wind effects due to their proximity to the project site (see Figure 24 on p. 105)—so as to assess whether the project could have a considerable contribution to a change in cumulative wind conditions
6. **Cumulative Conditions Plus Project with Wind Mitigation Measures:** wind mitigation measures (nine evergreen street trees; see Figure 24) added to the project in cumulative conditions to lessen cumulative wind hazard impacts

Existing conditions in the project vicinity generally are characterized as fairly windy. However, the site and surrounding study area are not prone to exceedances of the hazard criterion. The wind hazard results from the wind tunnel tests are summarized in Table 6 (p. 99); the wind hazard results are summarized in the top portion of the table, and the aggregate data for all test points are shown in the bottom portion. Under existing conditions (without the proposed project), wind speeds at all 98 test points would comply with the city's hazard criterion. Accordingly, under existing conditions, there are zero hours when winds exceed the wind hazard criterion.

Figure 24 Location of Street Trees for Wind Mitigation



Source: BMT 2020

Impact WI-1: The proposed project or variant would create wind hazards in publicly accessible areas of substantial pedestrian use. (Less than Significant with Mitigation)

PROPOSED PROJECT

Existing conditions in the project vicinity generally are characterized as fairly windy. However, the site and surrounding study area are not prone to exceedances of the hazard criterion. The wind hazard results from the wind tunnel tests are summarized in Table 7 (p. 107); the wind hazard results are summarized in the top portion of the table (indicated in **bold** text), and the aggregate data for all test points are shown in the bottom portion. Where no wind hazards have been identified, the range of wind speeds across all test locations has been included for comparison. Under existing conditions (no project), wind speeds at all 98 test points would comply with the city's hazard criterion. Accordingly, under existing conditions, there are zero hours when winds exceed the wind hazard criterion.

Under existing plus project conditions, the average wind speed would decrease from 11 miles per hour to 10.5 miles per hour, compared to existing conditions without the project. However, with the proposed project, there would be a wind hazard criterion exceedance at two locations, and the number of hours that the wind hazard criterion would be exceeded would increase from zero hours per year to 13 hours per year. Fast upper-level prevailing westerly winds reaching the proposed development would be redirected toward the ground, creating downdraughts[129] and funneling[130] along Toland Street and accelerating around the corner of the proposed project at the junction with Kirkwood Avenue. The exceedances of the hazard criterion would occur around the northern corner of the proposed project on either side of Kirkwood Avenue (Locations 49 and 85).

Therefore, because the proposed project would result in an exceedance of the planning code wind hazard criterion, the proposed project would result in a significant wind impact.

A number of wind mitigation features were tested to reduce the project's wind impact, including various combinations of canopies (both solid and porous) and deciduous trees along Toland Street. Although the canopies were shown to be partially effective in reducing certain wind conditions, they also increased the number of wind hazard hours away from the project or at the northern corner of the project at the intersection of Toland Street and Kirkwood Avenue. Given that deciduous trees lose their leaves in winter, trees without leaves were assessed in the wind tunnel to determine whether they could effectively reduce wind impacts. The wind tunnel tests demonstrated that exceedances of the city's wind criteria would still occur with the inclusion of deciduous trees. Based on the wind tunnel tests, the planting of nine evergreen street trees , which retain their foliage throughout the year, was evaluated. The trees would be placed along the eastern sidewalk of Toland Street (Figure 24); each tree would be approximately 25 feet tall, with a 15-foot-diameter canopy. This planting would eliminate the exceedance of the hazard criterion at all test points in the existing plus project conditions.

[129] A downdraught is the effect of higher-level winds being deflected by a building towards ground level.
[130] Funneling is the acceleration of wind between adjacent buildings due to their proximity.

Table 7 Wind Hazard Criterion Exceedance Results – Scenarios in Existing Conditions

Existing Conditions (No Project)		
Location Number	**Range of Wind Speed Exceeded 1 Hour per Year (mph)[1] for All Test Locations**	**Hours per Year Wind Speed Exceeds Hazard Criterion**
No exceedances at any location	14 – 32	0
	Average Wind Speed Exceeded 1 Hour per Year (mph)[1]	**Total Hours per Year Wind Speed Exceeds Hazard Criterion**
All Test Points	22.9	0

Existing Conditions Plus Project			
Location Number[2]	**Wind Speed Exceeded 1 Hour per Year (mph)[1] for Test Locations Exceeding Wind Hazard Criterion**	**Hours per Year Wind Speed Exceeds Hazard Criterion**	**Hours Change Relative to Existing Conditions**
49	**40**	**5**	**5**
85	**42**	**8**	**8**
	Average Wind Speed Exceeded 1 Hour per Year (mph)[1]	**Total Hours per Year Wind Speed Exceeds Hazard Criterion**	**Total Hours Change Relative to Existing Conditions**
All Test Points	24.1	**13**	**13**

Existing Conditions Plus Project with Wind Mitigation			
Location Number	**Range of Wind Speed Exceeded 1 Hour per Year (mph)[1] for All Test Locations**	**Hours per Year Wind Speed Exceeds Hazard Criterion**	**Hours Change Relative to Existing Conditions**
No exceedances at any location	11 – 35	0	0
	Average Wind Speed Exceeded 1 Hour per Year (mph)[1]	**Total Hours per Year Wind Speed Exceeds Hazard Criterion**	**Total Hours Change Relative to Existing Conditions**
All Test Points	23.8	0	0

Source: BMT 2020

Notes:

Results that exceed the city's wind criteria are indicated in **bold.** The table shows that exceedances occur under the Existing Conditions Plus Project at two locations.

[1] The probability of having an equivalent wind speed exceed the 26 mph mean-hourly wind speed hazard criterion for a full hour within any one-year period. The wind hazard criterion is derived from the 26 mph hourly average wind speed that would generate a three-second gust of wind at 20 meters per second, a commonly used guideline for wind safety. In the results table, the 26 mph hourly average is converted to a one-minute average of 36 mph, which is used to determine compliance with the 26 mph one-hour hazard criterion in the planning code (Arens, E. et al., "Developing the San Francisco Wind Ordinance and its Guidelines for Compliance," Building and Environment, Vol. 24, No. 4, p. 297-303, 1989).

[2] Refer to Figure 23, Wind Tunnel Test Point Locations, on p. 103, for the test point locations that would have exceedances as a result of the proposed project.

mph = miles per hour

On February 2, 2021, the San Francisco Bureau of Urban Forestry gave preliminary approval for the use of the proposed nine evergreen street trees on the eastern sidewalk of Toland Street.[131] If the building design changes or the trees are not maintained to be at least 25 feet tall with a 15-foot-diameter canopy, the proposed project could result in an exceedance of the wind hazard criterion. This would also be a significant impact. Mitigation Measures M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications; and M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards, have been included to address these circumstances and ensure that the proposed project would not result in an exceedance of the wind hazard criterion. With implementation of Mitigation Measures M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications; and M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards, exceedances of the city's wind hazard criterion would not occur, and wind impacts on publicly accessible areas of substantial pedestrian use would be less than significant.

Mitigation Measure M-WI-1a **Wind Hazard Evaluation for Building Design and Streetscape Modifications.** If the proposed project's design, including the wind mitigation measures (M-WI-1b), is modified in any way that could affect ground-level wind conditions, the new design shall be evaluated by a qualified wind expert to determine the potential for the modified project to result in a new wind hazard exceedance (defined as the one-hour wind hazard criterion of 26 miles per hour equivalent wind speed). The evaluation may require wind tunnel testing by the qualified expert to determine whether the modified project would result in an exceedance of the wind hazard criterion. If the modified project could exceed the wind hazard criterion, the project buildings shall be shaped (e.g., by including setbacks or using other building design techniques) or other wind-baffling measures shall be implemented, so that the project does not result in an exceedance of the one-hour wind hazard criterion of 26 miles per hour equivalent wind speed.

Mitigation Measure M-WI-1b **Maintenance of Landscaping Features that Reduce Wind Hazards.** The project sponsor shall maintain, for the life of the proposed project buildings, all landscaping features required to ensure that the proposed project does not result in in an exceedance of the one-hour wind hazard criterion of 26 miles per hour equivalent wind speed. These features include installation of nine evergreen street trees, each approximately 25 feet tall with a 15-foot-diameter canopy, along the eastern sidewalk of Toland Street *or* any landscaping features required pursuant to Mitigation Measure M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications.

Significance after Mitigation. Based on wind tunnel testing of the existing conditions plus project with wind mitigation features described in Mitigation Measure M-WI-1b, the 13 hours of wind hazard exceedances would be eliminated and the wind hazard criterion would be met at all test points. Mitigation Measure M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications, would ensure that the proposed project does not exceed the wind hazard criterion in the event of design changes. Additionally, Mitigation Measure M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards, would entail the maintenance, for the life of the project buildings, of any landscaping features required to ensure that the one-hour wind hazard is not exceeded. Therefore, the proposed project would not create wind hazards in publicly

[131] Dottson, Marcus, Urban Forestry Inspector, San Francisco Bureau of Urban Forestry, email correspondence between Marcus Dottson and Chloe Hanna-Corpi and Brian Liles (Jackson Liles Architecture), February 2, 2021.

accessible areas of substantial pedestrian use, and the impact would be less than significant with mitigation. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses; building heights, massing, and design; and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have wind impacts similar to those of the proposed project and would not include construction of any additional structures onsite. The expanded streetscape variant would include additional street trees on the sidewalks of the streets along the project perimeter. These additional street trees could reduce ground-level wind speeds near the project site. However, similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measures M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications; and M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards. With implementation of these measures, the expanded streetscape variant would not create wind hazards in publicly accessible areas of substantial pedestrian use, and the impact would be less than significant with mitigation. This topic will not be addressed in the EIR.

Impact C-WI-1 The proposed project or variant, in combination with cumulative projects in the project site vicinity, could result in cumulative wind impacts. (Less than Significant with Mitigation)

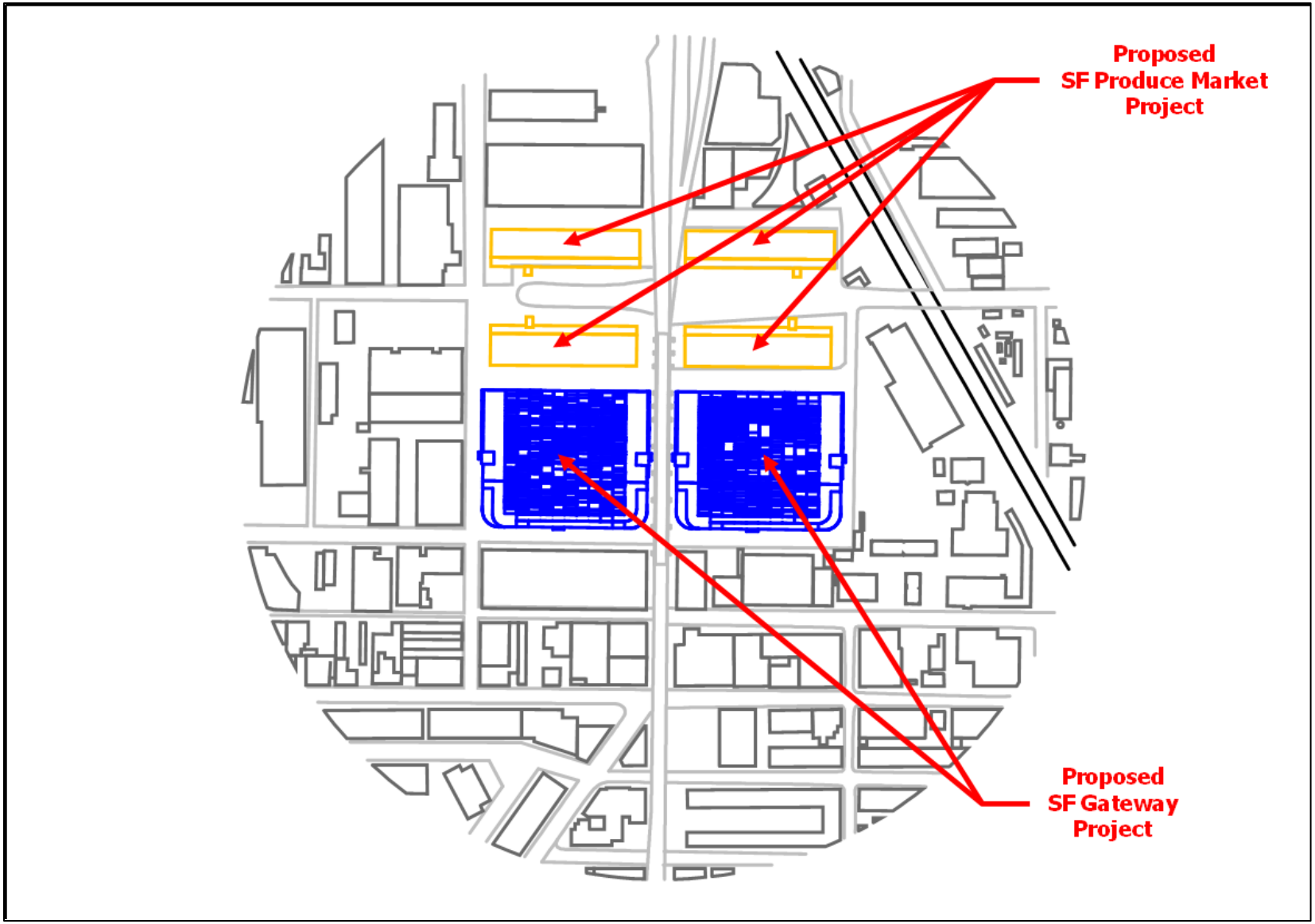
PROPOSED PROJECT

The cumulative conditions analysis involves testing the impact of the proposed project, in conjunction with other cumulative development projects in the study area, on the wind environment in the project vicinity. Of the cumulative projects in the vicinity of the project site, only the SF Market Project would be expected to contribute to ground-level wind effects near the project vicinity (see Figure 25 on p. 110). The other cumulative projects listed in the cumulative project setting (pp. 43 through 46) are too distant from the project site, not of sufficient height, or involve minor reconfiguration of aboveground equipment or facilities that would not affect ground-level wind conditions.

The cumulative conditions (no project) were tested first to define wind conditions resulting from other cumulative developments in the project vicinity. As explained above, only the SF Market Project would be expected to contribute to wind effects within the 1,500-foot study area. The wind hazard criterion exceedance results from the cumulative conditions scenarios wind tunnel tests are summarized in Table 8 (p. 111); the cumulative wind hazard results are summarized in the top portion of the table (indicated in **bold** text), and the aggregate data for all test points are shown in the bottom portion. Where no wind hazards have been identified, the range of wind speeds across all test locations has been included for comparison. Under cumulative conditions (no project), some accelerated winds in localized areas would occur due to increased funneling and acceleration around corners, while equally providing shielding from prevailing winds in other areas. However, all 97 test points[132] would comply with the hazard criterion under cumulative conditions (no project), similar to the existing conditions (no project) scenario. Accordingly, the total number of hazard exceedance hours would be zero.

[132] For the cumulative conditions, the total number of test points is 97 because one of the test sites under existing conditions would no longer be a publicly accessible ground-level location with the proposed development at this site.

Figure 25 Cumulative Conditions Plus Project



Source: BMT 2020

Table 8 Wind Hazard Criterion Exceedance Results – Scenarios in Cumulative Conditions

Cumulative Conditions (No Project) Scenario			
Location Number	**Range of Wind Speed Exceeded 1 Hour per Year (mph)[1] for All Test Locations**	**Hours per Year Wind Speed Exceeds Hazard Criterion**	**Hours Change Relative to Existing Scenario**
No exceedances at any location.	13 – 33	0	0
	Average Wind Speed Exceeded 1 Hour per Year (mph)[1]	**Total Hours per Year Wind Speed Exceeds Hazard Criterion**	**Total Hours Change Relative to Existing Scenario**
All Test Points	22.6	0	0

Cumulative Conditions Plus Project			
Location Number[2]	**Wind Speed Exceeded 1 Hour per Year (mph)[1] for Test Locations Exceeding Wind Hazard Criterion**	**Hours per Year Wind Speed Exceeds Hazard Criterion**	**Hours Change Relative to Existing Conditions**
49	**43**	**12**	**12**
85	**38**	**2**	**2**
87	**39**	**4**	**4**
	Average Wind Speed Exceeded 1 Hour per Year (mph)[1]	**Total Hours per Year Wind Speed Exceeds Hazard Criterion**	**Total Hours Change Relative to Existing Scenario**
All Test Points	24.3	**18**	**18**

Cumulative Conditions Plus Project with Wind Mitigation			
Location Number	**Range of Wind Speed Exceeded 1 Hour per Year (mph)[1] for All Test Locations**	**Hours per Year Wind Speed Exceeds Hazard Criterion**	**Hours Change Relative to Existing Conditions**
No exceedances at any location.	11 – 34	0	0
	Average Wind Speed Exceeded 1 Hour per Year (mph)[1]	**Total Hours per Year Wind Speed Exceeds Hazard Criterion**	**Total Hours Change Relative to Existing Scenario**
All Test Points	23.8	0	0

Source: BMT 2020

Notes:

Results that exceed the city's wind criteria are indicated in **bold.** The table shows that exceedances occur under the Cumulative Conditions Plus Project at three locations.

[1] The probability of having an equivalent wind speed exceed the 26 mph mean-hourly wind speed hazard criterion for a full hour within any one-year period. The wind hazard criterion is derived from the 26 mph hourly average wind speed that would generate a three-second gust of wind at 20 meters per second, a commonly used guideline for wind safety. In the results table, the 26 mph hourly average is converted to a one-minute average of 36 mph, which is used to determine compliance with the 26 mph one-hour hazard criterion in the planning code (Arens, E. et al., "Developing the San Francisco Wind Ordinance and its Guidelines for Compliance," Building and Environment, Vol. 24, No. 4, p. 297-303, 1989).

[2] Refer to Figure 23, Wind Tunnel Test Point Locations, for the test point locations that would have exceedances as a result of the proposed project.

mph = miles per hour

Under cumulative conditions plus project, wind hazard exceedances are expected to occur at three test locations and would increase the total number of exceedance hours from zero hours per year to 18 hours per year. Because the exposure of the proposed project to prevailing westerly winds would be similar under existing and cumulative conditions, the resulting flow features and wind conditions around the project site for cumulative plus project conditions are similar to the existing plus project conditions. The wind hazard criterion exceedances would occur around the northern corner of the proposed project on either side of Kirkwood Avenue and Toland Street. Therefore, the proposed project, in combination with cumulative projects, would create wind hazards in publicly accessible areas of substantial pedestrian use, resulting in a significant cumulative impact. Given that the wind hazard impacts would only occur in the cumulative scenario with the proposed project, the project's contribution to cumulative wind impacts would be cumulatively considerable. The wind tunnel testing shows that the same wind mitigation identified in Impact WI-1 to eliminate existing plus project wind hazard exceedances also would avoid the cumulative wind hazard exceedances, reducing the cumulative wind impact to a less-than-significant level.

The wind tunnel model did not include the 2270 McKinnon Avenue project, because it had not been proposed when wind tunnel testing commenced for the SF Gateway Project. The principal effect of the 2270 McKinnon Avenue project on wind conditions around the proposed project would be one of shielding from prevailing winds. Thus, including this project as part of the cumulative conditions would not alter the wind tunnel results.[133]

For the reasons cited above for the proposed project, should there be any change to the exterior design of the project buildings or landscaping, the same mitigation measures identified for the proposed project, Mitigation Measures M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications; and M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards, would apply and would ensure that cumulative wind impacts are less than significant.

Significance after Mitigation

Based on the wind tunnel testing under cumulative conditions plus project with wind mitigation, wind conditions at all 97 test points would comply with the hazard criterion, and the total number of wind hazard exceedance hours would be zero. Thus, the proposed project's cumulatively considerable contribution to significant cumulative wind impacts would be eliminated. Mitigation Measure M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications, would ensure that the proposed project does not result in a cumulatively considerable wind impact in the event of design changes. Additionally, Mitigation Measure M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards, would entail the maintenance, for the life of the project buildings, of any landscaping features required to ensure that the proposed project does not cumulatively contribute to a one-hour wind hazard exceedance. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses; building heights, massing, and design; and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The proposed expanded streetscape variant would have wind impacts similar to those of the proposed project and would not include construction of any additional

[133] NOVA Fluid Mechanics (Formerly BMT), 75006 San Francisco Gateway Project – Cumulative Wind Review, February 15, 2022.

structures onsite. The expanded streetscape variant would include additional street trees on the sidewalks of the streets along the project perimeter. These additional street trees could reduce ground-level wind speeds near the project site. However, similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measures M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications; and M-WI-1b: Maintenance of Landscaping Features that Reduce Wind Hazards. With implementation of these measures, the expanded streetscape variant would ensure that cumulative wind impacts are less than significant. This topic will not be addressed in the EIR.

E.10. Shadow

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces?	☐	☐	☒	☐	☐

Impact SH-1 The proposed project or variant would not create new shadow in a manner that substantially and adversely affects the use and enjoyment of publicly accessible open spaces (Less than Significant)

PROPOSED PROJECT

Planning code section 295 generally prohibits new structures taller than 40 feet that would cast additional shadows on open space that is under the jurisdiction of the San Francisco Recreation and Park Department between one hour after sunrise and one hour before sunset, at any time of the year, unless that shadow would not result in a significant adverse effect on the use of the open space.

The criteria for determining the significance of impacts under CEQA is whether the proposed project would create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas, regardless of whether those facilities or areas are protected by planning code section 295 (i.e., under jurisdiction of public entities other than the Recreation and Park Commission or privately owned and publicly accessible open space). In addition, as under planning code section 295, the CEQA analysis of shadow impacts takes into account the use of the open space; the time of day and year of project shadow; the physical layout and facilities affected; the intensity, size, shape, and location of the shadow; and the proportion of open space affected.

As described in Section A, Project Description, buildings A and B each would be a maximum height of 97 feet (115 feet with rooftop appurtenances included). Because the proposed project would be more than 40 feet tall, the planning department performed a shadow fan analysis to assess the new shadow resulting from the proposed project.[134] Based on this analysis, the proposed project would not affect any parks subject to planning code section 295.

Selby and Palou Mini Park is the nearest San Francisco Recreation and Park Commission property to the project site. It is a 0.29-acre urban park, approximately 900 feet to the southwest of the project site along Selby Street between Quesada and Palou avenues. According to the shadow fan analysis by the planning department, the proposed project would not create new shadow on this park at any time throughout the year. There are no other San Francisco Recreation and Park Commission properties that are within, or near, the potential reach of the proposed project's shadow.

[134] San Francisco Planning Department, Preliminary Shadow Fan Analysis: 749 Toland Street and 2000 McKinnon Avenue, September 9, 2019.

There are no other public parks or open spaces owned by other city agencies that are within, or near, the potential reach of shadow under the proposed project. Therefore, the proposed project would have no shadow impact on public parks or open spaces.

The proposed project would shade portions of streets, sidewalks, and private properties in the project vicinity at various times of the day throughout the year. The shadows on streets and sidewalks would not exceed levels commonly expected in urban areas and would be considered a less-than-significant effect under CEQA. Additionally, these shadows would be transitory in nature, would not substantially affect the use of the sidewalks, and would not increase shadow above levels that are common and generally expected in a developed urban environment.

As discussed above, the proposed project would not create new shadow that substantially affects existing outdoor recreation facilities or other public areas. This impact would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, building heights and massing, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would not create new shadow because there would not be any additional aboveground structures under the expanded streetscape variant compared to the proposed project. Similar to the proposed project, the impact of the expanded streetscape variant would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-SH-1 The proposed project or variant, in combination with cumulative projects in the project site vicinity, would result in less-than-significant cumulative shadow impacts. (Less than Significant)

PROPOSED PROJECT

The geographic context for shadow impacts is the area in which the proposed project and cumulative projects, in combination, would shade the same public open spaces. Cumulative projects that include aboveground construction in the project vicinity would add shadow to sidewalks immediately surrounding the project site, but would not shadow San Francisco Recreation and Park properties (see Section B, Cumulative Setting, and Figure 22, pp. 43 through 46). The projects that involve aboveground and building footprint changes include the SF Market Project; the 2270 McKinnon Avenue Project; and the SFPUC projects in the Southeast Treatment Plant site, including the Headworks Project and the Biosolids Digester Facility Project. The other cumulative projects are in-kind replacements, underground or street-level improvements, or indoors, and would not affect shadows.

As discussed above under Impact SH-1, shadow from the proposed project would not reach any offsite publicly accessible open spaces (other than sidewalks). Therefore, the proposed project would not have the potential to combine with impacts from cumulative projects to result in cumulative shadow impacts on publicly accessible open spaces.

Although these cumulative projects could also shade public sidewalks, cumulative shadow from these projects would not increase shading on public sidewalks above levels that are common and generally

accepted in developed urban environments. Therefore, the proposed project, in combination with cumulative projects, would have less-than-significant cumulative shadow impacts, and no mitigation measures are required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, building heights and massing, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the proposed expanded streetscape variant would have the same shadow impacts as the proposed project because they would have the same aboveground structures. Similar to the proposed project, the expanded streetscape variant, in combination with cumulative projects, would have less-than-significant cumulative shadow impacts, and no mitigation measures are required. This topic will not be addressed in the EIR.

E.11. Recreation

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☒	☐	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐

Impact RE-1 **The proposed project or variant would not increase the use of existing parks and recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. (Less than Significant)**

PROPOSED PROJECT

The project site is in an intensely developed urban area that does not contain large regional park facilities. However, there are two small neighborhood parks and two community gardens near the project site. The following parks are within 0.5 mile of the project site:

- The Selby and Palou Mini Park is a 0.29-acre park in the Bayview neighborhood, approximately 900 feet southwest of the project site. The park includes benches, picnic tables, a basketball court, and a children's play area.
- The Palou and Phelps Mini Park is a 2.63-acre park, approximately 0.3 mile south of the project site. The park includes a playground, benches, trails, and a steep grass area.
- The Wolfe Lane Community Garden is a 0.05-acre community garden managed by the San Francisco Recreation and Park Department, where members can grow produce and ornamental plants for personal use. The garden is approximately 0.4 mile west of the project site.
- The Dogpatch/Miller Memorial Garden is an approximately 0.25-acre community garden and park, owned by San Francisco Recreation and Park Department. The garden is approximately 0.4 mile west of the project site.

Construction

During the 31-month construction period, approximately 400 to 500 workers would be onsite per day. Staffing levels would vary throughout the year in accordance with seasons and onsite construction activities. As discussed in Section E.2, Population and Housing, short-term construction workers are not expected to permanently relocate to the city from more distant locations. During construction, there may be temporary demand for these recreational resources because workers could use parks, community gardens,

and recreational facilities when on break. Consequently, any use by project construction workers of the nearby mini-parks, the more distant neighborhood and regional parks facilities, or other recreational facilities would be temporary and minimal. Additionally, community gardens are typically used by members who are actively involved in maintaining them, and it is less likely that construction workers would become members. Therefore, impacts to recreational resources during construction would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Operation

The proposed project does not involve the construction of residential units that would generate an increased demand for recreational services. However, the proposed project would result in an increased number of employment opportunities at the site. This increase in the number of onsite employees could result in an increased demand for and use of neighborhood parks, community gardens, and recreational facilities. In general, it is anticipated that new employees would only visit open spaces during brief periods limited to the lunch hour or other midday breaks.

Additionally, due to the nature of the land uses described in Table 3, Preferred Project Use Mix (p. 19), and the normal hours detailed on Figure 13, Production, Distribution, Repair, and Related Uses (p. 21), a large number of the employees onsite would not be working a "typical" eight-hour workday at the project site. Under each use, employees would work shifts throughout different hours of the day and night. It is anticipated that any employees working after dark would not likely use any recreational facilities during their shift. A majority of the employees onsite would work for parcel delivery and last-mile companies (65 percent of the total gross square footage of the PDR-related uses onsite) and wholesale and storage companies (32 percent of the total gross square footage of the PDR-related uses onsite). As described in Section E.2, Population and Housing, the net new number of employees onsite would be 1,242. The number of workers associated with completing *visitor trips*[135] to and from the project site would be approximately 3,800.[136] These 3,800 workers would spend the majority of their shifts offsite (i.e., a parcel delivery driver would spend a significant amount of time away from the project site delivering goods throughout the day rather than being onsite for long periods of time).

As stated above under "Construction," community gardens are typically used by members who care for the garden. It is less likely that employees would become members of the community gardens. Additionally, the project site is not in a "high need" area according to the general plan, defined as areas with high population densities, high concentrations of seniors and youth, and lower income populations that live outside of existing park service areas.[137] The number of employees that may use these recreational resources is not expected to substantially accelerate the physical deterioration of these facilities. Therefore, the proposed project would have a less-than-significant impact on recreational facilities and resources, and no mitigation measures would be required. This topic will not be addressed in the EIR.

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135 Visitor trips were defined as all other trips not related to onsite employees in the Final Travel Demand Memorandum. The number of workers associated with the visitor trips (e.g., goods deliveries, parcel and last-mile delivery trips) was estimated based on one worker per round vehicle trip to and from the project sites.

136 Adavant and LCW Consultants, 749 Toland Street and 2000 McKinnon Avenue Project, Final Estimation of Project Travel Demand, December 10, 2021.

137 City and County of San Francisco, San Francisco General Plan: Recreation and Open Space Element, 2014.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the proposed expanded streetscape variant would have the same recreation impacts as the proposed project and would not increase the use of existing parks and recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. This impact would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact RE-2 The proposed project or variant would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. (No Impact)

PROPOSED PROJECT

The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities that could have an adverse effect on the environment. The two new buildings are in a PDR zoning district and would be designed for PDR uses and limited retail uses. In accordance with the city's planning code (article 2), PDR districts are not required to provide recreational space.[138] Therefore, the proposed project would have no impact related to construction or expansion of existing recreational facilities that might result in an adverse physical effect on the environment. No mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have the same recreation impacts as the proposed project and would have no impact related to construction or expansion of existing recreational facilities that might result in an adverse physical effect on the environment. No mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-RE-1 The proposed project or variant, in combination with cumulative projects in the vicinity of the project site, would result in less-than-significant cumulative impacts related to recreation. (Less than Significant)

PROPOSED PROJECT

The geographic context for cumulative recreation impacts for the proposed project is the immediate neighborhood, or generally the area within 0.5 mile of the project site, because workers would not be expected to travel to recreational facilities beyond this distance. The nearest cumulative projects are identified in Section B, Project Setting, pp. 43 through 46. These include the SF Market Project; the Bayview Community Based Transportation Plan; the Quint-Jerrold Connector; the 2270 McKinnon Avenue Project; and the SFPUC projects in the Southeast Treatment Plant site, including the Headworks Project, the Biosolids Digester Facility Project, and the Power Feed Project, but only the SF Market and 2270 McKinnon

[138] American Legal Publishing Corporation, article 2: Use Districts, Sec. 210.3 PDR Districts, 2019, *http://library.amlegal.com/nxt/gateway. dll/California/planning/planningcode? f=templates$fn=default. htm$3. 0$vid=amlegal: sanfrancisco_ca$sync=1*, accessed August 20, 2019.

Avenue Project could increase employment in the immediate area. Beyond the immediate vicinity of the project site mapped in Figure 22 on p. 44, but within 0.5 mile of the project site, additional light industrial projects near U.S. 101 and I-280, additional SFPUC infrastructure projects near the Southeast Treatment Plant, and small-scale residential projects (single family, duplex units, or accessory dwelling unit applications) near the Palou Phelps Mini Park would be constructed. Employees and/or residents might use the nearby recreational facilities or community gardens once these projects are constructed. The proposed project, combined with the cumulative projects, would not increase the residential population in the immediate project vicinity, so the demand and use of recreational resources would be limited to the onsite employees.

Although the cumulative projects would increase the number of employees in the area, potential use of the nearby parks and community gardens likely would be limited to lunch or midday breaks, and thus would not impose a substantial demand on or use of these resources. Because of the limited use and likely few employees who would use the parks and gardens, the proposed project in combination with cumulative projects are not anticipated to increase use of recreational facilities to such a degree that substantial deterioration of these facilities would occur or be accelerated. Therefore, cumulative recreational impacts would be less than significant, and no mitigation measures are required. Additionally, the proposed project does not include recreational facilities and so does not have the potential to contribute to adverse physical environmental effects related to the construction of recreational facilities. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have the same recreation impacts as the proposed project. Because of the limited use and likely few employees who would use the parks and gardens, the expanded streetscape variant in combination with cumulative projects are not anticipated to increase use of recreational facilities to such a degree that substantial deterioration of these facilities would occur or be accelerated. Therefore, cumulative recreational impacts would be less than significant, and no mitigation measures are required. Additionally, the expanded streetscape variant does not include recreational facilities and so does not have the potential to contribute to adverse physical environmental effects related to the construction of recreational facilities. This topic will not be addressed in the EIR.

E.12. Utilities and Service Systems

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater, electrical power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	☐
d) Generate solid waste in excess of state or local standards, or in excess of capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐	☐

The project site is in an urban area that is served by water storage, treatment, and distribution facilities; combined wastewater and stormwater collection, storage, treatment, and disposal facilities; electric power and telecommunication facilities; and solid waste collection and disposal service systems.

Impact UT-1 **The proposed project or variant would not require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities that could result in environmental effects beyond those evaluated throughout this initial study. (Less than Significant)**

PROPOSED PROJECT

The proposed project would not require or result in the construction of new combined wastewater and stormwater main lines or expansion of the existing Southeast Treatment Plant that provides wastewater and stormwater treatment and management for the project site. No single project alone would warrant expansion of the city's water supply system. Consequently, individual projects are considered in combination with other projects, and their individual contribution to cumulative water demand is examined.

Although the proposed project would not require new or expanded water, wastewater treatment, or stormwater drainage improvements, the proposed project would require relocation of or construction of new or expanded onsite utilities and service systems, including new water transmission pipeline, wastewater collection and conveyance facilities, and stormwater facilities. In addition, the proposed project would install new connections to the surrounding PG&E electric grid to provide service to the proposed buildings. The project would also provide connections to communication lines along adjacent roadways. The proposed project would not require new natural gas connections because the project would not use natural gas.

The activities required to install new or expanded onsite utilities are accounted for in the project description as components required to construct the proposed project (e.g., excavation, trenching, and foundations). Physical impacts associated with construction of project-serving utilities and the buildings are included in the evaluation of the project's physical environmental impact described throughout this initial study, including Section E.3, Cultural Resources; Section E.4, Tribal Cultural Resources; Section E.14, Biological Resources; Section E.15, Geology and Soils; Section E.16, Hydrology and Water Quality; and Section E.17, Hazards and Hazardous Material. These components will also be included in the additional analyses of the project's air quality, noise, and transportation impact; these further analyses will be included in the EIR.

Other than localized connections to the existing systems, the proposed project would not result in the construction or relocation of water, wastewater, stormwater, electric, or telecommunications facilities (e.g., electric substations or telecommunication towers). Therefore, this impact would be less than significant, and no mitigation measures would be required. This topic will not be discussed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the expanded streetscape variant would have utilities and service system impacts similar to those of the proposed project. Other than localized connections to the existing systems, the expanded streetscape variant would not result in the construction or relocation of water, wastewater, stormwater, electric, or telecommunications facilities (e.g., electric substations or telecommunication towers). Therefore, this impact would be less than significant, and no mitigation measures would be required. This topic will not be discussed in the EIR.

Impact UT-2 The proposed project or variant would not exceed the capacity of the Southeast Treatment Plant and would not require the construction of new or expansion of existing wastewater and stormwater treatment facilities. (Less than Significant)

PROPOSED PROJECT

The SFPUC owns and operates San Francisco's combined sewer system, which collects and treats both wastewater and stormwater runoff. The Southeast Treatment Plant provides wastewater and stormwater treatment and management for the eastern portion of the city, including the project site. Wastewater is transported to the Southeast Treatment Plant through a grid of transport/storage boxes, sewers, and five major pump stations. The Southeast Treatment Plant treats an average of 60 mgd of dry-weather flow, has a

current dry-weather design capacity of 85.4 mgd, and has a peak wet-weather capacity of 250 mgd.[139, 140] As part of the SSIP, the Southeast Treatment Plant is undergoing operational improvements and seismic upgrades to ensure the reliability of the sewer system.[141] As described below, the proposed project would have a less-than-significant impact on wastewater and stormwater treatment facilities, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Stormwater

The project site is completely developed with impervious surfaces. Upon completion of the proposed project, pursuant to the requirements of the San Francisco Stormwater Management Ordinance, the proposed project would reduce the overall amount of impervious surface on the site. This would, in turn, reduce or delay the amount of stormwater entering the city's stormwater collection system in comparison to existing conditions. The San Francisco Stormwater Management Ordinance requirements are further described below.

The San Francisco Stormwater Management Ordinance (as codified in section 147 of the San Francisco Public Works Code) requires projects that create and/or replace at least 5,000 square feet of impervious surface and discharges into the combined sewer system to implement postconstruction stormwater runoff measures consistent with the Stormwater Management Requirements and Design Guidelines. Sites with more than 50 percent impervious surfaces (such as the project site) also must be designed so that the stormwater runoff rate and volume do not exceed predevelopment conditions for the one- and two-year, 24-hour design storm.[142] As discussed in the Water Supply Assessment for this project, the project would request a modified compliance with the first submittal of the Stormwater Control Plan. The modified requirements would be a 40 percent reduction in the rate and a 10 percent reduction in the volume of runoff for the 2-year, 24-hour design storm.[143] To meet these modified requirements, the proposed project would include rainwater collection cisterns that would manage stormwater onsite and limit demand on both the collection system and wastewater facilities resulting from stormwater discharges. A stormwater control plan would be designed for review and approval by the SFPUC (refer to Impact HY-1).

Modified compliance with the Stormwater Management Requirements and Design Guidelines would ensure that stormwater generated by the proposed project is managed onsite so that the proposed project would not substantially contribute polluted runoff to the city's existing stormwater infrastructure. This in turn would reduce the demand on both the collection system and wastewater facilities resulting from stormwater discharge, in comparison to existing conditions, minimizing the potential need for additional treatment capacity. Therefore, stormwater impacts of the proposed project on the Southeast Treatment Plant would be less than significant.

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139 San Francisco Bay Regional Water Quality Control Board, Order No. R2-2013-0029 and NPDES No. CA0037664, 2013, *https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2013/R2-2013-0029.pdf*, accessed January 23, 2019.

140 San Francisco Public Utilities Commission (SFPUC), Southeast Treatment Plant, 2018, *http://sfwater.org/index.aspx?page=616*, accessed January 23, 2019.

141 SFPUC, San Francisco's Wastewater Treatment Facilities, June 2014, *http://sfwater.org/modules/showdocument.aspx?documentid=5799*, accessed January 23, 2019.

142 SFPUC, San Francisco Stormwater Management Requirements and Design Guidelines, May 2016, *http://www.sfwater.org/Modules/ShowDocument.aspx?documentID=9026*, accessed January 23, 2019.

143 SFPUC, Water Supply Assessment for San Francisco Gateway Project, adopted June 9, 2020, Resolution No. 20-0126.

Wastewater

SFPUC assumes that nonresidential uses discharge 90 percent of water to the combined sewer.[144] The 90 percent figure is used in these calculations to provide an assessment of the amount of wastewater that would be generated by the project and discharged into the combined sewer system. The proposed project's water supply demand would total 0.006 mgd (0.001 mgd potable demand and 0.005 mgd nonpotable demand); therefore, the proposed project would discharge approximately 0.005 mgd to the combined sewer.[145]

The wastewater generated by the proposed project would contribute an additional 0.008 percent of the Southeast Treatment Plant's average daily treatment of 60 mgd. Because the proposed project would not generate wastewater flows that would exceed the Southeast Treatment Plant's capacity of 85 mgd during dry weather, it would not exceed the Southeast Treatment Plant's capacity or require the construction of new or expansion of existing wastewater treatment facilities. Therefore, wastewater impacts related to the capacity of the combined sewer system would be less than significant.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Because the expanded streetscape variant would not construct additional buildings or add land uses to the site that would generate substantial additional wastewater or require substantial additional stormwater treatment, it would have utilities and service system impacts similar to those of the proposed project. Therefore, the expanded streetscape variant would have a less-than-significant impact on wastewater and stormwater treatment facilities, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact UT-3 SFPUC has sufficient water supply available to serve the proposed project or variant and future development during normal, dry, and multiple dry years. (Less than Significant)

PROPOSED PROJECT

Background on Hetch Hetchy Regional Water System

San Francisco's Hetch Hetchy regional water system, operated by the SFPUC, supplies water to approximately 2.7 million people. The system supplies both retail customers—primarily in San Francisco—and 27 wholesale customers in Alameda, Santa Clara, and San Mateo counties. The system supplies an average of 85 percent of its water from the Tuolumne River watershed, stored in Hetch Hetchy Reservoir in Yosemite National Park, and the remaining 15 percent from local surface waters in the Alameda and Peninsula watersheds. The split between these resources varies from year to year depending on hydrological conditions and operational circumstances. Separate from the regional water system, the SFPUC owns and operates an in-city distribution system that serves retail customers in San Francisco. Approximately 97 percent of the San Francisco retail water supply is from the regional system; the remainder consists of local groundwater and recycled water.

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144 SFPUC, Wastewater Service Charge Appeal, 2018, *http://www.sfwater.org/index.aspx?page=132*, accessed January 24, 2019.

145 This wastewater demand from the proposed project does not take into account existing wastewater generation at the site. As a result, the net new wastewater generation from the project site would be less than the 0.005 mgd presented here and thus represents a conservative estimate of the increased demand on the city's combined sewer system.

Water Supply Reliability and Drought Planning

In 2008, the SFPUC adopted the Phased Water System Improvement Program (WSIP) to ensure the ability of the regional water system to meet certain level of service goals for water quality, seismic reliability, delivery reliability, and water supply through 2018.[146] The SFPUC's level of service goals for regional water supply are to meet customer water needs in nondrought and drought periods and to meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide. In approving the WSIP, the SFPUC established a supply limitation of up to 265 mgd to be delivered from its water supply resources in the Tuolumne, Alameda, and Peninsula watersheds in years with normal (average) precipitation.[147] The SFPUC's water supply agreement with its wholesale customers provides that approximately two-thirds of this total (up to 184 mgd) is available to wholesale purchasers and the remaining one-third (up to 81 mgd) is available to retail customers. The total amount of water the SFPUC can deliver to retail and wholesale customers in any one year depends on several factors, including the amount of water that is available from natural runoff, the amount of water in reservoir storage, and the amount of that water that must be released from the system for purposes other than customer deliveries (e.g., required instream flow releases below reservoirs). A "normal year" is based on historical hydrological conditions that allow the reservoirs to be filled by rainfall and snowmelt, allowing full deliveries to customers; similarly, a "wet year" and a "dry year" is based on historical hydrological conditions with above and below "normal" rainfall and snowmelt, respectively.

For planning purposes, the SFPUC uses a hypothetical drought that is more severe than what has historically been experienced. This drought sequence is referred to as the "design drought" and serves as the basis for planning and modeling of future scenarios. The design drought sequence used by the SFPUC for water supply reliability planning is an 8.5-year period that combines the following elements to represent a drought sequence more severe than historical conditions:

- Historical Hydrology – This is a six-year sequence of hydrology from the historical drought that occurred from July 1986 to June 1992.
- Prospective Drought – This is a 2.5-year period that includes the hydrology from the 1976-77 drought.
- System Recovery Period – The last six months of the design drought are the beginning of the system recovery period. The precipitation begins in the fall; by approximately the month of December, inflow to reservoirs exceeds customer demands, and SFPUC system storage begins to recover.

Although the most recent drought (2012 through 2016) included some of the driest years on record for the SFPUC's watersheds, the design drought still represents a more severe drought in duration and overall water supply deficit.

Based on historical records of hydrology and reservoir inflow from 1920 to 2017, current delivery and flow obligations, and fully implemented infrastructure under the WSIP, normal or wet conditions occurred in 85 out of 97 years. This translates into roughly nine normal or wet years out of every 10 years. Conversely, system-wide rationing is required roughly one out of every 10 years. The frequency of dry years is expected to increase as climate change intensifies.

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[146] On December 11, 2018, the SFPUC Commission extended the timing of the WSIP water supply decision through 2028 in its Resolution No. 18-0212.

[147] SFPUC Resolution No. 08-200, *Adoption of the Water System Improvement Program Phased WSIP Variant,* October 30, 2008.

2015 Urban Water Management Plan

The California Urban Water Management Planning Act[148] requires urban water supply agencies to prepare *urban water management plans* to plan for the long-term reliability, conservation, and efficient use of California's water supplies to meet existing and future demands. The act requires water suppliers to update their plans every five years based on projected growth for at least the next 20 years.

At the time the Water Supply Assessment was prepared for the proposed project, the current urban water management plan for the city was the 2015 Urban Water Management Plan update.[149] Subsequently, a 2020 Urban Water Management Plan was adopted, as discussed further below.[150]

The 2015 plan update presents information on the SFPUC's retail and wholesale service areas, the regional water supply system and other water supply systems operated by the SFPUC, system supplies and demands, water supply reliability, Water Conservation Act of 2009 compliance, water shortage contingency planning, and water demand management.

The water demand projections in the 2015 plan reflect anticipated population and employment growth, socioeconomic factors, and the latest conservation forecasts. For San Francisco, housing and employment growth projections are based on the planning department's Land Use Allocation 2012 (see 2015 Urban Water Management Plan, Appendix E, Table 5), which in turn is based on the Association of Bay Area Governments growth projections through 2040.[151] The 2015 plan presents water demand projections in five-year increments over a 25-year planning horizon through 2040.

The 2015 plan compares anticipated water supplies to projected demand through 2040 for normal, single-dry, and multiple-dry water years. Retail water supplies consist of regional water system supply, groundwater, recycled water, and nonpotable water. Under normal hydrologic conditions, the total retail supply is projected to increase from 70.1 mgd in 2015 to 89.9 mgd in 2040. According to the plan, available and anticipated future water supplies would fully meet projected demand in San Francisco through 2040 during normal years.

On December 11, 2018, by Resolution No. 18-0212, the SFPUC amended its 2009 Water Supply Agreement between the SFPUC and its wholesale customers. That amendment revised the Tier 1 allocation in the Water Supply Allocation Plan to require a minimum reduction of 5 percent of the regional water system supply for San Francisco retail customers whenever system-wide reductions are required due to dry-year supply shortages.[152] When accounting for the requirements of this amended agreement, existing and planned supplies would meet projected retail water system demands in all years except for an approximately 3.6 to 6.1 mgd or 5 to 6.8 percent shortfall during dry years through the year 2040. This relatively small shortfall is primarily due to implementation of the amended 2009 water supply agreement. In such an event, the SFPUC would implement the SFPUC's Retail Water Shortage Allocation Plan and could manage this relatively small shortfall by prohibiting certain discretionary outdoor water uses and/or calling for voluntary rationing among all retail customers. Based on experience in past droughts, retail customers could reduce water use

148 California Water Code, division 6, part 2.6, sections 10610 through 10656, as last amended in 2015.
149 SFPUC, *2015 Urban Water Management Plan for the City and County of San Francisco*, June 2016, *https://sfwater.org/index.aspx?page=75*.
150 SFPUC, *2020 Urban Water Management Plan for the City and County of San Francisco*, June 2021, *https://sfpuc.org/about-us/policies-plans/urban-water-management-plan*.
151 Association of Bay Area Governments, *Jobs-Housing Connection Strategy,* May 2012.
152 SFPUC, Resolution No. 18-0212, December 11, 2018.

to meet this projected level of shortfall. The required level of rationing is well below the SFPUC's regional water supply level of service goal of limiting rationing to no more than 20 percent on a system-wide basis.

Based on the 2015 Urban Water Management Plan, as modified by the 2018 amendment to the 2009 Water Supply Agreement, sufficient retail water supplies would be available to serve projected growth in San Francisco through 2040. Although concluding that supply is sufficient, the 2015 Urban Water Management Plan also identifies projects that are underway or planned to augment local supply. Projects that are underway or recently completed include the San Francisco Groundwater Supply Project and the Westside Recycled Water Project. A more current list of potential regional and local water supply projects that the SFPUC is considering is provided below under Additional Water Supplies.

In addition, the plan describes the SFPUC's ongoing efforts to improve dry-year water supplies, including participation in Bay Area regional efforts to improve water supply reliability through projects such as interagency interties, groundwater management and recharge, potable reuse, desalination, and water transfers. Although no specific capacity or supply has been identified, this program may result in future supplies that would benefit SFPUC customers.

2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, which establishes water quality objectives to maintain the health of the rivers and the Bay-Delta ecosystem.[153] Among the goals of the adopted Bay-Delta Plan Amendment is to increase salmonid populations in the San Joaquin River, its tributaries (including the Tuolumne River), and the Bay-Delta. Specifically, the plan amendment requires increasing flows in the Stanislaus, Tuolumne, and Merced rivers to 40 percent of unimpaired flow[154] from February through June every year, whether it is wet or dry. During dry years, this would result in a substantial reduction in the SFPUC's water supplies from the Tuolumne River watershed.

If this plan amendment is implemented, the SFPUC would be able to meet the projected retail water demands presented in the 2015 Urban Water Management Plan in normal years but would experience supply shortages in single dry years and multiple dry years. Implementation of the Bay-Delta Plan Amendment would result in substantial dry-year water supply shortfalls throughout the SFPUC's regional water system service area, including San Francisco. The 2015 Urban Water Management Plan assumes that limited rationing for retail customers may be needed in multiple dry years to address an anticipated supply shortage by 2040; the 2018 amendment to the 2009 Water Supply Agreement with wholesale customers would slightly increase rationing levels indicated in the 2015 plan. By comparison, implementation of the Bay-Delta Plan Amendment would result in supply shortfalls in all single dry years and multiple dry years and rationing to a greater degree than previously anticipated to address supply shortages not accounted for in the 2015 Urban Water Management Plan or as a result of the 2018 amendment to the Water Supply Agreement.

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153 State Water Resources Control Board Resolution No. 2018-0059, *Adoption of Amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Final Substitute Environmental Document,* December 12, 2018, *https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf*.

154 "Unimpaired flow" represents the water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds.

The state water board has stated that it intends to implement the plan amendment by the year 2022, assuming that all required approvals are obtained by that time. However, at this time, the implementation of the Bay-Delta Plan Amendment is uncertain for several reasons, as the SFPUC explained in the Water Supply Assessment prepared for this project. First, since adoption of the Bay-Delta Plan Amendment, more than a dozen lawsuits have been filed in state and federal court, challenging the water board's adoption of the plan amendment, including legal challenges filed by the federal government at the request of the United States Bureau of Reclamation. That litigation is in the early stages, and there have been no dispositive court rulings as of this date.

Second, the Bay-Delta Plan Amendment is not self-executing and does not allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the plan amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, the Clean Water Act, section 401 certification process in the Federal Energy Regulatory Commission's relicensing proceeding for Don Pedro Dam. The license amendment process is currently expected to be completed in the 2022-2023 timeframe. This process and other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility for the Tuolumne River than currently exists (and therefore a different water supply effect on the SFPUC).

Third, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the water board directed its staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the [water board] as early as possible after December 1, 2019." On March 1, 2019, in accordance with the water board's instruction, and in partnership with other key stakeholders, the SFPUC submitted a proposed project description for the Tuolumne River. This project description could be the basis for a voluntary agreement with the state water board that would serve as an alternative path to implementing the Bay-Delta Plan's objectives. On March 26, 2019, the SFPUC adopted Resolution No. 19-0057 to support its participation in the voluntary agreement negotiation process. In a written progress report to the Voluntary Agreement Plenary Participants dated July 1, 2019, the California secretaries for Environmental Protection and for Natural Resources stated that the collective state agencies should be able "to determine the adequacy" of the various proposed voluntary agreements, including the proposed Tuolumne Voluntary Agreement, by October 15, 2019, and that if the state team recommends the voluntary agreements to the state water board, then (1) scientific peer review of the voluntary agreements would be completed by the spring of 2020, and (2) a draft CEQA document would be released for public comment in the summer of 2020, with a finalized CEQA document completed the following year. Negotiations for the Tuolumne Voluntary Agreement continued beyond the October 15, 2019, date and are ongoing, pushing back the completion timeline anticipated in the July 1, 2019, letter. On February 4, 2020, the secretaries for Environmental Protection and for Natural Resources issued a presentation summarizing the framework of the voluntary agreement process, which did not include new deadlines for completion.

For these reasons, it is currently unknown whether, when, and in what form the Bay-Delta Plan Amendment would be implemented, and how those amendments would affect the SFPUC's water supply.

Additional Water Supplies

In light of the adoption of the Bay-Delta Plan Amendment and the resulting potential limitation to the SFPUC's regional water system supply during dry years, the SFPUC is expanding and accelerating its efforts to develop additional water supplies and explore other projects that would improve overall water supply resilience. Developing these supplies would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The SFPUC has taken action to fund the study of additional water supply projects, which are described in the water supply assessment for the proposed project and listed below:

- Daly City Recycled Water Expansion
- Alameda County Water District Transfer Partnership
- Brackish Water Desalination in Contra Costa County
- Alameda County Water District-Union Sanitary District Purified Water Partnership
- Crystal Springs Purified Water
- Eastside Purified Water
- San Francisco Eastside Satellite Recycled Water Facility
- Additional Storage Capacity in Los Vaqueros Reservoir from Expansion
- Calaveras Reservoir Expansion

The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. These projects would take 10 to 30 or more years to implement and would require environmental permitting negotiations, which may reduce the amount of water that can be developed. The yield from these projects is unknown and not currently incorporated into SFPUC's supply projections.

In addition to capital projects, the SFPUC is also considering developing related water demand management policies and ordinances, such as funding for innovative water supply and efficiency technologies and requiring potable water offsets for new developments.

Water Supply Assessment

Under sections 10910 through 10915 of the California Water Code, urban water suppliers like the SFPUC must prepare water supply assessments for certain large projects, as defined in CEQA Guidelines section 15155.[155] Water supply assessments rely on information contained in the water supplier's urban water management plan and on the estimated water demand of both the proposed project and projected growth in the relevant portion of the water supplier's service area. Because the proposed project would include development of more than 650,000 square feet of PDR uses and would employ more than 1,000

[155] Pursuant to CEQA Guidelines section 15155(1), "a water-demand project" means:
(A) A residential development of more than 500 dwelling units
(B) A shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space
(C) A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor area
(D) A hotel or motel, or both, having more than 500 rooms, an industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area
(F) A mixed-use project that includes one or more of the projects specified in subdivisions (a)(1)(A), (a)(1)(B), (a)(1)(C), (a)(1)(D), (a)(1)(E), and (a)(1)(G) of this section
(G) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project

people, it meets the definition of a water demand project under CEQA. Accordingly, the SFPUC adopted a water supply assessment for the proposed project on June 9, 2020.[156]

The water supply assessment for the proposed project identifies the project's total water demand, including a breakdown of potable and nonpotable water demands. The proposed project is subject to San Francisco's Non-Potable Water Ordinance (article 12C of the San Francisco Health Code). As of January 1, 2022, the Non-Potable Water Ordinance requires new commercial, mixed-use, and multi-family residential development projects with 100,000 square feet or more of gross floor area to install and operate an onsite nonpotable water system. Such projects must meet their toilet and urinal flushing and irrigation demands through the collection, treatment, and use of available graywater, rainwater, and foundation drainage. Although not required, projects may use treated blackwater or stormwater if desired. Furthermore, projects may choose to apply nonpotable water to other nonpotable water uses, such as cooling tower blowdown and industrial processes, but are not required to do so under the ordinance. The proposed project would meet the requirements of the Non-Potable Water Ordinance by using graywater and rainwater for toilet and urinal flushing and irrigation.

Both potable and nonpotable demands for the project were estimated using the SFPUC's Non-Potable Water Calculator and supplemented with additional calculations for cooling tower makeup water, swimming pool, and commercial laundry demands. According to the demand estimates, the project's total water demand would be 0.006 mgd, which would consist of 0.001 mgd of potable water and 0.005 mgd of nonpotable water.[157] Accordingly, 84.8 percent of the project's total water demand would be met by nonpotable water.

The water supply assessment estimates future retail (citywide) water demand through 2040 based on the population and employment growth projections contained in the planning department's Land Use Allocation 2012. The department has determined that the proposed project represents a portion of the planned growth accounted for in Land Use Allocation 2012. Therefore, the project's demand is incorporated in the 2015 Urban Water Management Plan.

The water supply assessment determined that the project's potable water demand of 0.001 mgd would contribute 0.001 percent to the projected total retail demand of 89.9 mgd in 2040. The project's total water demand of 0.006 mgd, which does not account for the 0.005 mgd savings anticipated through compliance with the nonpotable water ordinance, would represent 0.007 percent of 2040 total retail demand. Therefore, the proposed project represents a small fraction of the total projected water demand in San Francisco through 2040.

Due to the 2018 Bay Delta Plan Amendments, the water supply assessment considers these demand estimates under three water supply scenarios. To evaluate the ability of the water supply system to meet the demand of the proposed project in combination with both existing development and projected growth in San Francisco, the water supply assessment describes each of the following water supply scenarios:

- Scenario 1: Current Water Supply
- Scenario 2: Bay-Delta Plan Voluntary Agreement
- Scenario 3: 2018 Bay-Delta Plan Amendment

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156 SFPUC, *Water Supply Assessment for the San Francisco Gateway Project*, adopted June 9, 2020, Resolution No. 20-0126.
157 SFPUC, *Water Supply Assessment for San Francisco Gateway Project*, adopted June 9, 2020, Resolution No. 20-0126.

As discussed below, the water supply assessment concludes that water supplies would be available to meet the demand of the proposed project in combination with both existing development and projected growth in San Francisco through 2040 under each of these water supply scenarios, with varying levels of rationing during dry years. The following sections summarize the analysis and conclusions presented in the SFPUC's water supply assessment for the project under each of the three water supply scenarios considered.

Scenario 1 – Current Water Supply

Scenario 1 assumes no change to the way in which water is supplied, and that neither the Bay-Delta Plan Amendment nor a Bay-Delta Plan Voluntary Agreement would be implemented. Thus, the water supply and demand assumptions contained in the 2015 Urban Water Management Plan and the 2009 Water Supply Agreement as amended would remain applicable for the project's water supply assessment. As stated above, the project is accounted for in the demand projections in the 2015 Urban Water Management Plan.

Under Scenario 1, the water supply assessment determined that water supplies would be available to meet the demand of the project in combination with existing development and projected growth in all years, except for an approximately 3.6 to 6.1 mgd or 5 to 6.8 percent shortfall during dry years through the year 2040. This relatively small shortfall is primarily due to implementation of the amended 2009 Water Supply Agreement. To manage a small shortfall such as this, the SFPUC may prohibit certain discretionary outdoor water uses and/or call for voluntary rationing by its retail customers. During a prolonged drought at the end of the 20-year planning horizon, the project could be subject to voluntary rationing in response to a 6.8 percent supply shortfall, when the 2018 amendments to the 2009 Water Supply Agreement are taken into account. This level of rationing is well within the SFPUC's regional water system's supply level of service goal of limiting rationing to no more than 20 percent on a system-wide basis (i.e., an average throughout the regional water system).

Scenario 2 – Bay-Delta Plan Voluntary Agreement

Under Scenario 2, a voluntary agreement would be implemented as an alternative to the adopted Bay-Delta Plan Amendment. The March 1, 2019, proposed voluntary agreement submitted to the state water board has yet to be accepted, and the shortages that would occur with its implementation are not known. The voluntary agreement proposal contains a combination of flow and non-flow measures that are designed to benefit fisheries at a lower water cost, particularly during multiple dry years, than would occur under the Bay-Delta Plan Amendment. The resulting regional water system supply shortfalls during dry years would be less than those under the Bay-Delta Plan Amendment and would require rationing of a lesser degree and closer in alignment to the SFPUC's adopted level of service goal for the regional water system of rationing of no more than 20 percent system-wide during dry years. The SFPUC Resolution No. 19-0057, which authorized the SFPUC staff to participate in voluntary agreement negotiations, stated its intention that any final voluntary agreement allow the SFPUC to maintain both the water supply and sustainability level of service goals and objectives adopted by the SFPUC when it approved the WSIP. Accordingly, it is reasonable to conclude that if the SFPUC enters into a voluntary agreement, the supply shortfall under such an agreement would be of a similar magnitude to those that would occur under Scenario 1. In any event, the rationing that would be required under Scenario 2 would be of a lesser degree than under the Bay-Delta Plan Amendment as adopted.

Scenario 3 – Bay-Delta Plan Amendment

Under Scenario 3, the 2018 Bay-Delta Plan Amendment would be implemented as it was adopted by the state water board, without modification. As discussed above, there is considerable uncertainty whether, when, and in what form the plan amendment would be implemented. However, because implementation of the plan amendment cannot be ruled out at this time, an analysis of the cumulative impact of projected growth on water supply resources under this scenario is included in this document to provide a worst-case impact analysis.

Under this scenario, which is assumed to be implemented after 2022, water supplies would be available to meet projected demands through 2040 in wet and normal years with no shortfalls. However, under Scenario 3, the entire regional water system—including both the wholesale and retail service areas—would experience significant shortfalls in single dry and multiple dry years, which over the past 97 years have occurred on average just over once every 10 years. Significant dry-year shortfalls would occur in San Francisco, regardless of whether the proposed project is constructed. Except for the currently anticipated shortfall to retail customers of about 6.1 mgd (6.8 percent) that is expected to occur under Scenario 1 during years seven and eight of the 8.5-year design drought, based on 2040 demand levels; these shortfalls to retail customers would exclusively result from supply reductions resulting from implementation of the Bay-Delta Plan Amendment. The retail supply shortfalls under Scenario 3 would not be attributed to the incremental demand associated with the proposed project, because the project's demand is incorporated already in the growth and water demand/supply projections contained in the 2015 Urban Water Management Plan.

Under the Bay-Delta Plan Amendment, existing and planned dry-year supplies would be insufficient for the SFPUC to satisfy its regional water system supply level of service goal of no more than 20 percent rationing system-wide. The Water Shortage Allocation Plan does not specify allocations to retail supply during system-wide shortages above 20 percent. However, the plan indicates that if a system-wide shortage greater than 20 percent were to occur, regional water system supply would be allocated between retail and wholesale customers in accordance with the rules corresponding to a 16 to 20 percent system-wide reduction, subject to consultation and negotiation between the SFPUC and its wholesale customers to modify the allocation rules. The allocation rules corresponding to the 16 to 20 percent system-wide reduction are reflected in the project's water supply assessment. These allocation rules result in shortfalls of 15.6 to 49.8 percent across the retail service area as a whole under Scenario 3. As shown in Table 5 of the water supply assessment, total shortfalls under Scenario 3 would range from 12.3 mgd (15.6 percent) in a single dry year to 36.1 mgd (45.7 percent) in years seven and eight of the 8.5-year design drought, based on 2025 demand levels; and from 21 mgd (23.4 percent) in a single dry year to 44.8 mgd (49.8 percent) in years seven and eight of the 8.5-year design drought, based on 2040 demand.

2020 Urban Water Management Plan

As described above, following adoption of the Water Supply Assessment for the proposed project, the SFPUC adopted a 2020 Urban Water Management Plan.[158] The plan projects water demand through 2045, based on the population and employment growth projections contained in the planning department's Land Use Allocation 2017.[159] The department has determined that the proposed project represents a portion of the

[158] SFPUC, *2020 Urban Water Management Plan for the City and County of San Francisco*, June 2021, *https://sfpuc.org/about-us/policies-plans/urban-water-management-plan*.

[159] *2020 Urban Water Management Plan* at 4-4.

planned growth accounted for in Land Use Allocation 2017. Therefore, the project's demand is incorporated in the 2020 Urban Water Management Plan.

The 2020 plan incorporates water supply and demand planning scenarios both with and without the Bay-Delta Plan Amendment, consistent with the approach in the proposed project's Water Supply Assessment. Without implementation of the Bay-Delta Plan Amendment, water supplies would be available to meet projected retail demands, including planned growth, in all years—except for an approximately 4.0 mgd or 5.3 percent shortfall during years four and five of multiple dry year conditions in the year 2045, as shown in Table 8-6 of the 2020 Urban Water Management Plan. This shortfall, which is consistent with the potential 2040 shortfall analyzed in Scenario 1 of the project's Water Supply Assessment, would be addressed by a 5 percent reduction in retail demand.

With implementation of the Bay-Delta Plan Amendment, water supplies would be available to meet projected demands through 2045 in normal years with no shortfalls. However, the entire regional water system—including both the wholesale and retail service areas—would experience significant shortfalls in single dry and multiple dry years. Significant dry-year shortfalls would occur in San Francisco, regardless of whether the proposed project is constructed. As shown in Table 8-4 of the 2020 Urban Water Management Plan, total shortfalls under this scenario would range from 11.2 mgd (15.9 percent) in a single dry year to 19.2 mgd (27.2 percent) in years two through five of multiple dry year conditions, based on 2040 demand levels; and from 20.5 mgd (25.4 percent) in a single dry year to 28.5 mgd (35.4 percent) in years four and five of multiple dry year conditions, based on 2045 demand. These shortfalls are within the ranges of the potential 2025-2040 shortfalls analyzed in Scenario 3 of the project's Water Supply Assessment.

The 2020 Urban Water Management Plan incorporates a Water Shortage Contingency Plan (Appendix K) that identifies specific actions that would be taken in response to shortage conditions, including demand reduction, operational efficiency, and supply augmentation actions; it also includes a Retail Water Shortage Allocation Plan, discussed further below.

Impact Analysis

As described above, the supply capacity of the Hetch Hetchy regional water system that provides the majority of the city's drinking water far exceeds the potential demand of any single development project in San Francisco. No single development project alone in San Francisco would require the development of new or expanded water supply facilities or require the SFPUC to take other actions, such as imposing a higher level of rationing across the city in the event of a supply shortage in dry years. Therefore, a separate project-only analysis is not provided for this topic. The following analysis instead considers whether the proposed project, in combination with both existing development and projected growth through 2040, would require new or expanded water supply facilities, the construction or relocation of which could have significant cumulative impacts on the environment. It also considers whether a high level of rationing would be required that could have significant cumulative impacts. It is only under this cumulative context that development in San Francisco could have the potential to require new or expanded water supply facilities or require the SFPUC to take other actions, which in turn could result in significant physical environmental impacts related to water supply. If significant cumulative impacts could result, then the analysis considers whether the project would make a considerable contribution to the cumulative impact.

Impacts Related to New or Expanded Water Supply Facilities

The SFPUC's adopted water supply level of service goal for the regional water system is to meet customer water needs in nondrought and drought periods. The system performance objective for drought periods is to meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide reduction in regional water service during extended droughts. Because the SFPUC has designed its system to meet this goal, it is reasonable to assume that, to the extent the SFPUC can achieve its service goals, sufficient supplies would be available to serve existing development and planned growth accounted for in the 2020 Urban Water Management Plan (which includes the proposed project) and that new or expanded water supply facilities are not needed to meet system-wide demand. Although the focus of this analysis is on the SFPUC's retail service area and not the regional water system as a whole, this cumulative analysis considers the SFPUC's regional water supply level of service goal of rationing of not more than 20 percent in evaluating whether new or expanded water supply facilities would be required to meet the demands of existing development and projected growth in the retail area through 2045. If a shortfall would require rationing more than 20 percent to meet system-wide dry-year demand, the analysis evaluates whether, as a result, the SFPUC would develop new or expanded water supply facilities that result in significant physical environmental impacts. It also considers whether such a shortfall would result in a level of rationing that could cause significant physical environmental impacts. If the analysis determines that there would be a significant cumulative impact, then, in accordance with CEQA Guidelines section 15130, the analysis considers whether the project's incremental contribution to any such effect is "cumulatively considerable."

As discussed above, existing and planned dry-year supplies would meet projected retail demands through 2040 under Scenario 1 in the SFPUC's regional water system's adopted water supply reliability level of service goal. As augmented by the projections in the 2020 Urban Water Management Plan, water demand would be met during multiple dry-year conditions in 2045 by implementing 5 percent retail demand reductions. Therefore, the SFPUC could meet the water supply needs for the proposed project in combination with existing development and projected growth in San Francisco through 2045 from the SFPUC's existing system. The SFPUC would not be expected to develop new or expanded water supply facilities for retail customers under Scenario 1, and there would be no significant cumulative environmental impact.

The effect of Scenario 2 cannot be quantified at this time; but, as explained previously, if it can be designed to achieve the SFPUC's level of service goals and is adopted, it would be expected to have effects similar to those under Scenario 1. Given the SFPUC's stated goal of maintaining its level of service goals under Scenario 2, it is expected that effects under Scenario 2 would be more similar to those under Scenario 1 than under Scenario 3. In any event, any shortfall effects under Scenario 2 that exceed the SFPUC's service goals would be expected to be less than those under Scenario 3. Therefore, the analysis of Scenario 3 would encompass any effects that would occur under Scenario 2 if it were to trigger the need for increased water supply or rationing in excess of the SFPUC's regional water system level of service goals.

Under Scenario 3, the SFPUC's existing and anticipated water supplies would be sufficient to meet the demands of existing development and projected growth in San Francisco, including the proposed project, through 2045 in wet and normal years, which have historically occurred in approximately nine out of 10 years on average. During dry and multiple dry years, as identified in the 2020 Urban Water Management Plan, retail supply shortfalls of 15.9 to 35.4 percent could occur.

The SFPUC has indicated in its water supply assessment and 2020 Urban Water Management Plan that, as a result of the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations on supply to the regional water system during dry years, the SFPUC is increasing and accelerating its efforts to develop additional water supplies and explore other projects that would increase overall water supply resilience. It lists possible projects that it will study. The SFPUC is beginning to study water supply options, but it has not determined the feasibility of the possible projects, has not made any decision to pursue any particular supply projects, and has determined that the identified potential projects would take anywhere from 10 to 30 years or more to implement.

There is also a substantial degree of uncertainty associated with the implementation of the Bay-Delta Plan Amendment and its ultimate outcome; therefore, there is substantial uncertainty in the amount of additional water supply that may be needed, if any. Moreover, there is uncertainty and lack of knowledge regarding the feasibility and parameters of the possible water supply projects the SFPUC is beginning to explore. Consequently, the physical environmental impacts that could result from future supply projects can only be speculated on at this time and would not be expected to be reasonably determined for 10 to 30 years. Although it is not possible at this time to identify the specific environmental impacts that could result, this analysis assumes that if new or expanded water supply facilities were developed, such as those listed above under "Additional Water Supplies," the construction and/or operation of such facilities could result in significant adverse environmental impacts, and this would be a significant cumulative impact.

As discussed above, the proposed project would represent 0.007 percent of total demand and 0.001 percent of potable water demand in San Francisco in 2040, whereas implementation of the Bay Delta Plan Amendment would result in a retail supply shortfall of up to 49.8 percent. Thus, new or expanded dry-year water supplies would be needed under Scenario 3 regardless of whether the proposed project is constructed. This being the case, any physical environmental impacts related to the construction and/or operation of new or expanded water supplies would occur with or without the proposed project. Therefore, the proposed project would not have a considerable contribution to any significant cumulative impacts that could result from the construction or operation of new or expanded water supply facilities developed in response to the Bay-Delta Plan Amendment.

Impacts Related to Rationing

Given the long lead times associated with developing additional water supplies, in the event the Bay-Delta Plan Amendment were to take effect sometime after 2022 and result in a dry-year shortfall, the expected action of the SFPUC for the next 10 to 30 years (or more) would be limited to requiring increased rationing. The remaining analysis therefore focuses on whether rationing at the levels that might be required under the Bay-Delta Plan Amendment could result in any cumulative impacts, and if so, whether the project would make a considerable contribution to these impacts.

The SFPUC has established a process through its Retail Water Shortage Allocation Plan for actions it would take under circumstances requiring rationing. Rationing at the level that might be required under the Bay-Delta Plan Amendment would require changes to how businesses operate, changes to water use behaviors (e.g., shorter and/or less-frequent showers), and restrictions on irrigation and other outdoor water uses (e.g., car washing), all of which could lead to undesirable socioeconomic effects. Any such effects would not constitute physical environmental impacts under CEQA.

High levels of rationing could, however, lead to adverse physical environmental effects, such as the loss of vegetation cover resulting from prolonged restrictions on irrigation. Prolonged high levels of rationing in the

city could also make San Francisco a less desirable location for residential and commercial development than other areas of the state not subject to such substantial levels of rationing, which, depending on location, could lead in turn to increased urban sprawl. Sprawl development is associated with numerous environmental impacts, including, for example, increased greenhouse gas emissions and air pollution from longer commutes and lower density development, higher energy use, loss of farmland, and increased water use from less water-efficient suburban development.[160] In contrast, the proposed project is in an area where VMT per capita are well below the regional average; projects in San Francisco are required to comply with numerous regulations that would reduce greenhouse gas emissions, as discussed in the greenhouse gas section of this initial study; and San Francisco's per capita water use is among the lowest in the state. Thus, the higher levels of rationing on a citywide basis that could be required under the Bay-Delta Plan Amendment could lead directly or indirectly to significant cumulative impacts. The question, then, is whether the project would make a considerable contribution to impacts that may be expected to occur in the event of high levels of rationing.

Although the levels of rationing described above apply to the retail service area as a whole (i.e., 5.3 percent under Scenario 1, and 15.9 to 35.4 percent under Scenario 3, each as augmented by the 2020 Urban Water Management Plan), the SFPUC may allocate different levels of rationing to individual retail customers based on customer type (e.g., dedicated irrigation, single-family residential, multi-family residential, or commercial) to achieve the required level of retail (city-wide) rationing. Allocation methods and processes that have been considered in the past and may be used in future droughts are described in the SFPUC's current Retail Water Shortage Allocation Plan adopted as part of the 2020 Urban Water Management Plan.[161] The updated Retail Water Shortage Allocation Plan will allocate shortages to different customer types to minimize the economic impacts of mandatory demand reductions. The specific allocation method will be determined based on the nature of the water shortage and water use trends, and may include reference to baseline water use levels.

The SFPUC anticipates that, as a worst-case scenario under Scenario 3, because the proposed project would have more than 650,000 square feet of PDR uses and would employ more than 1,000 people, the proposed project could be subject to up to 30 percent rationing during a severe drought.[162] In accordance with the Retail Water Shortage Allocation Plan, the level of rationing that would be imposed on the proposed project would be determined at the time of a drought or other water shortage and cannot be established with certainty prior to the shortage event. However, newly constructed buildings, such as the proposed project, have water-efficient fixtures and nonpotable water systems that comply with the latest regulations. Consequently, if these buildings can demonstrate below-average baseline water use, they may be subject to a lower level of rationing than other retail customers that meet or exceed the average water use for the same customer class.

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160 Pursuant to the SFPUC 2015 Urban Water Management Plan, San Francisco's per capita water use is among the lowest in the state.

161 SFPUC, *2020 Urban Water Management Plan for the City and County of San Francisco, Appendix Water Shortage Contingency Plan,* section 4. June 2021.

162 This worst-case rationing level for San Francisco multi-family residential was estimated for the purpose of preparing comments on the Draft Substitute Environmental Document in Support of Potential Changes to the Bay-Delta Plan (SED), dated March 16, 2017. See comment letter Attachment 1, Appendix 3, Page 5, Table 3. The comment letter and attachments are available at: *https://www.waterboards.ca.gov/public_notices/comments/2016_baydelta_plan_amendment/docs/dennis_herrera.pdf*. The state water board's SED assumes that the city will develop additional water supplies through large scale water transfers and/or construction of a large-scale desalination plant or new in-Delta diversion. The city's comments on the SED explain why increased rationing is in fact the SFPUC's most reasonably foreseeable response to the water supply reductions that may result from Bay-Delta Plan Amendment.

Although any substantial reduction in water use in a new, water-efficient building likely would require behavioral changes that building occupants would find inconvenient, temporary rationing during a drought is expected to be achievable through actions that would not cause or contribute to significant environmental effects. The effect of such temporary rationing would likely cause occupants to change behaviors but would not cause the substantial loss of vegetation because vegetation on this urban infill site would be limited to ornamental landscaping, and nonpotable water supplies would remain available for landscape irrigation in dry years. The project would not include uses that would be forced to relocate because of temporary water restrictions, such as a business that relies on significant volumes of water for its operations. Although high levels of rationing that would occur under Scenario 3 could result in future development locating elsewhere, existing PDR tenants and businesses occupying the proposed project would be expected to tolerate rationing for the temporary duration of a drought.

As discussed above, implementation of the Bay-Delta Plan Amendment would result in substantial system-wide water supply shortfalls in dry years. These shortfalls would occur with or without the proposed project, and the project's incremental increase in potable water demand (0.001 percent of total retail demand) would have a negligible effect on the levels of rationing that would be required throughout San Francisco under Scenario 3 in dry years.

Temporary rationing that could be imposed on the project would not cause or contribute to significant environmental effects associated with the high levels of rationing that may be required on a city-wide basis under Scenario 3. Therefore, the project would not make a considerable contribution to any significant cumulative impacts that may result from increased rationing that may be required with implementation of the Bay-Delta Plan Amendment, were it to occur.

Conclusion

As stated above, there is considerable uncertainty as to whether the Bay-Delta Plan Amendment will be implemented. If the plan amendment is implemented, the SFPUC will need to impose higher levels of rationing than its regional water system level of service goal of no more than 20 percent rationing during drought years by 2025 and for the next several decades. Implementation of the plan amendment would result in a shortfall beginning in a single dry year in 2025 of 15.9 percent; and dry-year shortfalls by 2045 ranging from 25.4 percent in a single dry year and year one of multiple dry years, to up to 35.4 percent in years four and five. Although the SFPUC may seek new or expanded water supply facilities, it has not made any definitive decision to pursue particular actions and there is too much uncertainty associated with this potential future decision to identify environmental effects that would result. Such effects are therefore speculative at this time. In any case, the need to develop new or expanded water supplies in response to the Bay Delta Plan Amendment and any related environmental impacts would occur irrespective of the water demand associated with the proposed project. Given the long lead times associated with developing additional supplies, the SFPUC's expected response to implementation of the Bay-Delta Plan Amendment would be to ration in accordance with procedures in its Retail Water Shortage Allocation Plan.

Both direct and indirect environmental impacts could result from high levels of rationing. However, the project is a mixed-use urban infill development that would be expected to tolerate the level of rationing imposed on it for the duration of the drought, and so would not contribute to sprawl development caused by rationing under the Bay-Delta Plan Amendment. The project itself would not be expected to contribute to a loss of vegetation because project-generated nonpotable supplies would remain available for irrigation in dry years. Nor would the small increase in potable water demand attributable to the project compared to

citywide demand substantially affect the levels of dry-year rationing that would otherwise be required throughout the city. Thus, the proposed project would not make a considerable contribution to a cumulative environmental impact caused by implementation of the Bay-Delta Plan Amendment. Therefore, for the reasons described above, under all three scenarios, this impact would be considered less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The proposed expanded streetscape variant would have water supply impacts similar to those of the proposed project because it would not construct additional buildings or add uses that would require substantial additional water supply, although it would involve additional street trees. Therefore, this impact would be considered less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact UT-4 **The proposed project or variant would not generate solid waste in excess of state or local standards, or in excess of capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, and would comply with applicable waste management and reduction statutes and regulations related to solid waste. (Less than Significant)**

PROPOSED PROJECT

Recology provides solid waste collection, recycling, and disposal services for residential and commercial garbage, recycling, and composting in San Francisco through its subsidiaries, Golden Gate Disposal and Recycling and Sunset Scavenger. Materials are collected and hauled to the Recology transfer station/ recycling center at 501 Tunnel Avenue, near the southeastern city limit, for sorting and subsequent transportation to other facilities. Recyclable materials are taken to Recology's Pier 96 facility, where they are separated into commodities (e.g., aluminum, glass, and paper) and transported to other users for reprocessing. Compostables (e.g., food waste, plant trimmings, and soiled paper) are transferred to a Recology composting facility in Solano County, where they are converted to soil amendment and compost. The remaining material that cannot otherwise be reprocessed ("trash") is transported to landfills.[163]

In September 2015, the city approved an agreement with Recology, Inc., for the transport and disposal of the city's municipal solid waste at the Recology Hay Road Landfill, northeast of Vacaville in Solano County. The city began disposing the majority of its municipal solid waste at this landfill in January 2016, and is anticipated to continue for approximately nine years, or until 3.4 million tons of municipal solid waste have been deposited in that landfill, whichever comes first. The city would have an option to renew the agreement for a period of six years, or until an additional 1.6 million tons of municipal solid waste have been deposited in the landfill, whichever comes first.[164]

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[163] San Francisco Planning Department, Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County Final Negative Declaration, Case No. 2014.0653E, July 2015, *http://sfmea.sfplanning.org/2014.0653E_Revised_FND.pdf*, accessed January 21, 2019.

[164] San Francisco Planning Department, Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County Final Negative Declaration, Case No. 2014.0653E, July 2015, *http://sfmea.sfplanning.org/2014.0653E_Revised_FND.pdf*, accessed January 21, 2019.

According to CalRecycle, the Recology Hay Road Landfill has a permitted maximum daily disposal capacity of 2,400 tons per day, a total maximum permitted capacity of 37.0 million cubic yards, and a remaining permitted capacity of approximately 30.4 million cubic yards (or 82 percent of its permitted capacity); and an estimated closure date of January 1, 2077.[165]

The California Integrated Waste Management Board requires local agencies to implement source reduction, recycling, and composting that would result in a minimum of 50 percent diversion of solid waste from landfills, thereby extending the life of landfills. For 2017, the target solid waste generation rate for San Francisco was 10.6 pounds per day per employee, and the actual measured generation rate was 4.7 pounds per day per employee, which is less than the target solid waste generation rate.[166]

San Francisco set a goal of 75 percent solid waste diversion by 2010, which it exceeded at 80 percent diversion, and currently has a goal of 100 percent solid waste diversion or "zero waste" to landfill or incineration by 2020. As discussed below, San Francisco implements recycling, composting, and waste reduction programs that would support this goal of 100 percent solid waste diversion.

Construction

Demolition and construction activities would generate various types of solid waste, including scrap lumber, scrap finishing materials, scrap metals, and other recyclable and nonrecyclable solid waste. Construction-related activities would involve soil disturbance of approximately 134,000 cubic yards onsite and 6,600 cubic yards for the street improvements, with approximately 98,000 cubic yards exported offsite. Excavated soil and demolition debris that is contaminated (e.g., with asbestos, polychlorinated biphenyls, or lead-based paint) and classified as a hazardous waste would be taken to a class I facility for disposal in accordance with applicable laws and regulations for the disposal of hazardous waste (see Section E.17, Hazards and Hazardous Materials, for further discussion). Soils not classified as hazardous waste would be transported to local disposal and reuse sites such as Treasure Island, Bay Meadows, or other available sites. Any nonrecyclable material would be disposed of at the Recology Hay Road Landfill.

The Construction and Demolition Debris Recovery Ordinance (San Francisco Ordinance No. 27-06) requires all contractors to prepare a Demolition Debris Recovery Plan. The recovery plan must demonstrate that waste entering landfill facilities from the proposed project would be reduced by a minimum of 65 percent by weight through recycling. The recovery plan must identify the sources of recyclable materials, outline a recycling method (self-separation or mixed recovery), and identify a Registered Transporter to haul mixed construction and demolition debris offsite to a Registered Facility for sorting and recycling. The recovery plan must be submitted to and approved by the San Francisco's Department of the Environment.[167]

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165 California Department of Resources Recycling and Recovery, Facility Detail: Recology Hay Road Landfill (48-AA-0002), 2019, *https://www2.calrecycle.ca.gov/swfacilities/Directory/48-AA-0002*, accessed January 21, 2019.

166 California Department of Resources Recycling and Recovery, Jurisdiction Diversion/Disposal Rate Detail, San Francisco, 2018, *https://www2.calrecycle.ca.gov/LGCentral/DiversionProgram/JurisdictionDiversionDetail?year=2017&jurisdictionID=438*, accessed January 21, 2019.

167 San Francisco's Department of Environment, Construction and Demolition Debris Recovery Requirements, 2017, *https://sfenvironment.org/construction-demolition-requirements*, accessed January 21, 2019.

In addition, the 2019 California Green Building Standards Code (the CALGreen Code) requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.[168]

Operation

The proposed project's four main types of PDR uses include manufacturing and maker space, parcel delivery and last-mile delivery, wholesale and storage, and fleet management, and other uses permitted in the PDR-2 district, such as laboratory or retail uses. San Francisco's Mandatory Recycling and Composting Ordinance (San Francisco Ordinance No. 100-09) requires all properties and everyone in the city to separate their recyclables, compostables, and landfill trash.[169] Property owners and managers are required to provide color-coded, labeled bins in convenient locations. Education must also be provided to employees, contractors, and janitors on how to source separate recyclables, compostables, and trash. Recycling, composting, and waste reduction are expected to increasingly divert waste from landfills in accordance with California and local requirements.

CalRecycle estimates that the measured solid waste generation rate in San Francisco in 2017 was 4.7 pounds per day per employee.[170] Under the proposed project, a net increase of up to 1,242 employees would be onsite on a typical day. Therefore, the proposed project would result in approximately 5,837 more pounds per day, or 2.9 tons per day, of solid waste than is generated by existing uses and employment at the project site. The Recology Hay Road Landfill has a maximum permitted throughput of 2,400 tons per day, a remaining capacity of approximately 30.4 million cubic yards, and an expected closure date of 2077.[171] The estimated 2.9 additional tons per day of solid waste generated by the proposed project would be less than 1 percent of the maximum tons per day that could be received at the landfill. Given the city's progress to date on diversion and waste reduction, and given the existing future long-term capacity available at the Recology Hay Road Landfill and other area landfills, the proposed project would be served by regional landfills with sufficient permitted capacity to accommodate its solid waste disposal needs.

Conclusion

The project would comply with applicable solid waste statutes and regulations, including the San Francisco Green Building Code, the 2019 CALGreen Code, the Construction and Demolition Debris Recovery Ordinance (San Francisco Ordinance No. 27-06), and the Mandatory Recycling and Composting Ordinance (San Francisco Ordinance No. 100-09). In addition, the proposed project would not generate solid waste in excess of state or local standards or in excess of capacity of local infrastructure. Sufficient landfill capacity would be available to accommodate solid-waste disposal needs for the proposed project. Therefore, impacts related to sufficient landfill capacity and compliance with applicable statutes and regulations related to solid waste would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

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168 California Building Standards Commission, California Green Building Standards Code (CALGreen), 2019, *https://calgreenenergyservices.com/wp/wp-content/uploads/2019_california_green_code.pdf*, accessed August 14, 2020.

169 San Francisco's Department of Environment, San Francisco Mandatory Recycling and Composting Ordinance, 2017, *https://sfenvironment.org/sites/default/files/fliers/files/sfe_zw_mandatory_factsheet.pdf*, accessed January 22, 2019.

170 The California Department of Resources Recycling and Recovery measures jurisdictional diversion and disposal rates in terms of per-capita disposal expressed as pounds per day per employee. The per capita disposal measurement system uses an actual disposal measurement based on population, disposal rates reported by disposal facilities, and program implementation efforts.

171 California Department of Resources Recycling and Recovery, Recology Hayward Landfill (48-AA-0002), 2019, *https://www2.calrecycle.ca.gov/swfacilities/directory/48-AA-0002*, accessed January 21, 2019.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would not create significant additional solid waste generation compared to the proposed project and would comply with applicable waste management and reduction statutes and regulations related to solid waste. Therefore, impacts related to sufficient landfill capacity and compliance with applicable statutes and regulations related to solid waste would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-UT-1 The proposed project or variant, in combination with cumulative projects, would result in less-than-significant cumulative impacts on utilities and service systems. (Less than Significant)

PROPOSED PROJECT

Future development in San Francisco would increase demand for utilities, including wastewater and stormwater treatment and disposal, water supply, and solid waste disposal. In terms of cumulative impacts, appropriate service providers are responsible for ensuring adequate provision of utilities within their service boundaries. Wastewater, stormwater, and water services would be provided by the SFPUC, and solid waste collection and disposal services would be provided by Recology. The following discussion analyzes the cumulative impacts on these service providers from implementation of the proposed project and cumulative projects in their respective service areas.

Wastewater and Stormwater

The Southeast Treatment Plant provides wastewater and stormwater treatment and management for the eastern portion of the city, including the project site. As part of the SSIP, the Southeast Treatment Plant is undergoing operational improvements and seismic upgrades to ensure the reliability of the sewer system.[172]

As with the proposed project, cumulative projects served by the Southeast Treatment Plant would be required to comply with all San Francisco regulations regarding wastewater and stormwater generation. Although each cumulative project would result in increased wastewater flows, most would be required to incorporate the SFPUC's Stormwater Management Requirements and Design Guidelines. Compliance, or modified compliance, with these guidelines would ensure that stormwater generated by the proposed project as well as the cumulative projects is managed onsite so that the cumulative projects in the eastern portion of the city would not substantially contribute additional volumes of polluted runoff to the city's existing combined stormwater and wastewater infrastructure. As a result, the proposed project combined with cumulative projects would not result in a cumulative impact related to the need for new sewer systems or expansion of the existing sewer system due to cumulative wastewater and stormwater flows. Therefore, the proposed project, in combination with cumulative projects, would have a less-than-significant cumulative impact on the combined sewer collection and treatment system, and no mitigation measures would be required. This topic will not be addressed in the EIR.

[172] SFPUC, San Francisco's Wastewater Treatment Facilities, June 2014, *http://sfwater.org/modules/showdocument.aspx?documentid=5799*, accessed January 23, 2019.

Water Supply

As described above in Impact UT-3, the SFPUC approved and adopted a water supply assessment for the proposed project. The water supply assessment is a cumulative analysis of the project's water supply demand within the context of the city's overall cumulative water demand through 2040, based on current water supply planning. The SFPUC's approval of the water supply assessment for the proposed project indicates that the proposed project would not make a considerable contribution to a cumulative impact on water supply, the impact would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Solid Waste

Although the cumulative development projects, in combination with the proposed project, would incrementally increase total waste generation from the city, it is anticipated that the increasing rate of diversion citywide through recycling, composting, and other methods would result in a decreasing share of total waste requiring landfill disposal. Cumulative development throughout the city would be subject to the same recycling and composting requirements, and the same construction demolition and debris ordinances that are applicable to the proposed project.

As discussed in Impact UT-5, the Recology Hay Road Landfill has a maximum permitted throughput of 2,400 tons per day, a remaining capacity of approximately 30.4 million cubic yards, and an expected closure date of 2077.[173] The Recology Hay Road Landfill has sufficient landfill capacity to accommodate solid-waste disposal needs for the proposed project and cumulative projects.

Given the city's progress to date on diversion and waste reduction and given the future long-term capacity available at the Recology Hay Road Landfill, the proposed project, in combination with cumulative projects, would have less-than-significant cumulative impacts related to solid waste, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have utilities and service system impacts similar to those of the proposed project. The expanded streetscape variant, in combination with cumulative projects, would have less-than-significant cumulative impacts related to stormwater, wastewater, water supply, and solid waste, and no mitigation measures would be required. This topic will not be addressed in the EIR.

[173] California Department of Resources Recycling and Recovery, Recology Hayward Landfill (48-AA-0002), 2019, *https://www2.calrecycle.ca.gov/swfacilities/directory/48-AA-0002*, accessed January 21, 2019.

E.13. Public Services

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services such as fire protection, police protection, schools, parks, or other public facilities?	☐	☐	☒	☐	☐

Impact PS-1 **The proposed project or variant would not result in an increase in demand for police protection, fire protection, schools, or other services to an extent that would require new or physically altered fire, police, school, or other public facilities, the construction of which could result in significant environmental impacts. (Less than Significant)**

PROPOSED PROJECT

Fire Protection

The San Francisco Fire Department (fire department) provides fire protection and emergency medical services in San Francisco, including the project site. The fire department consists of 45 active fire stations serving approximately 1.5 million people within San Francisco's 49 square miles. The fire department provides fire suppression and unified emergency medical services, including basic life support and advanced life support services. The closest fire station is Station 9 at 2245 Jerrold Avenue, approximately 0.3 mile northwest of the project site.

The fire department responds to non-life-threatening fire and medical emergencies (code 2) as well as life-threatening fire and medical emergencies (code 3). Response times are measured from the time a unit is dispatched to the time the unit arrives at the scene. According to San Francisco's Emergency Medical Services Agency policy, the target response time for a life-threatening emergency medical incident is within 10 minutes 90 percent of the time. In fiscal year 2018–2019, there were 63,318 code 2 incidents and 86,603 code 3 incidents. Ambulances arrived on scene in response to code 3 calls within 10 minutes 91.4 percent of the time; ambulances arrived on scene in response to code 2 calls within 20 minutes 93.5 percent of the time during the fiscal year.[174] Therefore, in fiscal year 2018–2019, the fire department met its target response time for life-threatening fire and medical emergencies.

[174] City and County of San Francisco, *San Francisco Annual Performance Results for Fiscal Year 2018–19*, *https://sfcontroller.org/sites/default/files/Documents/Auditing/FY19%20Annual%20Performance%20Report%202019-12-10.pdf*, accessed August 14, 2020.

Construction

Construction activities would occur over 31 months. During this time, approximately 400 to 500 workers would be onsite daily; staffing levels would vary throughout the construction duration in accordance with seasons and onsite construction activities. Construction activities have the potential to result in accidental onsite fires from such sources as mechanical equipment and the use of flammable construction materials. However, the proposed project would comply with Occupational Safety and Health Administration and fire and building code requirements; and construction managers and personnel would be trained in emergency response and fire safety operations, which include the monitoring and management of life safety systems and facilities. Additionally, fire suppression equipment (e.g., fire extinguishers) would be maintained onsite throughout the construction duration. Furthermore, construction would comply with all applicable federal, state, and local requirements concerning the handling, disposal, use, storage, and management of hazardous waste (refer to Section E.17, Hazards and Hazardous Materials). Therefore, the likelihood of accidents involving construction personnel and equipment and the need for fire department aid would be reduced and would not increase the demand for fire suppression or emergency response during the temporary construction period; new or altered fire stations would not be necessary to maintain response times.

During construction of the proposed project, road or sidewalk detours may occur but would not require new governmental facilities to be built. Because the project would adhere to applicable federal, state, and local requirements for onsite health and safety and emergency response, the impact of the proposed project on fire protection services that could result in physical environmental effects would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Operation

The proposed project would increase the demand for fire protection and emergency medical services, due to the increase in the number of employees in the area. There would be a net increase of approximately 1,242 employees onsite on a typical day. Although the proposed project would likely increase the number of calls received from the area, the increase in responsibilities would not result in the need for the construction of new or altered fire stations that could then result in physical environmental impacts. According to the fire department, existing stations around the project site would provide adequate fire protection.[175] In the case of a larger event, other stations in addition to Station 9 could be called upon for support.[176] Furthermore, the proposed project would be required to comply with applicable building and fire code requirements, including the California Fire Code, which establishes requirements for fire protection systems, such as providing state-mandated fire alarms, fire extinguishers, appropriate building access and egress, and emergency response notification systems. The project sponsor would also comply with the requirements pertaining to the water volume and pressure needed for fire suppression onsite. Compliance with all applicable building and fire codes would further reduce the demand for fire department service and oversight.

[175] Velo, Jose, Deputy Chief of Administration, San Francisco Fire Department, email correspondence between Jose Velo and Stephanie Osby (AECOM), August 23, 2019.

[176] Velo, Jose, Deputy Chief of Administration, San Francisco Fire Department, email correspondence between Jose Velo and Stephanie Osby (AECOM), August 23, 2019.

For these reasons, the impact of the proposed project on fire protection services that could result in physical environmental impacts would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Police Protection

The San Francisco Police Department (police department) provides police protection services to the project site. There are 10 district stations; the project site is in the Bayview Station jurisdiction.[177] During 2014, the Department averaged 1,691 total full-duty sworn officers.[178] In 2015, the board of supervisors passed resolution number 248-15, which increased the mandated minimum staffing level to 2,200 sworn officers.[179] As of March 2020, the police department had approximately 2,167 full-time sworn officers on duty.[180]

The police department does not have a standard for the ratio of officers to the population; rather, it bases its staffing levels on the number of service calls and crime incidents. The police department's annual statistics for 2017 demonstrate a 3.4 percent decrease in homicides and a 5 percent decrease in homicides by firearm compared to the previous year. In the same report, nonfatal shooting incidents were reported to have decreased by 15.8 percent; however, property crimes in San Francisco increased. Additionally, automobile thefts in San Francisco increased by 24 percent compared to the previous year.[181]

Construction

The proposed project could result in a small increase in demand for police protection services. Construction sites can attract theft and vandalism if not properly secured.[182] Security measures such as security fencing, lighting, and locked entry could be used to prevent theft and vandalism. Although the proposed project could increase the number of calls received from the area, the increase in responsibilities would not be substantial in light of the existing demand for police protection services. Construction of the proposed project would be temporary, for a 31-month construction period, and would not require new or physically altered police facilities that could cause significant environmental impacts. Hence, the proposed project would have a less-than-significant impact related to the provision of police services, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Operation

Project operation would result in an increase of police services due to an increase of employees onsite per day. The project site would be occupied by an average of up to 1,980 employees per day, which is a net increase of approximately 1,242 employees compared to existing conditions. Typical police protection services such as responses to reported crimes, traffic enforcement, and trespassing/vandalism prevention would be required, similar to other PDR uses. Although the site would be used more intensively, which typically is associated with a greater number of calls for service, the increase in employees, lighting, street

177 San Francisco Police Department, City and County of San Francisco Streets and Police Districts 2015, prepared by San Francisco Police Department's Crime Analysis Unit, July 9, 2015.

178 San Francisco Police Department, San Francisco Police Department 2014 Annual Report. *https://www.dropbox.com/s/mpfjb7eoy54vsrb/2014%20Annual%20Report.pdf?dl=0*, accessed December 12, 2018.

179 San Francisco Board of Supervisors, Resolution No. 248-15, Establishing a Population-Based Police Staffing Policy, June 23, 2015, *http://sfbos.org/ftp/uploadedfiles/bdsupvrs/resolutions15/r0248-15.pdf*, accessed December 12, 2018.

180 Commission on Peace Officer Standards and Training, Current Employed Full-Time Sworn, Reserve & Dispatcher Personnel All Post Participating Agencies, *https://post.ca.gov/Portals/0/post_docs/hiring/le-employment-stats.pdf*, accessed May 1, 2020.

181 City and County of San Francisco, City Performance Scorecards, Violent Crime Rate and Property Crime Rate, *https://sfgov.org/scorecards/public-safety/violent-crime-rate-and-property-crime-rate*, accessed December 12, 2018.

182 Berg, Robert, and Jimme Hinze. Theft and Vandalism on Construction Sites, Journal of Construction Engineering and Management, Vol. 131, Issue 7, July 2005.

improvements, and hours of operation can serve to deter crime in the area because of the increased informal surveillance. The Bayview District would be able to provide the necessary police services and crime prevention in the area. Operation of the proposed project would not require the construction of new or physically altered police facilities that could result in a physical environmental impact in order to maintain acceptable service ratios, response times, or other performance objectives for police services. Therefore, the proposed project would have a less-than-significant impact related to the provision of police services, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Schools

The San Francisco Unified School District provides public primary and secondary education throughout the city. The proposed project would not involve the construction of residential units that would in and of itself generate new students. The approximately 1,242 additional employees at the project site are likely to be residents of San Francisco or the Bay Area. Therefore, it is expected that the majority of school-aged children associated with new employees would be part of the existing enrollment at the San Francisco Unified School District or other school districts. Any new enrollment of school-aged children is expected to be small, and the San Francisco Unified School District would be able to accommodate these additional students. The school district manages enrollment at its schools on a district-wide basis so students can be assigned to schools with available capacity.[183] Therefore, the proposed project would have a less-than-significant impact on school capacity and would not require new or altered school facilities the construction of which could result in physical environmental impacts. No mitigation measures would be required. This topic will not be addressed in the EIR.

Other Government Services

The proposed project is not expected to result in a change in demand for government services, including libraries, post offices, and other public facilities. These are community facilities that people typically visit near their residences, rather than where they work. No such government services exist in the immediate project vicinity; the distance from the project site to the nearest public library (Bayview Linda Brooks-Burton Branch Library) is approximately 1 mile, to the nearest post office is approximately 0.6 mile, and to the nearest community facilities (Southeast Community Facility and Bayview Hunter's Point YMCA) is between 0.5 mile and 1.1 miles. Given the distance of these services from the project site and because the number of employees who might use these services is expected to be small, the project would not create a demand for government services that would result in the need to construct or alter existing facilities that could result in physical environmental impacts. Therefore, the proposed project would have a less-than-significant impact on other government services, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the expanded streetscape variant would have the same public services impacts as the proposed project and would not result in an increase in demand for police protection, fire protection, schools, or other services to an extent that would require new or physically

[183] San Francisco Public School District, Enrollment Guide 2019-2020, *http://www.sfusd.edu/en/assets/sfusd-staff/enroll/files/2019-20/2019-20_enrollment_guide_ENG_FINAL_web.pdf*, accessed August 20, 2019.

altered fire, police, school, or other public facilities, the construction of which could result in significant environmental impacts. This impact would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-PS The proposed project or variant would have a less-than-significant cumulative impact on public services. (Less Than Significant)

PROPOSED PROJECT

The geographic context for cumulative fire, police, and library impacts are the police, fire, and library service areas, and the geographic context for cumulative school impacts is the school district. Cumulative projects in the service areas for each of these public services, in combination with the proposed project, would increase the number of employees and residents in the area, leading to an increase in demand for public services, including fire and police protection. These essential city service providers continually assess demand, based on anticipated growth and service needs. By analyzing the applicable metrics, these agencies and services are able to adjust staffing, capacity, response times, and other measures of performance. As a result, the cumulative projects would not result in any service gap in fire, police, schools, library, or other governmental services. Therefore, the proposed project, in combination with cumulative projects, would have less-than-significant cumulative public services impacts, and no mitigation measures are required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, employment, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Similar to the proposed project, cumulative projects in the service areas for each of the public services above, in combination with the expanded streetscape variant, would increase the number of employees and residents in the area, leading to an increase in demand for public services, including fire and police protection. These essential city service providers continually assess demand, based on anticipated growth and service needs. Therefore, the expanded streetscape variant, in combination with cumulative projects, would have less-than-significant cumulative public services impacts, and no mitigation measures are required. This topic will not be addressed in the EIR.

E.14. Biological Resources

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

The project site is in a developed urban area completely covered by impervious surfaces, with no natural land cover. The project site does not support riparian habitat or other sensitive natural communities,[184] as defined by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service. The project site boundary is approximately 0.5 mile from the nearest water body,[185] the Islais Creek Channel, a classified estuarine system that connects to San Francisco Bay. Because it would be physically separated from riparian and aquatic communities in the bay by surrounding urban development, the proposed project and expanded streetscape variant would not involve any changes to riparian habitat or other sensitive natural communities. Therefore, topic 14 (b) is not applicable to the proposed project or expanded streetscape variant. In addition,

[184] California Department of Fish and Wildlife, Natural Communities List, 2018, *https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline*, accessed December 19, 2018.

[185] U.S. Fish and Wildlife Service, National Wetlands Inventory, 2018, updated June 25, 2018, *https://www.fws.gov/wetlands/Data/Mapper.html*, accessed December 19, 2018.

the project site and vicinity does not contain wetlands,[186] as defined by section 404 of the Clean Water Act; therefore, topic 14 (c) is not applicable to the proposed project or expanded streetscape variant. The project site is not within the jurisdiction of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; therefore, topic 14 (f) is not applicable to the proposed project or expanded streetscape variant.

Impact BI-1 **The proposed project or variant would not have a substantial adverse effect, either directly or indirectly through habitat modifications, on species or their habitat identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant)**

PROPOSED PROJECT

Wildlife species are protected under the federal Endangered Species Act, the Migratory Bird Treaty Act, the California Endangered Species Act, and regulations concerning California Species of Special Concern. Qualified biologists reviewed the California Natural Diversity Database,[187] California Native Plant Society,[188] and United States Fish and Wildlife Service Information for Planning and Conservation[189] occurrences of special-status plant and wildlife species in the city, focusing on occurrences within 2 miles of the project site. The likelihood of special-status species to occur in the vicinity of the project site is based on known species occurrences and natural history parameters, including the species' range, habitat, foraging needs, migration routes, and reproductive requirements.

Nesting birds, their nests, and their eggs are fully protected by California Fish and Game Code, sections 3503 and 3503.5, and the federal Migratory Bird Treaty Act. The lack of natural nesting habitats in urban areas tends to result in resident and migratory birds nesting in ornamental and/or street trees[190] and on structures. Because of existing development on the project site, the lack of natural habitat in the project site, and existing development between the project site and the nearest natural habitat, no candidate, sensitive, or special-status plant or wildlife species are anticipated to occur on the site. The nearest natural habitats are the Islais Creek Channel, approximately 0.5 mile from the project site; and Heron's Head Park, approximately 1.3 miles east of the project site.

Although the project site does not contain any natural habitat, some avian species may use buildings for nesting habitat. American Peregrine falcon (*Falco peregrine anatum)* is a Fully Protected species under the California Fish and Game Code, section 3511, that is found in urban areas and may use tall buildings and bridges for resting and breeding sites. There are two documented occurrences of American peregrine falcon within 2 miles of the project site.[191] Although suitable nesting habitat (i.e., tall buildings) is present near the project site, nesting is unlikely because the project site does not contain suitable nesting habitat and is

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186 U.S. Fish and Wildlife Service, National Wetland Inventory, 2018, updated June 25, 2018, *https://www.fws.gov/wetlands/*, accessed January 18, 2018.

187 California Department of Fish and Wildlife, CNDDB RareFind records search of San Francisco North U.S. Geological Survey 7.5-minute quadrangles, RareFind Version 5, 2018, *https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data*, accessed December 19, 2018.

188 California Native Plant Society, Online Inventory of Rare and Endangered Plants of California, 2018, *http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi/Html?item=checkbox_9.htm*, accessed December 19, 2018.

189 U.S. Fish and Wildlife Service, List of Endangered and Threatened Species that May Occur in the Proposed Project Location and/or May Be Affected by the Proposed Project, 2018, *https://ecos.fws.gov/ipac/*, accessed December 19, 2018.

190 Public Works Code article 16, Urban Forestry Ordinance, section 802, defines a street tree as any tree growing in the public right-of-way, including unimproved public streets and sidewalks, and any tree growing on land under the jurisdiction of Public Works.

191 California Department of Fish and Wildlife, CNDDB RareFind records search of San Francisco North U.S. Geological Survey 7.5-minute quadrangles, RareFind Version 5, 2018, *https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data*, accessed December 19, 2018.

surrounded by urban development. This species prefers more remote areas with multiple foraging habitats. Foraging habitat (open air space) for avian prey is approximately 1.3 miles east of the project site at Heron's Head Park. Due to the distance from the project site, foraging habitat at Heron's Head Park would not be affected by project construction activities. The immediate project vicinity is currently noisy, with noise from traffic on I-280 and from residential and industrial activities. Therefore, potential impacts of the proposed project on the American peregrine falcon would be less than significant.

The project site does not contain any trees, having instead only a small amount of ornamental, nonnative vegetation and no open space. Structures on the project site could, however, support a variety of other non-tree nesting resident and migratory birds, including cliff swallow (*Petrochelidon pyrrhonota*), black phoebe (*Sayornis nigricans*), and house finch (*Haemorhous mexicanus*). Native bird species are protected by both state (California Fish and Game Code, sections 3503 and 3513) and federal (Migratory Bird Treaty Act of 1918) laws. Given the high noise levels at the project site, though, it is unlikely that resident and migratory birds would use the existing structures for nesting, if project construction occurs during the nesting season (January 15 through August 15). Even if present, these bird species would be protected, because removal of existing structures and other construction activities would be required to comply with the California Fish and Game Code and federal Migratory Bird Treaty Act. These laws protect species from the destruction of active nests. Therefore, impacts of construction activities on resident and migratory birds would be less than significant. No mitigation is required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, building heights massing, and design, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have the same biological habitat impacts as the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed and additional street trees would be planted; such disturbances would extend approximately 3 feet below the ground surface. These additional modifications to the streetscape would not introduce new structures or alter natural habitat that could adversely affect nesting resident and migratory birds. Therefore, the expanded streetscape variant would have a less-than-significant impact on sensitive biological species or their habitats, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact BI-2 The proposed project or variant would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)

PROPOSED PROJECT

The project site and surrounding area are covered entirely with impervious surfaces (buildings and pavement) and do not include riparian habitat or other sensitive natural communities as defined by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service. The project site does not contain wildlife nursery sites, fish habitat, or urban bird refuges and lacks natural features associated with wildlife corridors.

The project site is, however, within the Pacific Flyway, a north/south-oriented path stretching from Alaska to Patagonia, along which many species of birds migrate as they travel between breeding and overwintering locations. Glass windows are often not readily obvious to birds because of visually disorienting lights; bird strikes against such windows contribute substantially to avian mortality in urban areas, estimated to

account for as much as 1 to 5 percent of all bird deaths annually.[192] Bird strikes are exacerbated by artificial nocturnal lighting emanating from large buildings, a particular danger for nocturnal migrants and migrating songbirds.[193] The city has adopted guidelines to address this issue and has provided regulations for bird-safe design in planning code section 139, Standards for Bird-Safe Buildings, which establishes building design standards to reduce avian mortality rates associated with bird strikes.[194] The project site is not in or within 300 feet of an urban bird refuge, so the standards concerning location-related hazards are not applicable to the proposed project.[195] Although not in or near an urban bird refuge, the project is required to comply with the hazard-related standards for buildings in section 139. Therefore, with implementation of the regulations to address hazard-related building features as described in planning code section 139, the impact of the proposed project related to interference with the movement of migratory birds would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, building heights, massing, design, lighting, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have same impacts on birds as the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed and additional street trees would be planted; such disturbances would extend approximately 3 feet below the ground surface. These additional modifications to the streetscape would not introduce new structures or light or glare sources that could adversely affect migratory birds. Therefore, the expanded streetscape variant would have a less-than-significant impact on wildlife migration, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact BI-3 The proposed project or variant would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (No Impact)

PROPOSED PROJECT

The city's Urban Forestry Ordinance (Public Works Code section 801 et seq.) requires a permit from the San Francisco Public Works to remove any protected trees. Protected trees include landmark trees,[196] significant trees,[197] or street trees on private or public property anywhere within city limits. There are no existing trees along Rankin Street, Kirkwood Avenue, Toland Street, and McKinnon Avenue bordering the project site. Because there are no existing trees onsite, the proposed project would not remove any trees that would be protected by the Urban Forestry Ordinance.

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192 San Francisco Planning Department, Standards for Bird-Safe Buildings, adopted July 14, 2011, *http://sf-planning.org/standards-bird-safe-buildings*, accessed August 26, 2019.

193 Ogden, L.E., Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds, Special Report for the World Wildlife Fund and the Fatal Light Awareness Program, September 1996, *http://default.sfplanning.org/publications_reports/bird_safe_bldgs/Ogden_Collision_Course_Lighted_structures-1996.pdf*, accessed August 26, 2019.

194 San Francisco Planning Department, Standards for Bird-Safe Buildings, adopted July 14, 2011, *http://sf-planning.org/standards-bird-safe-buildings*, accessed August 26, 2019.

195 San Francisco Planning Department, Urban Bird Refuge Data Viewer, 2011, *https://data.sfgov.org/Energy-and-Environment/Urban-Bird-Refuge/v8rh-bhzp/data*, accessed December 19, 2018.

196 Landmark trees are designated by the board of supervisors for their environmental, cultural, historical, botanical, or other importance. The landmarking process requires extensive assessment by the Urban Forestry Council, based on a set of specific criteria. These trees can be on public or private land.

197 Significant trees are trees of any species within 10 feet of the public right-of-way that are 12 inches in diameter, have a canopy spread of 15 feet, or are 20 feet tall.

Public Works Code section 806(d)(2) requires that one 24-inch box tree be planted for every 20 feet of property frontage along each street, with any remaining fraction of 10 feet or more of frontage requiring an additional tree. Public Works Code section 806(d)(4) includes a provision that the director of public works may waive street tree requirements under extenuating circumstances. However, for each required street tree the public works director waives, the project sponsor must pay an in-lieu fee to fulfill all or a portion of the street tree requirement or provide alternative landscaping comparable to or greater than the number of street trees waived. The proposed project would be required to comply with the applicable San Francisco Public Works code for street tree planting. Therefore, the proposed project would have no impact regarding conflicts with local policies or ordinances protecting trees, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, building heights, massing, design, lighting, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would include a slightly larger footprint, which would involve planting approximately 108 additional street trees in accordance with the applicable San Francisco Public Works code for street tree planting. With compliance with these regulations, the expanded streetscape variant, similar to the proposed project, would have no impact regarding conflicts with local policies or ordinances protecting trees, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-BI-1 The proposed project or variant in combination with cumulative projects would not result in cumulative impacts to biological resources. (Less than Significant)

PROPOSED PROJECT

The project site and the surrounding area do not contain habitat that supports any candidate, sensitive, or special-status species; does not include riparian habitat or other sensitive natural communities as defined by the California Department of Fish and Wildlife and United States Fish and Wildlife Service; does not contain any wetlands as defined by section 404 of the Clean Water Act; and does not fall within any local, regional, or state habitat conservation plans. Therefore, the project would not have the potential to contribute to cumulative impacts on these biological resources and conservation plans. Additionally, the proposed project would have no impact related to conflicts with local policies or ordinances protecting biological resources, such as the Urban Forestry Ordinance; therefore, the proposed project would not have the potential to combine with impacts of cumulative projects to result in a significant impact related to this topic.

Cumulative projects within 0.25 mile of the project site are discussed above under Section B, Cumulative Setting (pp. 43 through 46). The cumulative projects contain onsite or street trees and structures that could provide habitat for birds protected under California Fish and Game Code sections 3503 and 3513 and the Migratory Bird Treaty Act. Like the proposed project, the cumulative projects would be subject to compliance with the California Fish and Game Code sections 3503 and 3513 and Migratory Bird Treaty Act. In addition, the cumulative projects that would include the construction of new buildings, or building additions that could create a bird-strike hazard. These projects would be subject to the requirements of planning code section 139, Standards for Bird-Safe Buildings. Collectively, these requirements would ensure that cumulative impacts on resident and migratory birds would be less than significant. No mitigation measures are required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, building heights, massing, design, lighting, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The larger footprint encompasses paved areas with no natural habitat or existing street trees. Therefore, the proposed expanded streetscape variant would have the same biological impacts as the proposed project. For the same reasons cited for the proposed project, the expanded streetscape variant, in combination with cumulative projects, would have less-than-significant cumulative biological impacts, and no mitigation measures are required. This topic will not be addressed in the EIR.

E.15. Geology and Soils

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

The proposed project and expanded streetscape variant would connect to the combined municipal sewer system, which is the conveyance system for wastewater in San Francisco, and would not use septic tanks or alternative wastewater disposal systems. Therefore, topic 15 (e) is not applicable to the proposed project or expanded streetscape variant.

There are no unique geologic features at the project site. Therefore, this portion of topic 15(f) is not applicable to the proposed project or expanded streetscape variant.

The information in this section is based on the 2015 Preliminary Geotechnical Investigation prepared for the proposed project.[198] The scope of the geotechnical investigation included reviewing and analyzing the subsurface conditions regarding soil and groundwater at the project site. The preliminary geotechnical investigation's conclusions and recommendations are based on available geotechnical data from the surrounding area and on limited field investigations, which included four cone penetration tests on the project site to maximum depths of 35 to 60 feet below ground surface.

Environmental Setting

SEISMICITY AND SOILS

The project site is relatively flat, with elevations ranging from approximately 15 to 18 feet above sea level. As detailed in the geotechnical investigation, the project site is at the northern end of the bay peninsula. Locally, the site is mapped as being covered with artificial fill overlaying tidal flat alluvial material. The Islais Creek channel, which has been in-filled, previously ran through the middle portion of the site. Estimated depth to bedrock, based on available maps, is likely between 100 and 200 feet below sea level.

Below the surface pavements, the preliminary geotechnical investigation cone penetration tests at the northwestern end of the site generally encountered loose to very dense sands with variable amounts of silt and clay down to a depth of approximately 20.5 to 15 feet below existing grades. Cornerstone Earth Group (Cornerstone) determined that these sandy soils may be fill. These sands were underlain by primarily medium stiff to stiff clays with variable amounts of silt and sands down to approximately 44 feet to 53 feet. Some thin, interbedded sand layers were encountered in the clays. The cone penetration tests at the southeastern end of the site generally encountered loose to very dense sands with variable amounts of silt and clay down to a depth of approximately 14.5 to 12 feet below existing grades. Cornerstone determined that the sandy soils may be fill. Below the sands, primarily medium stiff to stiff clays were encountered to a depth of approximately 24 to 17 feet. The clays were underlain by medium dense to very dense sands with variable amounts of silt and clay down to a depth of approximately 40 to 34.5 feet.

Groundwater was inferred by cone penetration test measurements at depths of approximately 3 to 6 feet below existing grades. Historic high groundwater level is mapped at a depth of less than 10 feet below current grades, and the Cornerstone used a design groundwater depth of 3 feet for the preliminary liquefaction evaluation. The site is in a state-designated liquefaction hazard zone.

The proposed project would involve excavation of approximately 140,600 cubic yards of soil. The proposed project's foundation design would involve concrete spread footings and/or grade beams set on improved and engineered soil, with excavation for the foundations likely to extend 10 feet below existing grade. Typical foundation excavation is expected to extend to 7 feet below grade, with elevator pits and utility trenching extending to 10 feet below existing grade. In addition, it is anticipated that pile foundations would be necessary to support the buildings. Approximately 7,000 25-foot-deep stone columns and approximately 900 60-foot-deep auger-cast piles would be used for the entire site. Each of the auger cast piles would be extended approximately 60 feet below ground surface. Soil improvement would be necessary to support the

[198] Cornerstone Earth Group, geotechnical investigation.

buildings. Ground improvements, such as extended piles, stone columns, drill displacement columns, geopiers,[199] soil-cement mixing, or other similar methods, would provide vertical support through the existing soils to strengthen the undocumented fill that underlies the project site.

GEOLOGIC FORMATIONS AND ASSOCIATED PALEONTOLOGICAL RESOURCES

Paleontological resources are the fossilized evidence of past life found in the geologic record. Fossils are preserved in sedimentary rocks, which are the most abundant rock type exposed at the surface of the earth. Despite the abundance of these rocks, and the vast numbers of organisms that have lived through time, preservation of plant or animal remains as fossils can be a rare occurrence. In many cases, fossils of animals and plants occur only in limited areas and in small numbers relative to the distribution of the living organisms they represent. Fossils of vertebrates—animals with backbones—are sufficiently rare to be considered nonrenewable resources.

The project site is on the northeastern side of the San Francisco Peninsula. San Francisco is primarily underlain by Franciscan Complex bedrock, Merced Formation, Colma Formation, and surficial deposits such as dune sand and artificial fill. The surficial sedimentary deposits found in the city are primarily Holocene-age artificial fill; Holocene- and Pleistocene-age dune sand, Bay Mud, slope debris, and ravine fill; and undifferentiated Quaternary (i.e., Holocene- or Pleistocene-age) sedimentary deposits.

The project site is a former creek bank on an infilled portion of Islais Creek and its estuary, and is mapped as Holocene-age artificial fill overlaying tidal flat alluvial material.[200] The surface of the project site is completely covered with pavement and buildings. The presence of artificial fill was verified, and geologic formations beneath the artificial fill were determined, based on the results of tests performed by Cornerstone as part of the site-specific geotechnical report. Cornerstone performed four cone penetration tests at each corner of the project site to depths ranging from 35 to 53 feet below the ground surface.[201] These test results indicate that the project site is underlain by artificial fill, Bay Mud, and the Colma Formation, which are discussed in further detail below.

Artificial Fill

In the mid-twentieth century, fill material was imported and the project site and vicinity were reclaimed from marshland for purposes of urban development.[202] Cornerstone encountered artificial fill consisting of sandy materials with varying amounts of silt and clay immediately below the ground surface, to depths ranging from 12 to 20 feet.[203]

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199 "Geopier" is an engineering term used to refer to stiff rock columns drilled deep into the earth's surface, down to a hard, nonyielding depth. Geopiers are used to support a building foundation and reinforce the soil when the existing ground is unstable, wet, or unsuitable for building construction.

200 Bonilla, M.G., *Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco Bay Area, California: A Digital Database*, U.S. Geological Survey Open-File Report 98-354. Menlo Park, California, 1998.

201 Cornerstone Earth Group, geotechnical investigation.

202 San Francisco Environmental Planning Department, Environmental Planning Preliminary Archeological Review, 2018.

203 Cornerstone Earth Group, geotechnical investigation.

Bay Mud

Cornerstone encountered primarily medium stiff to stiff clays with variable amounts of silt and sands beneath the artificial fill, at depths ranging from 17 to 24 feet and 44 to 53 feet (depending on location); these deposits comprise the Bay Mud.[204] Bay Mud consists of gray, soft, saturated clay and silt with organic material and some sand, that was deposited in the marshes and on the mudflats of San Francisco Bay. Lenses of sand, silt, and organic material (peat) are present within the mud. This geologic unit has been divided into two subunits: Young Bay Mud (Holocene age) and Old Bay Mud (Pleistocene age).

Colma Formation

Cornerstone encountered medium dense to very dense sands below the clay layers, at depths ranging from 34 to 40 feet and 44 to 48 feet (depending on location); these deposits comprise the Colma Formation.[205] The Pleistocene-age Colma Formation primarily consists of sandy deposits laid down between 80,000 and 120,000 years ago, during the last major interglacial period. The origins of the poorly consolidated Colma sands are unclear, but they appear to represent shallow bay-to-dune, and valley-fill debris deposits. The formation extends under San Francisco Bay and may be found as high as 500 feet above sea level.

PALEONTOLOGICAL RESOURCES SENSITIVITY CRITERIA

The city uses a Potential Fossil Yield Classification (PFYC) system as modified from the system developed and refined by the Bureau of Land Management[206] as the basis for its paleontological potential designations. The PFYC system is a predictive resource-management tool founded on two basic facts of paleontology: that occurrences of paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them, and that the likelihood of the presence of fossils can be broadly predicted from the distribution of geologic units at or near the surface. The PFYC system is presented in Table 9.

PALEONTOLOGICAL RESOURCES SENSITIVITY ASSESSMENT

The results of a records search at the U.C. Berkeley Museum of Paleontology (UCMP) indicate that there are no recorded vertebrate fossil localities in the project site.[207] However, a vertebra from a Pleistocene-age aquatic mammal (UCMP locality V3410) was recovered from the vicinity of the Islais Creek Channel, approximately 0.5 mile northeast of the project site, in the same geologic formations that are mapped at the project site.[208] The paleontological sensitivity of each of the rock formations at the project site is presented in Table 10.

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204 Cornerstone Earth Group, geotechnical investigation.
205 Cornerstone Earth Group, geotechnical investigation.
206 Bureau of Land Management, Potential Fossil Yield Classification System for Paleontological Resources on Public Lands, 2016, *https://www.blm.gov/policy/im-2016-124*, accessed September 22, 2020.
207 U.C. Berkeley Museum of Paleontology, Paleontological Collections Database, 2022, *https://ucmpdb.berkeley.edu/about.shtml*, accessed January 28, 2022.
208 U.C. Berkeley Museum of Paleontology, Paleontological Collections Database, 2022, *https://ucmpdb.berkeley.edu/about.shtml*, accessed January 28, 2022.

Table 9 City of San Francisco Paleontological Sensitivity Criteria

Paleontological Potential Designation	Assignment Criteria Guidelines	Geologic Unit Classifications for City of San Francisco
Class 1 = Very Low Potential	Geologic units (Precambrian Age) are not likely to contain recognizable paleontological resources. Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash.	Igneous rocks (not generally encountered in San Francisco)
Class 2 = Low Potential	Geologic units (younger than 10,000 years before present, recent aeolian deposits) are not likely to contain paleontological resources. Fossil preservation unlikely.	Holocene-age surficial deposits and Franciscan Complex (encountered in San Francisco)
Class 3 = Moderate Potential	Sedimentary geologic units (Marine in origin) where fossil content varies in significance, abundance, and predictable occurrence. Scattered occurrences.	Pleistocene-age surficial deposits, Colma Formation, Merced Formation (encountered in San Francisco)
Class U = Unknown Potential	Geologic units that cannot receive an informed class assignment or have not been studied in detail; reports of finds are anecdotal and unverified.	Holocene- to Pleistocene-age surficial deposits (specific age not known)
	Little information about the actual paleontological resources of the unit or area is known.	
	There is no information on the age of the unit. As noted above, most units in San Francisco are identified as Class U.	

Source: City and County of San Francisco, 2022, Paleontological Resource Assessment and Mitigation Measures.

Table 10 Paleontological Sensitivity Assessment

Formation Name	Known Fossil Resources	Paleontological Sensitivity
Artificial Fill	Artificial fill consists of materials that were excavated from another location, transported to the project site, and then graded and compacted. During the excavation and subsequent construction process, any fossils that may have been present in the original materials were likely destroyed.	Low (Class 2)
Young Bay Mud	Holocene-age formations, such as Young Bay Mud, contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources.	Low (Class 2)
Old Bay Mud	Pleistocene-age sediments, some of which may be referable to Old Bay Mud, have yielded vertebrate fossils in the Bay Area.[209,210,211] Recently discovered Pleistocene vertebrate fossils near San Francisco Bay include Columbian mammoth (*Mammuthus columbi*), Harlan's ground sloth (*Paramylodon harlani*), horse (*Equus* sp.), Bison sp., and pronghorn antelope (*Capromeryx minor*), among other taxa.[212]	Moderate (Class 3)
Colma Formation	Identified fossils in the Colma Formation include mammoth, bison, and ground sloth remains from various locations in San Francisco. Diatoms, trees, and pollen have also been reported from the Colma Formation. A Columbian mammoth was reported at the Cliff House Beach.[213] Fossil elements from three different mammoths and a bison were reported from the Colma Formation at the southeastern base of Telegraph Hill.[214] In addition, a mammoth tooth was discovered in the Colma Formation during excavation for the Transbay Transit Center in downtown San Francisco in 2012.[215]	Moderate (Class 3)

Sources: Hay 1927, Jefferson 1991, Maguire and Holroyd 2016, Rodda and Baghai 1993, Savage 1951, SFGate 2012, Stirton 1939, UCMP 2022

209 Stirton, R.A., *Cenozoic Mammal Remains from the San Francisco Bay Region*, University of California Publications, Bulletin of the Department of Geological Sciences. Vol. 24, No. 13, pp. 339–41, 1939.

210 Savage, D.E., *Late Cenozoic Vertebrates of the San Francisco Bay Region*, University of California Publications, Bulletin of the Department of Geological Sciences. Vol. 28, No. 10, pp. 215–314, 1951.

211 Jefferson, G.T., *A Catalogue of Late Quaternary Vertebrates of California: Part Two, Mammals*, Natural History Museum of Los Angeles County. Technical Reports, No. 7. Los Angeles, California, 1991.

212 Maguire, K.C., and P.A. Holroyd, Pleistocene Vertebrates of Silicon Valley (Santa Clara County, California), *PaleoBios* 33:1–14, 2016.

213 Hay, O.P., *The Pleistocene of the Western Region of North America and its Vertebrated Animals*, Carnegie Institute of Washington. Publication No. 322B, 1927.

214 Rodda, P.U., and N. Baghai, Late Pleistocene Vertebrates from Downtown San Francisco, California*, Journal of Paleontology* 67(6), pp. 1058–1063, 1993.

215 SFGate, Mammoth Tooth Found at Transbay Dig, September 13, 2012, https://ww*w.sfgate.com/bayarea/article/Mammoth-tooth-found-at-Transbay-dig-3861381.php*.

Regulatory Setting

The following description of existing development regulations and standards provides the regulatory framework governing seismic, geotechnical, and soil hazards.

FEDERAL REGULATIONS TO ADDRESS SEISMIC HAZARDS

Earthquake Hazard Reduction Act of 1977. Federal laws codified in United States Code Title 42, chapter 86, were enacted to reduce risks to life and property from earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. Implementation of these requirements are regulated, monitored, and enforced at the state and local levels. Key regulations and standards applicable to the proposed project are summarized in the following paragraphs.

CALIFORNIA REGULATIONS TO ADDRESS SEISMIC HAZARDS

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Alquist-Priolo Act). The Alquist-Priolo Act (Public Resources Code section 2621 et seq.) is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location and construction of most types of structures intended for human occupancy[216] overactive fault traces and strictly regulates construction in the corridors along active faults (i.e., earthquake fault zones).

State Building Code Chapters 18 and 16. Chapter 18, Soils and Foundations, of the state building code provides the parameters for geotechnical investigations and structural considerations in the selection, design, and installation of foundation systems to support the loads from the structure above. Section 1803 (Geotechnical Investigations) sets forth the scope of geotechnical investigations conducted. Section 1804 (Excavation, Grading, and Fill) specifies considerations for excavation, grading, and fill to protect adjacent structures and to prevent destabilization of slopes due to erosion and/or drainage. In particular, Section 1804.1 (Excavation Near Foundations) requires that adjacent foundations be protected against a reduction in lateral support as a result of project excavation. This is typically accomplished by underpinning or protecting said adjacent foundations from detrimental lateral or vertical movement, or both. Section 1807 (Foundation Walls, Retaining Walls, and Embedded Posts and Poles) specifies requirements for foundation walls, retaining walls, and embedded posts and poles to ensure stability against overturning, sliding, excessive pressure, and water lift, including seismic considerations. Sections 1808 through 1810 (Foundations) specify requirements for foundation systems based on the most unfavorable loads specified in Chapter 16, Structural, for the structure's seismic design category, in combination with the soil classification at the project site. During its review of the building permit for a project, the building department reviews project plans for conformance with the recommendations in a project-specific geotechnical report and may require additional site-specific soils report(s) through the building permit application process.

State Seismic Hazards Mapping Act of 1990 (Landslide and Liquefaction Hazard Zones). Pursuant to the Seismic Hazards Mapping Act of 1990 (seismic hazards act), the California State Geologist has designated seismic hazard zones for landslide and liquefaction hazards. These mapped areas enable cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards in the interest of protecting public health and

[216] With reference to the Alquist-Priolo Act, a structure for human occupancy is defined as one "used or intended for supporting or sheltering any use or occupancy that is expected to have a human occupancy rate of more than 2,000 person-hours per year" (California Code of Regulations, Title 14, division 2, section 3601[e]).

safety.[217] Projects situated in a seismic hazard zone for liquefaction or landslide hazard are subject to the seismic hazards act requirements, which include a geotechnical investigation, performed by a qualified engineer and/or geologist, to delineate the area of hazard and to propose measures to address any identified hazards. The local building official must incorporate the recommended measures to address such hazards into the conditions of the building permit.

SAN FRANCISCO BUILDING CODES TO ADDRESS SEISMIC HAZARDS

Building Department Permit Review Process. San Francisco relies on the state and local regulatory review process for review and approval of building permits pursuant to the following:

- California Building Standards Code (California Code of Regulations, title 24)
- San Francisco Building Code (the state building code), plus local amendments (including administrative bulletins) that supplement the state code
- The building department's implementing procedures, including information sheets
- Seismic Hazards Mapping Act of 1990 (Public Resources Code sections 2690 through 2699.6)
- Administrative Bulletin No. AB-82, which provides guidelines and procedures for structural, geotechnical, and seismic hazard engineering design review[218]
- Information Sheet No. S-05, which identifies the type of work for which geotechnical reports are required, such as for new construction, building additions, and grading, and report submittal requirements[219]

Mandatory Interdepartmental Project Review. Projects that involve new construction of a building eight stories or more, new construction in a seismic hazard zone for liquefaction hazard, or new construction in a seismic hazard zone for landslide hazard are subject to a mandatory interdepartmental project review prior to a public hearing before the planning commission or the issuance of the new construction building permit. The interdepartmental review meeting must include representatives from the planning, building, public works, and fire departments to address compliance with applicable codes, and design and project construction considerations.[220]

San Francisco Public Works Code. Section 146, Construction Site Runoff Control, requires that all construction sites must implement best management practices to minimize surface runoff erosion and sedimentation. In addition, pursuant to section 146.7, if construction activities would disturb 5,000 square feet or more of ground surface, then the project sponsor must have an Erosion and Sediment Control Plan (erosion and sediment control plan) developed and submit a project application to the SFPUC prior to

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[217] In the context of the seismic hazards act, "mitigation" refers to measures that are consistent with established practice and that will reduce seismic risk to acceptable levels, rather than the mitigation measures that are identified under CEQA to reduce or avoid environmental impacts of a proposed project.

[218] San Francisco Department of Building Inspection, Administrative Bulletin No. AB-082, Guidelines and Procedures for Structural, Geotechnical, and Seismic Hazard Engineering Design Review, November 21, 2018, *https://sfdbi.org/administrative-bulletins*.

[219] San Francisco Department of Building Inspection, Information Sheet No. S-05, Geotechnical Report Requirements, May 7, 2019, *https://sfdbi.org/sites/default/files/IS%20S-05.pdf*.

[220] San Francisco Planning Department. Interdepartmental Project Review, *http://forms.sfplanning.org/ProjectReview_Application Interdepartmental.pdf.*

commencing construction-related activities. An erosion control plan is a site-specific plan that details the use, location, and emplacement of sediment and erosion control devices.

Impact Analysis

Impact GE-1 **The proposed project or variant would not directly or indirectly cause potential adverse effects related to the rupture of a known earthquake fault, strong seismic ground shaking, and seismic-related ground failure, including liquefaction, or landslides. (Less than Significant)**

PROPOSED PROJECT

Fault Rupture

The project area is outside the Alquist-Priolo Earthquake Fault Zone and no known active faults are present in the project area. The nearest active faults are the San Andreas Fault (6.8 miles from project site); the San Gregorio Fault (10.3 miles from site); and the Hayward Fault (11.6 miles from project site).[221] Given the distance of the project site from these faults, there is a low risk of surface rupture related to fault movement. Additionally, the geotechnical investigation stated that there is no evidence of surface expression of fault traces on the project site and concluded that the risk of fault rupture hazard is not significant.[222] Furthermore, the project would not increase the risk of fault rupture because it would not add a substantial load to any fault or introduce water, a lubricant, into a fault zone. Therefore, the potential for construction and operation of the proposed project to increase hazards related to the risk of loss, injury, or death involving fault rupture is less than significant. No mitigation measures would be required. This topic will not be addressed in the EIR.

Strong Seismic Ground Shaking

The San Francisco Bay Area is one of the most seismically active areas in the country. The U.S. Geological Survey estimates that there is a 72 percent chance of at least one magnitude 6.7 earthquake occurring in the San Francisco region within the next 30 years.[223] Given the distance of the San Andreas Fault, the San Gregorio Fault, and the Hayward Fault to the project site (approximately 7 to 12 miles), ground shaking could be experienced at the project site during moderate to severe earthquakes. Proposed structures must comply with the standards of the California Building Code Title 24, specifically chapter 16, structural design and chapter 18, soils and foundations, which set forth minimum requirements for building design and construction of public and private buildings relating to fire and life safety, structural safety, and access compliance.[224] Additionally, the proposed project would be required to comply with the San Francisco Building Codes, including administrative bulletins and the building department's implementing procedures.

Complete avoidance of any damage may not be feasible, but incorporation of industry-standard seismic design measures in accordance with current building codes would address the effects of strong seismic ground shaking. The project would not exacerbate the potential for seismic ground shaking, which is a

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221 California Department of Conservation, *Fault Activity Map of California*, 2010, *http://maps.conservation.ca.gov/cgs/fam/*, accessed December 17, 2018.

222 Cornerstone Earth Group, geotechnical investigation.

223 U.S. Geological Survey, *UCERF3: A New Earthquake Forecast for California's Complex Fault System*, 2015, *https://pubs.usgs.gov/fs/2015/3009/pdf/fs2015-3009.pdf*, accessed December 18, 2017.

224 Division of the State Architect, *Title 24 Overview*, 2018, *https://www.dgs.ca.gov/DSA/Resources/Page-Content/Resources-List-Folder/Overview-Title-24-Building-Standards-Code?search=title%2024%20overview*, accessed December 17, 2018.

function of the location of the epicenter, the size of the event, and the underlying geological formations, none of which would be affected by the proposed project. Furthermore, the building department would review the project's construction documents for conformance with recommendations in the site-specific, design-level geotechnical investigation to ensure compliance with state and local building code provisions related to structural design and safety. Therefore, construction or operation of the project would not be expected to increase strong seismic ground shaking that would result in risk of loss, injury, or death, and impacts would be less than significant. This topic will not be addressed in the EIR.

Seismic-Related Ground Failure, Including Liquefaction

Liquefaction is a transformation of soil from a solid to a liquefied state, during which saturated soil temporarily loses strength. This phenomenon results from the buildup of excess pore water pressure during earthquake-induced cyclic loading. Soils susceptible to liquefaction include loose to medium dense sand and gravel, low plasticity silt, and some low-plasticity clay deposits. According to the city's general plan and the state's Seismic Hazards Mapping Act of 1990, the project site is in a liquefaction hazard zone.[225],[226] The preliminary geotechnical investigation found that the project site is underlain by loose to very dense sands with variable amounts of silt and clay to a depth of approximately 12 to 20.5 feet below existing grades. Groundwater was measured at depths of about 3 to 6 feet below existing grades. The methods used to estimate liquefaction settlement assume that there is a sufficient cap of nonliquefiable material to prevent ground rupture or sand boils.[227]

The project could experience liquefaction and differential settlement if not constructed properly, and could expose people and structures to substantial adverse ground failure effects. However, in accordance with the provisions of the 2019 state building code and Special Publication 117A,[228] the preliminary geotechnical report for the proposed project provides recommendations to address these hazards, such as supporting the new buildings with shallow foundations with ground improvement measures extending 20 to 45 feet below existing grades; or supporting the new buildings with deep foundation systems, such as auger-cast or extended piles. Ground improvements would provide vertical support through the existing soils to reduce potential liquefaction impacts. Deep foundation systems would derive support from underlying stiff alluvial soils beneath the fill and underlying soft compressible clays and liquefiable soils. As described in Section A, Project Description, the proposed project would be supported on concrete spread footings and/or grade beams, on improved and engineered soil. Soil improvement would be accomplished using a combination of 7,000 25-foot-deep stone columns and 900 60-foot-deep auger-cast piles.[229] The building department permit review process ensures that the proposed project's structural and foundation plans would comply with applicable building code provisions and be in conformance with the measures recommended in the project-specific geotechnical reports and required by the building department's Administrative Bulletin AB-082.[230] Compliance with these requirements would ensure that the proposed project would not exacerbate the

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225 City and County of San Francisco, San Francisco General Plan, Community Safety Element, Map 4, *https://generalplan.sfplanning.org/Community_Safety_Element_2012.pdf*, accessed January 9, 2019.

226 California Department of Conservation, Seismic Hazards Mapping Act of 1990 GIS Data (liquefaction layer), viewer, *https://maps.conservation.ca.gov/cgs/DataViewer/*, accessed January 4, 2022.

227 Cornerstone Earth Group, geotechnical investigation.

228 California Geological Survey, Guidelines for Evaluating and Mitigating Seismic Hazards in California, 2008, *https://www.conservation.ca.gov/cgs/Documents/Program-SHP/SP_117a.pdf*, accessed January 9, 2019.

229 Since preparation of the geotechnical report, the project sponsor has advanced the project design with its engineers/project team so that this description of pile installation is more current and indicative of the project than the description in the geotechnical report.

230 City and County of San Francisco, Administrative Bulletin AB-082, Guidelines and Procedures for Structural, Geotechnical, and Seismic Hazard Engineering Design Review, 2018, *https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_building/0-0-0-95162*, accessed January 9, 2019.

potential for seismically related ground failure, including liquefaction and lateral spreading.[231] Therefore, this impact would be less than significant. This topic will not be addressed in the EIR.

Landslides

The topography around the project site is flat and does not include hills or cut slopes that could be subject to landslide. According to the city's general plan and the state's Seismic Hazards Mapping Act of 1990, the site is not in a designated landslide hazard zone.[232,233] Therefore, construction and operation of the proposed project would have no impact with respect to increasing the potential for landslides. Therefore, this topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, intensity, excavation and foundation work, and site plan as the proposed project, but would extend streetscape improvements for the entire cross section of the streets along the project perimeter to Better Streets standards. Similar to the proposed project, the expanded streetscape variant would not directly or indirectly cause potential adverse effects related to the rupture of a known earthquake fault, strong seismic ground shaking, and seismic-related ground failure, including liquefaction, or landslides. All of the applicable building codes and standards described for the proposed project would apply to the expanded streetscape variant. In addition, these streetscape improvements in the public right-of-way would be required to comply with city standards for such improvements. Compliance with city codes and standards would ensure that these hazards would not be exacerbated by the expanded streetscape variant; no mitigation measures would be required. Therefore, this topic will not be addressed in the EIR.

Impact GE-2 Construction and operation of the proposed project or variant would not result in substantial erosion or loss of topsoil. (Less than Significant)

PROPOSED PROJECT

San Francisco Public Works Code section 146, Construction Site Runoff Control, requires all construction sites to implement best management practices to minimize surface runoff erosion and sedimentation. In addition, pursuant to section 146.7 of the code, if construction activities disturb 5,000 square feet or more of ground surface, then the project sponsor must develop an erosion and sediment control plan and submit a project application to the SFPUC prior to commencing construction-related activities. An erosion control plan is a site-specific plan that details the use, location, and placement of sediment and erosion control devices.

The project site is generally flat and covered entirely with impervious surfaces. The proposed project would involve excavation of approximately 134,000 cubic yards of soil onsite to a maximum depth of approximately 10 feet below the existing grade at the site. Best management practices in the Stormwater Pollution Prevention Plan and Erosion Control Plan, pursuant to the state requirements and the city's code, respectively, would reduce potential impacts related to erosion and topsoil loss at the project site.

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231 When *lateral spreading* occurs, the ground tears, opening surface cracks and fissures across the slope.

232 City and County of San Francisco, San Francisco General Plan, Community Safety Element, Map 4, *https://generalplan.sfplanning.org/Community_Safety_Element_2012.pdf*, accessed December 18, 2019.

233 California Department of Conservation, Seismic Hazards Mapping Act of 1990 GIS Data (landslide layer), viewer, *https://maps.conservation.ca.gov/cgs/DataViewer/*, accessed January 4, 2022.

Additionally, the proposed project would not substantially change the general topography of the site because the project site is already generally flat, and there are no unique geologic or physical features at the project site.

Once constructed, the proposed project would continue to be covered entirely with impervious surfaces. As discussed in Impact UT-2, the proposed project would be required to comply with the San Francisco Stormwater Management Ordinance. This ordinance requires sites with more than 50 percent impervious surfaces (such as the project site) to be designed so that the stormwater runoff rate and volume do not exceed predevelopment conditions for the one- and two-year, 24-hour design storm.[234] As discussed in the Water Supply Assessment for this project, the project would request a modified compliance with the first submittal of the Stormwater Control Plan. The modified requirements would be a 40 percent reduction in the rate and a 10 percent reduction in the volume of runoff for the 2-year, 24-hour design storm.[235] To meet these modified requirements, the proposed project would include rainwater collection cisterns that would manage stormwater onsite and limit demand on both the collection system and wastewater facilities resulting from stormwater discharges. The requirements of the San Francisco Stormwater Management Ordinance would slow runoff from the site, further reducing erosion from existing site conditions. For these reasons, the project would not result in substantial erosion or loss of topsoil. The impact would be less than significant, and no mitigation is required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have erosion and top soil loss impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. All of the applicable building codes, regulations, and standards described for the proposed project would apply to the expanded streetscape variant and would ensure that construction of the expanded streetscape variant would not result in substantial erosion or loss of topsoil. The impact would be less than significant, and no mitigation is required. This topic will not be addressed in the EIR.

Impact GE-3 The project site is not located on a geologic unit or soil that is unstable, or that could become unstable as a result of the proposed project or variant. (Less than Significant)

PROPOSED PROJECT

As discussed under Impact GE-1 (landslides), the site is not in a designated landslide hazard zone. Additionally, there are no geologic units within a short distance of the project area that are considered susceptible to lateral spreading; therefore, the potential for lateral spreading to affect the site is low.[236] However, the project site is in a state-designated seismic hazard zone for liquefaction,[237] and the site is mapped as being tidal flat material overlain by artificial fill material. If not designed appropriately, construction on relatively loose materials or over materials of differing properties could be subject to

[234] SFPUC, San Francisco Stormwater Management Requirements and Design Guidelines, May 2016, *https://sfpuc.org/sites/default/files/documents/SMR_DesignGuide_May2016.pdf*, accessed January 23, 2019.
[235] SFPUC, *Water Supply Assessment for San Francisco Gateway Project*, adopted June 9, 2020, Resolution No. 20-0126.
[236] Cornerstone Earth Group, geotechnical investigation.
[237] City and County of San Francisco, *General Plan – Community Safety Element*, 2012.

subsidence or differential settlement. As described in Section A, Project Description, the proposed project's foundation is expected to be supported by 7,000 25-foot-deep stone columns and 900 60-foot-deep auger-cast piles designed to address future static or seismic settlement. The proposed project would be required to adhere to site preparation standards in accordance with the California building code requirements, which include site-specific design-level evaluation of underlying materials and their engineering characteristics. The structural engineering design construction documents would be reviewed by the building department for conformance with recommendations in the site-specific geotechnical investigation as part of the building permit review process.[238]

With implementation of industry standard engineering design measures in accordance with building code standards, the potential impacts associated with construction on unstable soils would be reduced, and hazards associated with unstable soils would not be exacerbated by the project. Therefore, the potential impact of project construction on unstable soils would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have geologic impacts similar to those of the proposed project but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, with implementation of industry standard engineering design measures in accordance with building code and public works standards, the potential impacts associated with construction on unstable soils would be reduced, and hazards associated with unstable soils would not be exacerbated by the expanded streetscape variant. Therefore, the potential impact of the expanded streetscape variant construction on unstable soils would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact GE-4 The proposed project or variant would not create substantial direct or indirect risks to life or property as a result of being located on expansive soil. (Less than Significant)

PROPOSED PROJECT

Expansive soils expand and contract in response to changes in soil moisture and are characterized by their ability to undergo significant volume change (i.e., to shrink and swell), particularly when near-surface soils fluctuate from saturated to low moisture-content conditions and back again. Expansive soils are typically very fine grained and have a high to very high percentage of clay. They can damage structures and buried utilities and increase maintenance requirements.

Underlying soils at the project site are generally loose to very dense sands with variable amounts of silt and clay, as described under Impact GE-1 (liquefaction). The site does not contain subsurface soils consisting of clays that have high expansive potential. Therefore, the project would not result in a substantial direct or indirect risk to life or property related to expansive soils. Additionally, compliance with building code

[238] Cornerstone Earth Group, geotechnical investigation.

requirements would ensure that potential impacts related to expansive soils would be less than significant. No mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have geologic impacts similar to those of the proposed project but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, the expanded streetscape variant would not result in a substantial direct or indirect risk to life or property related to expansive soils. Additionally, compliance with building code requirements and public works standards would ensure that potential impacts related to expansive soils would be less than significant. No mitigation measures would be required. This topic will not be addressed in the EIR.

Impact GE-5 The proposed project or variant could directly or indirectly destroy a unique paleontological resource. (Less than Significant with Mitigation)

PROPOSED PROJECT

As described above, rock formations at the project site consist of artificial fill, Bay Mud, and the Colma Formation. Because the artificial fill and Young Bay Mud are too young to contain unique paleontological resources, these formations are considered to be of low paleontological sensitivity (Class 2). Because a limited amount of unique paleontological resources in the form of vertebrate fossils have been recovered from Old Bay Mud and Colma Formation in San Francisco and the greater Bay Area region, these formations are considered to be of moderate paleontological sensitivity (Class 3). The proposed project includes construction of 25-foot-deep stone columns and installation of 60-foot-deep auger-cast piles, which would exceed 2 feet in diameter. Therefore, project-related excavation would encounter Old Bay Mud and the Colma Formation. Damage to or destruction of unique paleontological resources, which may be present in these formations, would represent a potentially significant impact.

To reduce potentially significant impacts on unique paleontological resources to a less-than-significant level, Mitigation Measure M-GE-5 would require the project sponsor to engage a qualified paleontologist to provide pre-construction worker environmental awareness training regarding potential paleontological resources and would require construction to be temporarily halted in the event of the inadvertent discovery of a paleontological resource during construction.

Mitigation Measure M-GE-5 Inadvertent Discovery of Paleontological Resources

Worker Environmental Awareness Training. Prior to commencing construction, the project sponsor shall engage a paleontologist meeting the standards of the Society of Vertebrate Paleontology[239] to conduct training for all onsite construction workers regarding paleontological resources and the

[239] Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010, *https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf*, accessed January 2022.

contents of the paleontological resources alert sheet, as provided by the planning department. The paleontological resources alert sheet shall be prominently displayed at the construction site during ground-disturbing activities.

In addition, the project sponsor (through a designated representative) shall inform construction personnel of the immediate stop work procedures and contact information to be followed if bones or other potential fossils are unearthed at the project site, and the laws and regulations protecting paleontological resources. As new workers arrive at the project site for ground-disturbing activities, they shall be trained by the construction supervisor.

The paleontologist shall submit a letter confirming the timing of the worker training to the planning department. The letter shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The letter shall be transmitted to the planning department within five business days of conducting the training.

Discovery of Unanticipated Paleontological Resources. In the event of the inadvertent discovery of a paleontological resource during construction, excavations within 25 feet of the find shall temporarily be halted until the discovery is examined by a qualified paleontologist (as defined by the Society of Vertebrate Paleontology). Work in the sensitive area shall resume only when deemed appropriate by the qualified paleontologist, in consultation with the planning department.

The qualified paleontologist shall determine: 1) whether the discovery is scientifically significant; 2) the necessity for involving other agencies and stakeholders; 3) the significance of the resource; and 4) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a paleontological evaluation letter to demonstrate compliance with applicable statutory requirements. The paleontological evaluation letter shall be submitted to the planning department for review within 30 days of the discovery.

If a paleontological resource is determined to be of scientific importance and there are no feasible avoidance measures, a paleontological mitigation program must be prepared by the qualified paleontologist engaged by the project sponsor. The mitigation program shall include measures to fully document and recover the resource and shall be approved by the planning department. Ground-disturbing activities in the project area shall resume and be monitored, as determined by the qualified paleontologist in

collaboration with the planning department, for the duration of such activities.

The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation into an appropriate repository; and 4) preparation of a paleontological resources report at the conclusion of ground-disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The project sponsor shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The mitigation program shall be submitted to the planning department for review within 10 business days of the discovery. The paleontology report shall be submitted to the planning department for review within 30 business days from conclusion of ground-disturbing activities, or as negotiated following consultation with the planning department.

Significance after Mitigation. The project sponsor has agreed to implement Mitigation Measure M-GE-5. This measure would ensure that unique paleontological resources that may be present in soils/sediments that would be disturbed by project construction would be identified and assessed. If a paleontological resource of scientific importance is present, the resource would be preserved in place or paleontological data recovery would be carried out to preserve the important information it represents. With implementation of these measures, the potentially significant impact to unique paleontological resources would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have paleontological impacts similar to those of the proposed project but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, under the expanded streetscape variant, the project sponsor would be required to implement Mitigation Measure M-GE-5: Inadvertent Discovery of Paleontological Resources. With implementation of these measures for the expanded streetscape variant footprint, the potentially significant impact to unique paleontological resources would be reduced to a less-than-significant level. This topic will not be addressed in the EIR.

Impact C-GE-1 The proposed project or variant, in combination with cumulative projects in the project site vicinity, would have less-than-significant cumulative impacts related to geology, soils, and seismicity. (Less than Significant)

PROPOSED PROJECT

Geologic, soils, and seismic impacts are generally site-specific and highly localized. Therefore, the potential for the proposed project to combine with cumulative projects and create a cumulative impact related to geology, soils, and seismicity would be low. Furthermore, with respect to geology, soils, and seismicity, all projects in the vicinity would also be subject to building department requirements for geotechnical investigation and required to comply with the state and local building codes. The building permit would be reviewed for conformance with the recommendations in the geotechnical investigation. For these reasons, the proposed project, in combination with cumulative projects, would have less-than-significant cumulative impacts related to geology, soils, and seismicity. No mitigation measures are required. This topic will not be addressed in the EIR.

In the San Francisco peninsula, Pleistocene-age surficial deposits, Old Bay Mud, Colma Formation, and the Plio-Pleistocene-age Merced Formation are of moderate paleontological sensitivity (Class 3). As described above, mitigation would reduce this impact to a less-than-significant level. Other projects considered in the cumulative analysis that involve ground-disturbing activities would not affect potential resources at this site. Therefore, the projects considered in this cumulative analysis would not result in a significant cumulative impact.

This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work and site plan as the proposed project but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the expanded streetscape variant would have geology and paleontology resources impacts similar to those of the proposed project but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface.

Similar to the proposed project, under the expanded streetscape variant, geologic, soils, and seismic impacts are generally site-specific and highly localized. Therefore, the potential for the expanded streetscape variant to combine with cumulative projects and create a cumulative impact related to geology, soils, and seismicity would be low. Furthermore, with respect to geology, soils, and seismicity, all projects in the vicinity would also be subject to public works' requirements and building department requirements for geotechnical review and required to comply with the state and local building codes. No mitigation measures are required. This topic will not be addressed in the EIR.

Similar to the proposed project, under the expanded streetscape variant there would not be a significant cumulative impact. This topic will not be addressed in the EIR.

E.16. Hydrology and Water Quality

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:	☐	☐	☒	☐	☐
i) Result in substantial erosion or siltation on or offsite;	☐	☐	☒	☐	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;	☐	☐	☒	☐	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐	☐
iv) Impede or redirect flood flows?	☐	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐	☐

The project site is not in a 100-year flood hazard area designated on the city's interim floodplain map, and would not place housing or structures within a 100-year flood hazard area that would impede or redirect flood flows as shown on the Federal Emergency Management Agency's Preliminary Flood Insurance Rate Map for the southeastern quadrant of San Francisco.[240] The project site is not within a tsunami hazard zone; therefore, no significant tsunami hazards exist at the site.[241] Additionally, the site is not in a dam inundation

[240] City and County of San Francisco, San Francisco's Interim Floodplain Map, Southeast, November 12, 2015, *http://sfgsa.org/sites/default/files/Document/SF_SE.pdf*, accessed December 19, 2018.

[241] City and County of San Francisco, Community Safety Element of the San Francisco General Plan, 2012, Map 5 (Tsunami Hazard Zones San Francisco, 2012), *http://generalplan.sfplanning.org/Community_Safety_Element_2012.pdf*, accessed December 17, 2018.

zone or subject to flooding from levee failure.[242] The preliminary geotechnical report that was prepared for this project found that the potential for inundation due to seiche is considered low.[243,244] Therefore, topic E.16 (d) is not applicable to the proposed project or expanded streetscape variant.

Impact HY-1 **The proposed project or variant would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, or conflict with or obstruct implementation of a water quality control plan. (Less than Significant)**

PROPOSED PROJECT

Water Quality and Wastewater Discharge

Stormwater and wastewater from the project site are collected in the city's combined sewer system, which collects, transports, and treats sanitary sewage and stormwater runoff in the same facilities prior to discharge to the Pacific Ocean or the San Francisco Bay. During dry weather (typically May through September), the flows consist mainly of wastewater. During wet weather (generally October through April), the combined sewer system collects large volumes of stormwater runoff in addition to wastewater; Bayside wet-weather flows are defined as flows greater than 110 mgd due to rain.[245]

The city is divided into drainage basins or watersheds that drain either to the Oceanside Treatment Plant or the Southeast Treatment Plant; flows may also drain to the North Point Wet-Weather Facility during a storm.[246] The combined sewer flows from the project site are treated at the Southeast Treatment Plant, which treats 80 percent of the city's flows.[247] Discharges from the Southeast Treatment Plant are regulated by Bayside National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664 (issued by the San Francisco Regional Water Quality Control Board) and the United States Environmental Protection Agency's (U.S. EPA's) Combined Sewer Overflow Control Policy. The Southeast Treatment Plant has a wet-weather flow capacity of 250 mgd. It has the capacity to provide primary and secondary treatment to up to 150 mgd and is permitted to discharge up to an additional 100 mgd of wastewater that receives primary treatment plus disinfection. If wet-weather flows exceed the capacity of the overall system, the excess is discharged from one of the 29 near-shore combined sewer overflow discharge structures. The permit

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242 City and County of San Francisco, Community Safety Element of the San Francisco General Plan, 2012, Map 5 (Potential Inundation Areas Due to Reservoir Failure), *http://generalplan.sfplanning.org/Community_Safety_Element_2012.pdf*, accessed December 17, 2018.

243 Cornerstone Earth Group, geotechnical investigation.

244 A seiche is an oscillation of a water body, such as a bay, that may cause local flooding. A seiche could occur on San Francisco Bay due to seismic or atmospheric activity.

245 SFPUC, San Francisco Sewer System Master Plan, 2010, *https://www.sfwater.org/modules/showdocument.aspx?documentid=610*, accessed August 30, 2019.

246 SFPUC, San Francisco's Wastewater Treatment Facilities, 2014, *https://sfwater.org/modules/showdocument.aspx?documentid=5801*, accessed August 19, 2019.

247 SFPUC, San Francisco's Wastewater Treatment Facilities, 2014, *https://sfwater.org/modules/showdocument.aspx?documentid=5801*, accessed August 19, 2019.

requires wet-weather overflows from combined sewer overflow discharges to comply with the technology-based requirements of the U.S. EPA's Combined Sewer Overflow Control Policy.[248]

In addition to compliance with the applicable NPDES permit, new development projects must comply with article 4.2, section 147 of the San Francisco Public Works Code, the San Francisco Stormwater Management Ordinance, which was last updated on April 2, 2016 (No. 64-16). The intent of the San Francisco Stormwater Management Ordinance is to reduce the volume of stormwater entering the city's combined and separate sewer systems. Stormwater Management Ordinance compliance approvals for this project will be conducted by the SFPUC. The SFPUC has developed the 2016 Stormwater Management Requirements and Design Guidelines in accordance with the requirements of this ordinance. The ordinance requires sites with more than 50 percent impervious surfaces (such as the project site) to be designed so that the stormwater runoff rate and volume do not exceed predevelopment conditions for the one- and two-year, 24-hour design storm.[249] As discussed in the Water Supply Assessment for this project, the project would request a modified compliance with the first submittal of the Stormwater Control Plan. The modified requirements would be a 40 percent reduction in the rate and a 10 percent reduction in the volume of runoff for the 2-year, 24-hour design storm.[250] To meet these modified requirements, the proposed project would include rainwater collection cisterns that would manage stormwater onsite and limit demand on both the collection system and wastewater facilities resulting from stormwater discharges. Compliance with the San Francisco Stormwater Management Ordinance would slow runoff from the site, further reducing erosion from existing site conditions.

Construction-Related Stormwater Runoff

As discussed in Section A, Project Description, implementation of the proposed project would create and/or replace more than 5,000 square feet of impervious surface and would involve demolition, excavation (approximately 134,000 cubic yards of soil onsite and 6,600 cubic yards of material for street improvements), site preparation, and construction to occur over a period of approximately 31 months. Excavation, site preparation, and grading would expose soil and could result in erosion and excess sediment in stormwater runoff being carried into the combined sewer system. Excavation and site preparation activities, especially during the wet season, have the greatest potential to adversely affect water quality. In addition, stormwater runoff from demolition debris, soil stockpiles, temporary onsite use and storage of vehicles, fuels, wastes, or other hazardous materials could carry pollutants to the combined sewer system if proper handling methods are not employed.

Runoff from the project site would drain into the city's combined sewer system, so that such runoff would be properly treated to meet the city's Bayside NPDES Permit and the U.S. EPA's Combined Sewer Overflow Control Policy. Construction site runoff from projects that drain to the combined sewer system is regulated under Public Works Code article 4.2, section 146, and requires a project application to the SFPUC, as described in Section E.15, Geology and Soils; and Section E.17, Hazards and Hazardous Materials. In accordance with these regulations, the project sponsor or its contractor(s) must prepare an erosion

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248 San Francisco Regional Water Quality Control Board, Waste Discharge Requirements for the Southeast Treatment Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities and Wastewater Collection System, Order No. R2-2013-0029, NPDES No. CA0037664, adopted August 2013, *https://www.waterboards.ca.gov/rwqcb2/board_decisions/adopted_orders/2013/R2-2013-0029.pdf*, accessed January 12, 2019.

249 SFPUC, San Francisco Stormwater Management Requirements and Design Guidelines, May 2016, *http://www.sfwater.org/Modules/ShowDocument.aspx?documentID=9026*, accessed January 23, 2019.

250 SFPUC, *Water Supply Assessment for San Francisco Gateway Project*, adopted June 9, 2020, Resolution No. 20-0126.

sediment control plan or a stormwater pollution prevention plan, and are required to submit a construction site runoff control permit application to the SFPUC prior to any land-disturbing activities. An erosion sediment control plan would specify best management practices and erosion and sedimentation control measures to prevent sediment from entering the city's combined sewer system.[251] Construction best management practices that could be implemented as part of the proposed project may address, for example, inspection and maintenance, water conservation, spill prevention and control, street cleaning, and prevention of illicit discharge to the combined sewer system. These best management practices would minimize disturbance to the project site, adjacent areas, and storm drains and would retain sediment.[252] The SFPUC's Construction Runoff Control Program staff enforces this requirement through periodic and unplanned site inspections. In addition, prior to the commencement of any land-disturbing activities, a construction site runoff control permit would be obtained from the SFPUC. With discharge to the combined sewer system, in accordance with the regulatory requirements described above, water quality impacts from construction-related stormwater runoff would be less than significant.

Construction-Related Dewatering

Construction dewatering in areas with shallow groundwater would be required during excavation activities. The SFPUC's Wastewater Enterprise, Collection Systems Division, provides the permits for dewatering. The SFPUC would require any construction dewatering water to be sampled prior to issuance of the batch wastewater discharge permit pursuant to the U.S. EPA's Handbook for Sampling and Sample Preservation of Water and Wastewater.[253] If the groundwater is contaminated, it would undergo specific handling and disposal procedures and would be treated prior to any discharge. As discussed in the project description, the groundwater level at the project site is approximately 3 to 6 feet below ground surface. Because the depth of excavation for the foundation and utilities would be up to 10 feet below ground surface and piles would be extended up to 60 feet below the existing grade, groundwater dewatering would likely be required during construction. If groundwater is encountered during construction, a Batch Wastewater Discharge Permit would be required from the SFPUC, pursuant to article 4.1 of the public works code, to ensure that groundwater discharges meet specified water quality standards before they may be discharged from the proposed project.[254] If soil borings and wells are used for dewatering, these dewatering activities would be required to comply with article 12B of the public health code (the Soil Boring and Well Regulation Ordinance). With discharge to the combined sewer system, in accordance with the regulatory requirements described above, water quality impacts from construction-related dewatering would be less than significant.

Operation – Wastewater and Stormwater Discharges

After construction, the proposed project would be required to comply with applicable water quality regulations for disposal of wastewater in occupied buildings. Typical wastewater discharges would include sanitary sewage from building occupants and employees and commercial wastewater from PDR uses. Stormwater discharges would include runoff from streets, sidewalks, and other impervious surfaces, such as the rooftops of buildings A and B. Wastewater discharges from the proposed project would be subject to the

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251 Best management practices are detailed in the SFPUC's Construction Best Practices Handbook, August 2013, *http://sfwater.org/modules/showdocument.aspx?documentid=4282*, accessed August 19, 2019.

252 Best management practices are detailed in the SFPUC's Construction Best Practices Handbook, August 2013, *http://sfwater.org/modules/showdocument.aspx?documentid=4282*, accessed August 19, 2019.

253 SFPUC, Batch Wastewater Permit Discharge Application Instructions, July 17, 2019, *https://sfwater.org/modules/showdocument.aspx?documentid=2326*, accessed August 19, 2019.

254 SFPUC, Batch Wastewater Permit Discharge Application Instructions, July 17, 2019, *https://sfwater.org/modules/showdocument.aspx?documentid=2326*, accessed August 19, 2019.

permit requirements of article 4.1 of the public works code and supplemented by San Francisco Public Works Order No. 158170. Article 4.1 of the public works code addresses the city's industrial waste pretreatment program to protect human health and the environment by preventing the discharge of pollutants into the combined sewer system.[255] The San Francisco Public Works order number 158170 supplements article 4.1 of the public works code and imposes industrial waste discharge limits on wastewater discharges into the city's combined sewer system.[256] Accordingly, commercial users of the site would be required to develop and implement a pollution prevention program and comply with the pretreatment standards and discharge limitations specified in article 4.1. These dischargers would also be required to monitor the discharge quality for compliance with permit limitations. Project-generated wastewater and stormwater would flow into the city's combined sewer system and would be treated to standards in the city's Bayside NPDES Permit prior to discharge to San Francisco Bay.

The city requires all projects creating and/or replacing 5,000 square feet or more of impervious surface to comply with stormwater management requirements and to submit a stormwater control plan, a signed and recorded Maintenance Agreement, and a signed Certificate of Acceptable Construction. The stormwater control plan is required to demonstrate that the project meets the stormwater quality performance standards contained in the 2016 Stormwater Management Requirements and Design Guidelines.[257] As discussed under Impact UT-2 in Section E.10, Utilities and Service Systems, the proposed project would incorporate design features to limit the amount of water entering the combined sewer system. The proposed project would also implement rainwater harvesting by capturing stormwater onsite in cisterns on the first level of each building (see Figure 7, p. 12); the capacity of these cisterns would be designed pursuant to the 2016 Stormwater Management Requirements and Design Guidelines. The captured stormwater would be metered and discharged to the combined sewer system and conveyed to the Southeast Treatment Plant. As discussed in the Water Supply Assessment for the project, the proposed project would request modified compliance with the first submittal of the stormwater control plan. The modified requirements would be a 40 percent reduction in the rate and a 10 percent reduction in the volume of runoff for the 2-year, 24-hour design storm.[258] As explained above on p. 172, the Southeast Treatment Plant has a secondary treatment capacity of 150 mgd but is permitted for peak wet-weather flows of up to 250 mgd. Wet-weather excess flows of up to 100 mgd receive only primary treatment. Measures to slow the discharge of stormwater runoff from the project site reduce the peak flows entering the treatment plant during and after a storm and result in less wastewater discharged that has received only primary treatment, reducing the potential to exceed water quality standards.

In summary, by implementing post-construction best management practices[259] and implementing construction site runoff requirements in accordance with the public works code, conflicts with an existing water quality control plan would not occur. In addition, the project would not create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems (as more thoroughly discussed in Impact UT-2) or provide additional sources of polluted runoff. Water quality impacts related to

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255 San Francisco Public Works Code article 4.1, *http://library.amlegal.com/nxt/gateway.dll/California/publicworks/publicworkscode?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$sync=1*, accessed August 30, 2019.

256 San Francisco Public Works Order No. 158170, *https://sfpublicworks.org/sites/default/files/Industrial_Waste_Discharge_Limits.pdf*, accessed August 30, 2019.

257 SFPUC, Stormwater Management Requirements and Design Guidelines, May 2016, *http://sfwater.org/modules/showdocument.aspx?documentid=9026*, accessed October 20, 2017.

258 SFPUC, *Water Supply Assessment for San Francisco Gateway Project*, adopted June 9, 2020, Resolution No. 20-0126.

259 Post-construction best management practices are long-lasting treatment features such as cisterns, green roofs, bioretention basins and planters, permeable pavement, and infiltration trenches.

a violation of water quality standards or degradation of water quality or stormwater flows would be less than significant. No mitigation measures are required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have similar water quality impacts to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, the expanded streetscape variant would implement post-construction best management practices and implement construction site runoff requirements in accordance with the public works code, and conflicts with an existing water quality control plan would not occur. In addition, the expanded streetscape variant would not create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems (discussed in Impact UT-2) or provide additional sources of polluted runoff. Water quality impacts related to a violation of water quality standards or degradation of water quality or stormwater flows would be less than significant. No mitigation measures are required. This topic will not be addressed in the EIR.

Impact HY-2 The proposed project or variant would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin or conflict with or obstruct implementation of a sustainable groundwater management plan. (Less than Significant)

PROPOSED PROJECT

The project site is in the Islais Valley Groundwater Basin, which covers an area of approximately 5,900 acres.[260] Recharge to the Islais Valley Groundwater Basin is estimated at 1,836 acre-feet per year, with sources of recharge including infiltration of rainfall, irrigation return flows, and leakage from water and sewer pipes.[261] The Islais Valley basin does not currently contribute to the city's water supply. In 2017, the SFPUC began pumping water from the Westside Groundwater Basin aquifer and will continue to expand wells in this basin to blend 4 mgd of treated groundwater with the municipal water supply by 2021.[262] The Islais Valley basin is not included in the SFPUC groundwater management program at this time. The proposed project would continue to be connected to the existing SFPUC potable water infrastructure and would not rely on wells for its water supply. Furthermore, the existing site is covered entirely in impervious surfaces, so that infiltration of rainwater into the groundwater basin and groundwater recharge at the project site is currently minimal. This condition would continue under the proposed project because after construction the site would consist of impervious surfaces, except for the addition of street trees and limited

260 California Department of Water Resources, California's Groundwater Bulletin 118, 2003 Update, Islais Valley Groundwater Basin, February 2004, *https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-B118-Basin-Descriptions/B118-Basin-Boundary-Description-2003---2_033.pdf*, accessed August 19, 2019.

261 California Department of Water Resources, California's Groundwater Bulletin 118, 2003 Update, Islais Valley Groundwater Basin, February 2004, *https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-B118-Basin-Descriptions/B118-Basin-Boundary-Description-2003---2_033.pdf*, accessed August 19, 2019.

262 SFPUC, San Francisco Groundwater Supply Project, 2013, *https://sfpuc.sharefile.com/share/view/sfea7a8f29b54f499*, accessed August 26, 2019.

landscaping features. Therefore, operation of the proposed project would not deplete groundwater supplies in the project area or conflict with a sustainable groundwater management plan.

As discussed above on p. 154 and in Section E.15, Geology and Soils, groundwater depths vary between 3 and 6 feet below existing grades across the project site. Dewatering of excavations during construction is likely to occur and could temporarily lower groundwater levels in the project vicinity. However, any effects of construction-related groundwater dewatering would be temporary. Once dewatering is completed, groundwater levels would return to normal over time. Currently, the SFPUC has a groundwater management program that monitors and records data concerning groundwater conditions in the Westside Basin, but this management plan does not include the Islais Valley basin. Therefore, the project would not conflict with any sustainable groundwater management plan.

In summary, the proposed project would not substantially deplete groundwater supplies, interfere substantially with groundwater recharge, or conflict with a sustainable groundwater management plan. The project would have a less-than-significant impact related to groundwater, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have groundwater impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, the expanded streetscape variant would not substantially deplete groundwater supplies, interfere substantially with groundwater recharge, or conflict with a sustainable groundwater management plan. The expanded streetscape variant would have a less-than-significant impact related to groundwater, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact HY-3 **The proposed project or variant would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation onsite or offsite; substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite; or impede or redirect flood flows. (Less than Significant)**

PROPOSED PROJECT

The project site is covered entirely by impervious surfaces and does not contain any streams or water courses. Construction activities would require excavation below ground; however, after construction, the ground surface would remain substantially unchanged from existing conditions. Pursuant to the city's Better Streets Plan, trees and landscape features would be installed on the site. Approximately 3,500 square feet of landscaping would be installed, and the existing impervious surfaces that cover the entire project site would be reduced.[263] Incorporation of stormwater management features at the project site in accordance with the

[263] SFPUC, *Water Supply Assessment for the San Francisco Gateway Project*, adopted June 9,2020, Resolution No. 20-0126.

city's Stormwater Management Ordinance and Stormwater Design Guidelines would ensure that drainage from the project site would not cause onsite or offsite erosion, siltation, or flooding. There would be minimal potential for erosion because the site is covered entirely by impervious surface, and the incorporation of these stormwater management design features would further reduce the potential for erosion onsite. As a result, the proposed project would not affect surface drainage patterns, and no substantial impact relative to erosion and siltation, flooding on or offsite, or contributions to exceedances of stormwater drainage systems would occur. Therefore, the proposed project would not be expected to result in substantial erosion or flooding associated with changes in drainage patterns. The impact of the proposed project related to potential erosion or flooding would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have erosion or flooding impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, the expanded streetscape variant would not result in substantial erosion or flooding associated with changes in drainage patterns. The impact of the expanded streetscape variant related to potential erosion or flooding would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-HY-1 The proposed project or variant, in combination with cumulative projects, would not result in cumulative impacts related to hydrology and water quality. (Less than Significant)

PROPOSED PROJECT

The proposed project would result in no impact with respect to a release of pollutants in flood, tsunami, and/or seiche hazard areas. Therefore, the project would not have the potential to contribute to cumulative impacts related to these issue areas.

The geographic context for cumulative hydrology and water quality impacts is the Southeast Treatment Plant drainage basin (in the case of treatment capacity) and the vicinity of the project site (in the case of local stormwater infrastructure capacity). Cumulative projects within 0.25 mile of the project site are discussed above under Section B, Cumulative Setting (pp. 43 through 46).

The proposed project would result in less-than-significant impacts related to water quality, groundwater levels, alteration of drainage patterns, and the capacity of drainage infrastructure. Cumulative projects that exceed the city's threshold of 5,000 square feet of new or replaced impervious surfaces are required to comply with the same or similar water quality and drainage control requirements, such as the development of an erosion sediment control plan for construction activities and a stormwater control plan for postconstruction operation. The cumulative projects that may disturb at least 5,000 square feet of new or replaced impervious surfaces and are required to comply with these water quality and drainage control requirements would include all of the projects listed in Section B, Cumulative Setting, with the exception of the Bayview Community-Based Transportation Plan and the SFPUC Southeast Treatment Plant Projects. The

SFPUC projects included in the cumulative setting would be completed as part of the city's SSIP, which is a program that would upgrade the aging and seismically vulnerable combined sewer system on the city's Bayside and would improve the reliability and capacity at the Southeast Treatment Plant. Should the ground disturbance for any of these projects increase to 5,000 square feet or more, then these projects would also be required to comply with these water quality and drainage control requirements. The Bayview Community-Based Transportation Plan would not affect the drainage basin or infrastructure capacity, because these projects would include short-term traffic-calming projects and pedestrian safety improvements such as lighting, crosswalks, and bus shelters. The Quint-Jerrold Connector project would be subject to the applicable city requirements for water quality and drainage control and would install drainage under the new road. The 2270 McKinnon Avenue and SF Produce Market projects would be required to comply with the same or similar water quality and drainage control requirements for construction activities and postconstruction operation as the proposed project. These plans would be submitted to and approved by the SFPUC before construction and operations would commence.

Because development projects would be required to follow the same regulations as the proposed project, peak stormwater runoff rates and volumes resulting from design storms would gradually decrease over time as new projects are constructed in accordance with the stormwater management requirements. In addition, all stormwater and wastewater flows into the city's combined sewer system would be treated pursuant to the effluent discharge standards contained in the city's NPDES permit for the Southeast Treatment Plant. As a result, cumulative impacts with respect to drainage patterns, water quality, stormwater runoff, and stormwater capacity of the combined sewer system would be less than significant. Therefore, the proposed project would not combine with cumulative projects to result in a cumulative impact related to hydrology and water quality. Cumulative impacts would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have hydrology and water quality impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Because development projects would be required to follow the same regulations as the expanded streetscape variant, peak stormwater runoff rates and volumes resulting from design storms would gradually decrease over time as new projects are constructed in accordance with the stormwater management requirements. In addition, all stormwater and wastewater flows into the city's combined sewer system would be treated pursuant to the effluent discharge standards contained in the city's NPDES permit for the Southeast Treatment Plant. As a result, cumulative impacts with respect to drainage patterns, water quality, stormwater runoff, and stormwater capacity of the combined sewer system would be less than significant. Therefore, the expanded streetscape variant would not combine with cumulative projects to result in a cumulative impact related to hydrology and water quality. Cumulative impacts would be less than significant, and no mitigation measures would be required. This topic will not be addressed in the EIR.

E.17. Hazards and Hazardous Materials

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

The project site is not in an area covered by an airport land use plan or within two miles of a public airport or a public use airport; the project site is not adjacent to or near wildlands such that the project would directly or indirectly expose people or structures to risks associated with wildland fires; and the project site is not within 0.25 mile of an existing or proposed school. Therefore, topics E.17 (c), E.17 (e), and E.17 (g) are not applicable to the proposed project or expanded streetscape variant.

The information in this section is based on the phase I and phase II environmental site assessments[264] for the project site. In addition, the GeoTracker website, the California Department of Toxic Substances Control's EnviroStor website, and the U.S. EPA Envirofacts database were searched for records of toxic releases, hazardous waste, or other violations that could affect the project site. The Department of Toxic Substances Control maintains a hazardous waste and substances site list (Cortese list) pursuant to Government Code section 65962.5. The project site is not listed in the state and/or federal databases as a hazardous waste site on the Cortese list. The closest identified Cortese list site is at 2045 McKinnon Avenue, south of the project site; it consists of a closed leaking underground storage tank hazardous materials clean-up case, described further below.[265], [266]

CURRENT OPERATIONS

The four existing warehouse buildings are used by tenants for product receiving, storage, and distribution; no industrial activities occur onsite. Hazardous materials use onsite is limited to refrigerant and similar compounds used in the refrigeration systems, small volumes of cleaning and maintenance products, a hand-pumped gasoline tank, a wash station for cars, and propane tanks for forklift use. Several warehouse spaces are used to stage or store larger volumes of potentially hazardous materials, such as pallets of containers of building supplies (paints, sealants, etc.). Adjacent to the project site is an informal automobile maintenance and repair operation with empty containers of automobile maintenance compounds (antifreeze and coolant), used oil filters, and similar items along the property fence line.

As described in Section A, Project Description, the project sponsor submitted building permit applications for an interim use on the project site as of August 2020.[267] The interim use is parcel delivery service, focusing on last-mile e-commerce delivery, and occupies one half of the site (the two buildings west of I-280). One of the two buildings is used for vehicle staging and the other is used for warehousing of goods and loading of delivery vehicles. This use is temporary in nature and would ultimately be replaced by the proposed project, if it were to be approved.

FORMER AND EXISTING HAZARDOUS MATERIALS

Former Underground Storage Tanks

As discussed in the Section E.3, Cultural Resources, the subject properties contain four large, one-story, rectangular industrial warehouses, each with their own building number; Buildings 417 and 418 are associated with the 749 Toland Street address, and Buildings 427 and 428 are associated with 2000 McKinnon Avenue. The phase I environmental site assessment for the project site revealed five onsite underground storage tanks as recognized environmental conditions:[268] four underground storage tanks

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264 Iris Environmental, Phase I and Phase II Environmental Site Assessment, January 6, 2015. No activities have occurred on the project site, such as excavation of onsite soils, significant change in the use of existing buildings, or demolition of existing buildings, that would require preparation of an updated environmental site assessment for purposes of this analysis.

265 California Department of Toxic Substances Control, EnviroStor, 2020, *https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=749+Toland+Street%2C+san+francisco*, accessed September 3, 2020.

266 State Water Resources Control Board, GeoTracker, 2020, *https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=749+Toland+Street%2C+San+Francisco*, accessed September 3, 2020.

267 San Francisco Building Department (DBI) Permit #202008272769 (Building 417 shell) and San Francisco Building Department #202008272770 (Building 418 shell).

268 ASTM Standard E1527-13 defines a recognized environmental condition as (emphasis in original to indicate formally defined terms): "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions."

along Selby Street and one at the northeastern end of Building 427. The underground storage tanks along Selby Street were 300-gallon capacity each and used for fuel oil to run boilers inside the warehouse buildings.[269] According to previous documentation, these underground tanks cannot be located, and it is speculated that they were removed in conjunction with the construction of the highway overpass. There are no records of soil, groundwater, or other environmental sampling to verify their removal. Regarding the recognized environmental condition at Building 427, there is evidence of a potential underground storage tank but no documentation about the tank.

A phase II environmental site assessment was conducted to investigate the recognized environmental conditions at the project site identified in the phase I environmental site assessment. Soil and groundwater samples were collected downgradient of the five underground storage tanks, adjacent to Buildings 417 and 427, and along the railroad sidings. The collected samples were analyzed for total petroleum hydrocarbons, polycyclic aromatic hydrocarbons, heavy-end hydrocarbons, and metals. The results were compared to U.S. EPA and California Environmental Protection Agency (Cal/EPA) environmental screening criteria to determine whether levels of these compounds exceeded the expected use criteria of the site.[270, 271]

The phase II environmental site assessment concluded that the project site soils contain petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and metals (i.e., arsenic, barium, cobalt, and nickel) above the expected use criteria established by the U.S. EPA and Cal/EPA and determined that these contaminant levels are most likely related to historic fill activities at the project site. Furthermore, the phase II environmental site assessment concluded that onsite groundwater also contain heavy-end hydrocarbons and metals in certain locations, particularly at the western end of the project site.

Historic Pest Control Activities

Historic pest control activities were identified as a potential recognized environmental condition in the phase I environmental site assessment. To control weeds along railroad sidings, herbicides were applied in the past. Historically, warehouse buildings were also treated with termiticides to minimize structural damage. Although there is no documentation related to historic pest control activities, the age, ownership, and historical use of the buildings suggest that pest control compounds were historically used onsite.

Soil testing conducted as part of the phase II environmental site assessment determined that organochlorine pesticides were below risk-based screening levels and thus would not be expected to pose a health hazard for the proposed use.[272]

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269 Iris Environmental, Phase I and Phase II Environmental Site Assessment, p. 15, January 6, 2015.

270 Expected use criteria are chemical concentrations promulgated for a particular land use (i.e., residential, commercial, industrial). For the expected uses at the project site (commercial/industrial), groundwater samples are compared to non-drinking water environmental screening levels. Soil samples are compared to direct exposure environmental screening levels, including direct contact screening levels for commercial/industrial workers and construction workers.

271 U.S. EPA and Cal/EPA environmental screening levels are defined as chemical concentrations in environmental media (e.g., soil or groundwater) below which no additional regulatory attention is warranted. The screening levels are not regulatory cleanup standards but indicate when additional evaluation may be warranted. The San Francisco Bay Regional Water Quality Control Board Tier 1 groundwater screening levels for potential drinking and nondrinking water are used for the groundwater samples; for the soil sampling, Tier 1 shallow soil screening levels for residential and commercial/industrial land use where groundwater is a potential drinking water resource. The screening levels used to assess onsite contamination are conservative, because groundwater at the site would not be used as a drinking water resource.

272 Risk-based screening levels for this soil gas chemical are defined conservatively as the San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for shallow soil gas under residential land use and commercial land use.

Polychlorinated Biphenyls

Pole-mounted and pad-mounted transformers may contain polychlorinated biphenyls, which are considered hazardous materials because of their toxicity. A plywood enclosure at the base of power poles in front of Building 417 was observed, and it was presumed that a transformer operated and maintained by PG&E is located in this enclosure.

Soil testing conducted as part of the phase II environmental site assessment determined that no polychlorinated biphenyls were present in onsite soils.

Asbestos

Asbestos-containing building materials were confirmed to be present on the project site in the phase I environmental site assessment. Original construction of the warehouse buildings in the 1940s includes asbestos-containing building products such as Transite siding, asbestos-containing concrete, and pipe insulation. Asbestos-containing material was used for its fire-retardant properties during use as the Marine Corps Supply facility. Between 1998 and 2011, asbestos-containing wastes were removed on five occasions, totaling 5.02 tons.[273] Specific materials that may have been removed are unknown, because no specific abatement or removal report is available.

Based on soil samples in the site vicinity, the phase II environmental site assessment determined that there were trace levels of asbestos at several locations, with no discernable pattern to the detection. No screening criteria are available from the San Francisco Regional Water Quality Control Board for asbestos in soil. Low detection of asbestos is a frequent occurrence in fill soils in San Francisco, due to the widespread nature of bedrock containing naturally occurring asbestos in the vicinity.[274]

Naval Radiological Defense Laboratory

Building 418 was used by the Naval Radiological Defense Laboratory for storage of radiological research equipment and possibly to store radioactive sources. Following decommissioning of the laboratory in 1969 and prior to private ownership, all areas involving radiological materials were surveyed and decontaminated.[275] Under the Formerly Used Defense Sites program, the United States Army Corps of Engineers conducted a Radiological Scoping Survey in 2013 to determine the presence of residual radiological impacts. In accordance with Nuclear Regulatory Commission guidelines, the Radiological Scoping Survey checked the area for alpha, beta, and gamma radiation emitters. The survey did not identify any radiation counts above the Nuclear Regulatory Commission screening guidelines, and no further actions were required.

Regulatory Setting

The storage, use, generation, transport, and disposal of hazardous materials are highly regulated by federal, state, and local agencies. Information about relevant agencies and the laws, regulations, and programs they administer are summarized below.

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273 Iris Environmental, Phase I and Phase II Environmental Site Assessment, p. 13, January 6, 2015.
274 Iris Environmental, Phase I and Phase II Environmental Site Assessment, p. 16, January 6, 2015.
275 Iris Environmental, Phase I and Phase II Environmental Site Assessment, p. 19, January 6, 2015.

FEDERAL AND STATE REGULATIONS

Hazardous Materials Management

The U.S. EPA is the lead agency with responsibility for enforcing federal laws and regulations that govern hazardous materials with the potential to affect public health or the environment. The major federal laws and regulations U.S. EPA enforces that could relate to the management of hazardous materials on the project site are the Resource Conservation and Recovery Act and Toxic Substances Control Act.

Hazardous Materials Release Sites

In California, U.S. EPA has granted most enforcement authority of federal hazardous materials regulations to Cal/EPA. Under the authority of Cal/EPA, the State Water Resources Control Board and Department of Toxic Substances Control are responsible for overseeing the remediation of contaminated soil and groundwater sites. The provisions of Government Code section 65962.5 (also known as the Cortese List) require the State Water Resources Control Board, Department of Toxic Substances Control, California Department of Health Services, and CalRecycle to submit information pertaining to sites that are associated with solid waste disposal, hazardous waste disposal, and/or hazardous materials releases to Cal/EPA.

Hazardous Materials Transportation

In 1990 and 1994, the federal Hazardous Material Transportation Act was amended to improve regulations for the protection of life, property, and the environment from the inherent risks of transporting hazardous materials. The United States Department of Transportation developed hazardous materials regulations that govern the classification, packaging, labeling, transportation, and handling of hazardous materials, as well as employee training and incident reporting.[276] The transportation of hazardous materials is subject to both Resource Conservation and Recovery Act and United States Department of Transportation regulations.

In California, the California Highway Patrol, Caltrans, and Department of Toxic Substances Control are responsible for enforcing federal and state regulations pertaining to hazardous waste haulers for hazardous waste transportation on public roads. The transport of hazardous materials is regulated under the California Vehicle Code (California Code of Regulations Title 13) and can only be conducted under a registration issued by Department of Toxic Substances Control. Identification numbers are issued by Department of Toxic Substances Control or U.S. EPA for tracking hazardous waste transporters and treatment, storage, and disposal facilities for hazardous materials. The identification number is used to identify the hazardous waste handler and to track waste from point of origin to final disposal; all material transport takes place under manifest.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires the preparation of hazardous materials business plans and disclosure of hazardous materials inventories. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code sections 25500, et seq.). The business plan program is administered by the California Emergency Management Agency. A

[276] Code of Federal Regulations, Title 49, Transportation, Parts 171–180.

business plan is required if a hazardous substance would be stored for more than 30 days in any of the following quantities:

- 500 gallons or more of any solid
- 55 gallons or more of any liquid
- 200 cubic feet or more of any compressed gas
- Any acutely hazardous substance or radiological material that meets the federal threshold planning quantities listed in 40 Code of Federal Regulations Part 355, Subpart A.

Hazardous Building Materials

Workers who conduct asbestos abatement must be trained in accordance with state and federal Occupational Safety and Health Administration requirements. The air district oversees the removal of regulated asbestos-containing materials. All friable (i.e., crushable by hand) asbestos-containing materials or nonfriable asbestos-containing materials that may be damaged must be abated prior to demolition in accordance with applicable requirements. Friable asbestos-containing materials must be disposed of as asbestos waste at an approved facility. Nonfriable asbestos-containing materials may be disposed of as nonhazardous waste at landfills that accept such wastes.

Loose and peeling lead-based paint must be disposed of as a state and/or federal hazardous waste if the concentration of lead equals or exceeds applicable hazardous waste thresholds. State and federal Occupational Safety and Health Administration regulations require a supervisor who is certified with respect to identifying existing and predictable lead hazards to oversee air monitoring and other protective measures during demolition activities in areas where lead-based paint may be present. Special protective measures and notification of California Occupational Safety and Health Administration are required for highly hazardous construction tasks related to lead, such as manual demolition, abrasive blasting, welding, cutting, or torch burning of structures, where lead-based paint is present.

More specifically, demolition where lead-based paint may be present would be subject to the California Occupational Safety and Health Administration Lead in Construction Standard (8 California Code of Regulations section 1532.1), which requires development and implementation of a lead compliance plan when materials that contain lead would be disturbed during construction. The plan must describe activities that could emit lead, methods that would be used to comply with the standard, safe work practices, and a plan to protect workers from exposure to lead during construction activities. California Occupational Safety and Health Administration would require 24-hour notification if more than 100 square feet of materials that contain lead would be disturbed.

LOCAL REGULATIONS

Hazardous and Acutely Hazardous Emissions

The air district oversees the protection of air quality in the San Francisco Bay Area Air Basin, which includes the project site. Hazardous and acutely hazardous emissions during construction (e.g., demolition of buildings containing asbestos) and facility operations (e.g., emissions from diesel generators) are subject to health risk assessment regulations and permitted conditions of operation to protect nearby sensitive receptors.

Lead-Based Paint

The San Francisco Building Code (chapter 34, section 3423) requires that any paint-disturbing repair, remodeling, or renovation work on the exterior of a pre-1979 building, which applies to the existing buildings at the project site, must be performed following lead-safe work practices. Both the San Francisco Building and Health Codes presume that any building built before 1979 has lead-based paint. The city's lead-safe work practices address surface preparation and recommend removal of lead-based paints in stages: wet scraping the surfaces, washing the surfaces, and sanding them with sanders with a high-efficiency particulate-air vacuum. Prior to and during removal, affected parties must be notified, access to the work areas must be restricted, and containment barriers need to be installed to prevent migration of lead-based paint. Site clean-up practices include removing all visible debris, keeping work areas clean by wet sweeping or by using a high-efficiency particulate-air vacuum, and disposing of contaminated debris in secured containers.

Asbestos-Containing Materials and Abatement

The air district is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement and is to be notified 10 days in advance of any proposed demolition or asbestos abatement work. The notification must include (1) the address of the operation; (2) the names and addresses of those who are responsible; (3) the location and description of the structure to be altered, including size, age, prior use, and the approximate amount of friable (i.e., easily crumbled) asbestos; (4) scheduled start and completion dates for the asbestos abatement work; (5) the nature of the planned work and methods to be employed; (6) procedures to be employed to meet the air district's requirements; and (7) the name and location of the waste disposal site to be used. The air district randomly inspects asbestos removal operations and would inspect any removal operation about which a complaint has been received. Any asbestos-containing building material disturbance at the project site would be subject to the requirements of air district Regulation 11, Rule 2: Hazardous Materials; Asbestos Demolition, Renovation, and Manufacturing.

The local office of the state Occupational Safety and Health Administration must also be notified of any asbestos abatement activities. Asbestos abatement contractors must follow state regulations contained in the California Code of Regulations, Title 8, section 1529, and Title 8, sections 341.6 through 341.14, where there is asbestos-related work involving 100 square feet or more of asbestos-containing building material. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California. The owner of the property where abatement is to occur must have a Hazardous Waste Generator Number assigned by and registered with the Office of the California Department of Health Services in Sacramento. The contractor and hauler of the material are required to file a Hazardous Waste Manifest that details the hauling of the material from the site and the disposal of it.

Hazardous Materials Management

In California, state hazardous waste and material handling laws are enforced by Cal/EPA with the assistance of local agencies designated as Certified Unified Program Agencies. In San Francisco, the San Francisco Department of Public Health is the designated Certified Unified Program Agency. The Certified Unified Program Agency program consolidates specified administrative requirements, permits, inspections, and enforcement activities for the following existing state programs, as established by five different state agencies, and combines them into what is known as the Unified Program:

- Hazardous Waste Generator and Tiered Permitting Program (California Health and Safety Code chapter 6.5)
- Underground Storage Tank Program (California Health and Safety Code chapter 6.7)
- Aboveground Petroleum Storage Tank Program (Health and Safety Code chapter 6.67)
- California Accidental Release Prevention Program (Health and Safety Code chapter 6.95)
- Hazardous Materials Release Response Plan and Inventory (Business Plan) Program (Health and Safety Code chapter 6.95)
- Hazardous Material Management Plan and Hazardous Material Inventory Statement Program (California Fire Code and Health and Safety Code chapter 1)

The Unified Program requires facilities to properly manage and disclose which hazardous materials are used during facility operations to minimize the risk of a hazardous materials release and improve emergency response actions in the event of a release. In San Francisco, the provisions of the Hazardous Materials Release Plan and Inventory Program (e.g., requirements for preparation of a Hazardous Materials Business Plan) and California Accidental Release Prevention Program (e.g., requirements for preparation of a Risk Management Plan) have also been incorporated into articles 21 and 21A of the San Francisco Health Code to help enforce mandatory measures to minimize the risk of a hazardous materials release. In addition, article 22 of the San Francisco Health Code, entitled "Hazardous Waste Management," provides measures for safe handling of hazardous wastes in the city. It authorizes San Francisco Department of Public Health to implement the state hazardous waste regulations, including authority to conduct inspections and document compliance.

Maher Ordinance

San Francisco Department of Public Health administers article 22A of the San Francisco Health Code (also referred to as the Maher Ordinance), which requires applicable projects to assess, sample, analyze, and remediate (if necessary) subsurface contamination prior to the issuance of building permits. The Maher Ordinance applies to any project that could encounter hazardous materials in the subsurface soil or groundwater in areas that are known to contain fill material or are suspected to contain hazardous materials in the subsurface, sometimes referred to as Maher zones.[277] In these areas, the requirements apply to any sites that would excavate more than 50 cubic yards of soil. The proposed project is subject to the Maher Ordinance because proposed soil excavation would exceed 50 cubic yards, and the project site is mapped within a Maher zone.

In accordance with health code section 22.A.6, the Maher Ordinance requires the project sponsor to retain the services of a qualified professional to prepare a site history report and assess potential and/or known sources of subsurface contamination at the project site. Based on the site history report, the professional recommends whether the project sponsor should conduct subsurface investigation(s) to characterize the quality of the soil and groundwater that would be disturbed during project construction. If so recommended, the professional prepares a subsurface analysis report, based on the subsurface investigation(s), to evaluate hazardous materials in the soil and groundwater at the project site and determine whether they are causing or are likely to cause significant health and safety risks given the intended land use. If the subsurface analysis report indicates that hazardous substances are present in soil or groundwater exceeding the Department of Toxic Substances Control or Regional Water Quality Control

[277] Maher zones include areas with current or historical industrial use or zoning; areas within 100 feet of current or historical underground tanks; filled former Bay, marsh, or creek areas; and areas within 150 feet of a current or former elevated highway.

Board public health risk levels, the applicant must prepare a site mitigation plan. The site mitigation plan must describe the methods (e.g., source removal, treatment, vapor barrier installation, restrictions on uses or activities at the project site) recommended to ensure the intended use would not result in public health or safety hazards in excess of the Department of Toxic Substances Control and Regional Water Quality Control Board acceptable risk levels or other applicable standards. The site mitigation plan must include health and safety measures to protect construction workers and the public during construction, including how to address any unknown conditions encountered. The site mitigation plan must also outline the soil and groundwater handling procedures that would be followed in all areas that would be disturbed during construction, including dust control measures that would be used. The site mitigation plan must also identify any remedial actions that would be taken, including removal or treatment of soil or groundwater, or placing a cover over soil to avoid future exposures, implementing a long-term operations and maintenance plan, or recording use restrictions on the property. All documents required under the Maher Ordinance must be submitted to and approved by the San Francisco Department of Public Health prior to project construction.

Impact HZ-1 **The proposed project or variant would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Less than Significant)**

PROPOSED PROJECT

Construction

Project demolition would involve the abatement and disposal of hazardous building materials. Construction of buildings A and B and other site improvements would involve the storage, use, and transport of small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, paint, and other substances). Site grading could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Each of these potential impacts is discussed in more detail below.

Hazardous Building Materials

Asbestos-containing building materials are present on the project site. Workers and the public could be exposed to hazardous building materials if such materials are not removed or abated prior to demolition of the existing buildings.

Demolition and construction activities would be required to follow all applicable standards and regulations for hazardous building materials, including the California Health and Safety Code. Currently, section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. As discussed above, the air district is to be notified 10 days in advance of any proposed demolition or abatement work. Pursuant to California law, the building department would not issue the required permit until the project sponsor has complied with the notice requirements described above.

If lead-based paint is discovered during construction activities, construction contractors would be required to comply with section 3425 of the San Francisco Building Code, which contains performance standards for lead-based paint, including clean-up and notification requirements.

Compliance with existing regulations governing the handling and disposal of hazardous building materials would reduce impacts to the public and environment from project construction to a less-than-significant level.

Contaminated Soil and Groundwater

During construction, particularly during excavation and grading, construction workers and nearby residents could be exposed to chemicals in the soil through inhalation of airborne dust or vapors if proper precautions are not implemented. In addition, construction dewatering in areas with shallow and potentially contaminated groundwater may be required during excavation activities (see Section E.16, Hydrology and Water Quality, for further discussion), which could affect construction workers.

U.S. EPA's Envirofacts, the State Water Resources Control Board's GeoTracker, and the Department of Toxic Substances Control's Envirostor websites were searched to identify toxic releases, hazardous waste, or other violations that would report hazardous materials contamination at the project site. The project site is not listed in the state and/or federal databases as a hazardous waste site on the Cortese list. The nearest Cortese listed site is south of the project site (2045 McKinnon Avenue) and consists of a closed leaking underground storage tank. The leaking underground storage tank resulted in soil contamination from diesel fuel. Remediation of the site began in 1992, and the case was closed on June 10, 1997.[278]

Additionally, the project site is in an area subject to San Francisco Health Code article 22A, commonly referred to as the Maher Ordinance. The overarching goal of the Maher Ordinance is to protect public health and safety by requiring appropriate handling, treatment, disposal, and, when necessary, remediation of contaminated soils and groundwater that are encountered in the building construction process. The project would result in 140,600 cubic yards of soil disturbance and excavation of up to 10 feet below existing grade in an area of known soil contamination. Therefore, the project is subject to the Maher Ordinance, which is administered and overseen by the San Francisco Department of Public Health.

In accordance with the Maher Ordinance, the project sponsor enrolled in the Maher program and submitted a phase I environmental site assessment for the project site. The report identified several recognized environmental conditions, including five underground storage tanks onsite. The report also noted the potential for soil and groundwater contamination due to observations of existing used oil filters, empty containers of antifreeze, industrial degreaser, and similar compounds along the property fence.

Subsequently, a phase II environmental site assessment was conducted to determine the level of soil and groundwater contamination in areas identified in the phase I environmental site assessment as having a potential for contamination. The phase II environmental site assessment concluded that the project site soils have levels of petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and metals above the expected use criteria established by U.S. EPA and Cal/EPA and determined that these impacts are most likely related to historic fill activities at the project site. Furthermore, the phase II environmental site assessment

[278] State Water Resources Control Board, GeoTracker, 2020, *https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607500423*, accessed September 3, 2020.

concluded that groundwater also has levels of heavy-end hydrocarbons and metals in certain locations, particularly at the western end of the project site, that are above the expected use criteria.

To comply with regulatory requirements in articles 22A and 22B of the Maher Ordinance, based on the results of the prior phase I and phase II environmental site assessments, the health department notified the project sponsor that a site mitigation plan would be required that includes measures to reduce potential risks to the environment and to protect construction workers, nearby residents, workers, and/or pedestrians from potential exposure to hazardous substances and underground structures during soil excavation and grading activities.[279] The site mitigation plan would be reviewed and approved by the San Francisco Health Department prior to construction. The site mitigation plan would describe known and potential environmental conditions. It would include soil, groundwater, and stormwater management protocols such as sampling and proper disposal of any hazardous waste encountered during excavation. Implementation of a site mitigation plan would reduce potential soil and groundwater contamination prior to or during construction of the proposed project.

In addition, specified construction procedures at a minimum must comply with local building code section 106A.3.2.6.3 related to construction dust control. A required construction dust control plan would identify best management practices to reduce dust during construction, such as limiting travel on unpaved roads; wetting and tarping solid bulk material for offsite transport; and paving main access points to the project site.

As described in Section E.16, Hydrology and Water Quality, the proposed project would be subject to the city's Construction Site Runoff Control Ordinance, and an erosion sediment control plan would be required under article 4.2, section 146 of the San Francisco Public Works Code. In accordance with these regulatory requirements, the project sponsor would also be required to prepare and implement a storm water pollution prevention plan or an erosion sediment control plan, and a construction site runoff control project application to the SFPUC, to minimize construction-related water quality impacts. The storm water pollution prevention plan and erosion sediment control plan would identify hazardous materials sources in the construction area and recommend site-specific best management practices (i.e., stormwater controls) to prevent discharge of these materials into stormwater and bay waters. The minimum best management practices that would be required include maintaining an inventory of materials used onsite; storing chemicals in water-tight containers protected from rain; developing a spill response plan and procedures to address hazardous and nonhazardous spills; maintaining spill cleanup equipment onsite; assigning and training spill response personnel; and preventing leaks of oil, grease, and fuel from equipment. In accordance with the Construction General Stormwater Permit, the project sponsor must ensure that the construction site is visually inspected weekly, and daily during rain events, and must implement corrective actions if any shortcomings are identified.

Through compliance with existing regulations requiring implementation of a site mitigation plan, a dust control plan, a storm water pollution prevention plan, and an erosion sediment control plan, which collectively require the proper disposal and transport of hazardous materials, and response procedures for accidental releases—project construction would not expose the public or the environment to significant

[279] Awwad, Mamdouh, Senior Environmental Health Inspector, San Francisco Department of Public Health, email correspondence between Mamdouh Awwad and Ken Sun (Prologis, Inc.), May 8, 2018.

impacts related to onsite soil and groundwater contamination. Therefore, the potential risk from onsite soil and groundwater contamination during project construction would be less than significant.

Transportation and Use of Hazardous Materials

Small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, or paint) may be used in project construction. These materials would be transported to the project site via local roadways, such as Toland Street, Rankin Street, Kirkwood Avenue, McKinnon Avenue, and I-280 (see Figure 18, p. 31). The transportation of hazardous materials is subject to applicable local, state, and federal regulations, which have been specifically designed to minimize the risk of upset during routine construction activities. As described above under "Regulatory Setting," regulations governing hazardous materials transport are included in California Code of Regulations Title 22 and the California Vehicle Code (California Code of Regulations Title 13), and transportation of hazardous materials can only be conducted under a registration issued by Department of Toxic Substances Control. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol, Caltrans, and the California state fire marshal. Together, these agencies determine container types used and license hazardous waste haulers for transportation of hazardous waste on public roads.

Through compliance with existing regulations, the transport of hazardous materials and the use of such materials onsite during project construction would result in a less-than-significant impact on the public and the environment.

Operation

Operation of the proposed project would require use, storage, and disposal of hazardous materials. The proposed project would provide space for several types of PDR uses, such as manufacturing and maker space, parcel delivery and last-mile delivery, wholesale and storage, and fleet management, as well as retail uses (see Table 3, p. 19). Depending on the particular tenants of the project, their uses could potentially involve the regular use of common hazardous materials such as paints, cleaners, toners, solvents, and disinfectants. These commercial products are labeled to inform users of potential risks and to instruct them in appropriate handling procedures.

Hazardous materials used by tenants (if required) would be transported to the project site via local roadways, such as Toland Street, Rankin Street, Kirkwood Avenue, McKinnon Avenue, and I-280 (see Figure 18, p. 31). During project operations, any future business operations would be required by law to comply with federal, state, and local laws, regulations, and policies regarding the handling, storage, and disposal of hazardous materials described above under "Regulatory Setting," including Cal/EPA's Unified Program (e.g., hazardous materials release response plans and inventories, California Uniform Fire Code hazardous materials management plans and inventories).

In San Francisco, the provisions of the Hazardous Materials Release Plan and Inventory Program (e.g., requirements for preparation of a Hazardous Materials Business Plan) and California Accidental Release Prevention Program (e.g., requirements for preparation of a Risk Management Plan) have also been incorporated into articles 21 and 21A of the San Francisco Health Code to help enforce mandatory measures to minimize the risk of a hazardous materials release. In addition, article 22 of the San Francisco Health Code, entitled "Hazardous Waste Management," provides measures for safe handling of hazardous wastes in the city. It authorizes the San Francisco Department of Public Health to implement the state hazardous

waste regulations, including authority to conduct inspections and document compliance. The San Francisco Department of Public Health is the Certified Unified Program Agency responsible for oversight of local businesses that handle hazardous materials.

In addition to state requirements, city requirements, such as article 22, section 1203 of the San Francisco Health Code, would require the project sponsor to comply with the minimum standards of management of hazardous waste as specified in Title 22 of the California Code of Regulations, chapter 30, division 4, which grants the city the right to conduct inspections of "any factory, plant, construction site, waste disposal site, transfer station, establishment or any other place or environment where hazardous wastes are stored, handled, processed, disposed of, or being treated to recover resources."[280]

Conclusion

Implementation of the proposed project could require routine transport, use, and storage of hazardous materials. Construction and operation of the proposed project are required by law to implement and comply with existing local, state, and federal regulations addressing hazardous materials. Each of these regulations is specifically designed to protect the public health through improved procedures for the handling of hazardous materials, better technology in the equipment used to transport these materials, and a more coordinated, quicker response to emergencies. Through compliance with these existing regulations, impacts related to the creation of significant hazards to the public through routine transport, use, disposal, and risk of accident or upset would be less than significant, and no mitigation measures would be necessary. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, excavation and foundation work, intensity, operations, and site plan as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have hazardous materials impacts similar to those of the proposed project, but would include a slightly larger footprint. Within the expanded footprint, additional ground disturbance would occur where the streetscape improvements would be completed; such disturbances would extend approximately 3 feet below the ground surface. Similar to the proposed project, implementation of the expanded streetscape variant could require routine transport, use, and storage of hazardous materials. Construction and operation of the expanded streetscape variant are required by law to implement and comply with existing local, state, and federal regulations addressing hazardous materials. Each of these regulations is specifically designed to protect the public health through improved procedures for the handling of hazardous materials; better technology in the equipment used to transport these materials; and a more coordinated, quicker response to emergencies. Through compliance with these existing regulations, impacts related to the creation of significant hazards to the public through routine transport, use, disposal, and risk of accident or upset would be less than significant, and no mitigation measures would be necessary. This topic will not be addressed in the EIR.

[280] City Code, *http://library.amlegal.com/nxt/gateway.dll/California/health/article22hazardouswastemanagement?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$anc=JD_Article22*, accessed December 27, 2018.

Impact HZ-2 The proposed project or variant would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

PROPOSED PROJECT

In 2017, the city updated its emergency response plan, prepared by the San Francisco Department of Emergency Management as part of the city's Emergency Management Program.[281] This plan covers hazard mitigation and disaster preparedness and recovery, and other emergency scenarios or events. The emergency response plan identifies hazards to which San Francisco is particularly susceptible (e.g., earthquakes, hurricanes, tsunamis, floods, winter storms, and acts of terrorism, including the use of chemical, biological, radiological, nuclear, and explosive weapons). The emergency response plan complies with several relevant state and federal directives for emergency planning, including the California Standardized Emergency Management System and the Incident Command System. The emergency response plan includes sections regarding operations, including management and procedures; staffing, operations, and logistics for the city's emergency operations center; and mutual aid, which involves other agencies. The emergency response plan assigns to city agencies and departments responsibilities for disaster planning; operations, including fire and rescue, law enforcement, human services, infrastructure, transportation, communications, and community support; and logistics, as well as finance and administration. The proposed project would not impair the implementation of the city's emergency response plan because it would not physically interfere with any primary emergency evacuation routes.

Additionally, the city applies fire safety measures primarily through provisions of the building and fire codes. Final building plans are reviewed by San Francisco Fire Department and the building department to confirm conformance with these provisions. In this way, potential fire hazards, including those associated with hydrant water pressures and emergency access, would be addressed during the permit review process. Compliance with fire safety regulations would ensure that construction and operation of the proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan, or expose people or structures to a significant risk of loss, injury, or death involving fires. Adherence to the San Francisco Fire Code and Building Code, along with implementation of the emergency response plan, would reduce potential impacts related to interference with emergency response or evacuation plans to less-than-significant levels, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, intensity, operations, and site plan as the proposed project, but would extend streetscape improvements for the entire cross section of the streets along the project perimeter to Better Streets standards. Because these changes would not alter the proposed land uses, their intensities, or layout, or impair the implementation of the city's emergency response plan by physically interfering with any primary emergency evacuation routes, the expanded streetscape variant would have emergency response or evacuation plan impacts similar to those of the proposed project and would not expose people or structures to a significant risk of loss, injury, or death involving fires. Adherence to the San Francisco Fire Code and Building Code, along with implementation of

[281] City and County of San Francisco, Emergency Response Plan: An Element of the CCSF Emergency Management Program, 2017, *https://sfdem.org/sites/default/files/CCSF%20Emergency%20Response%20Plan_April%202008%20-%20updated%20May%202017_Posted.pdf*, accessed August 9, 2019.

the emergency response plan, would reduce potential impacts related to interference with emergency response or evacuation plans to less-than-significant levels, and no mitigation measures would be required. This topic will not be addressed in the EIR.

Impact C-HZ-1 The proposed project or variant, in combination with cumulative projects, would not result in cumulative impacts related to hazards and hazardous materials. (Less than Significant)

PROPOSED PROJECT

Environmental impacts related to hazards and hazardous materials are generally site specific. As discussed above under Impact HZ-1, impacts associated with hazards or hazardous materials during construction or operation of the proposed project would be less than significant with implementation of and compliance with applicable regulatory requirements for hazardous materials, such as the Maher Ordinance, California Code of Regulations Title 22, the California Vehicle Code, and article 22 of the San Francisco Health Code. Nearby cumulative projects would be subject to the same city, regional, state, and federal regulations designed to protect the public and the environment from risks associated with hazards and hazardous materials, and to ensure that emergency access routes are maintained. Because future development in the project vicinity would be subject to these same laws and regulations described in the "Regulatory Setting" section and discussed in Impact HZ-1, the proposed project combined with cumulative projects in the project vicinity would not create a significant cumulative impact related to hazards and hazardous materials. No mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, intensity, operations, and site plan as the proposed project, but would extend streetscape improvements for the entire cross section of the streets along the project perimeter to Better Streets standards. The expanded streetscape variant would have hazards and hazardous materials impacts similar to those of the proposed project because these changes would not alter the proposed land uses, their intensities, or layout, or impair the implementation of the city's emergency response plan. Impacts associated with hazards or hazardous materials during construction or operation of the expanded streetscape variant would be less than significant with implementation of and compliance with applicable regulatory requirements for hazardous materials, such as the Maher Ordinance, California Code of Regulations Title 22, the California Vehicle Code, and article 22 of the San Francisco Health Code. Nearby cumulative projects would be subject to the same city, regional, state, and federal regulations designed to protect the public and the environment from risks associated with hazards and hazardous materials, and to ensure that emergency access routes are maintained. Because future development in the project vicinity would be subject to these same laws and regulations described in the "Regulatory Setting" section and discussed in Impact HZ-1, the expanded streetscape variant, combined with cumulative projects in the project vicinity, would not create a significant cumulative impact related to hazards and hazardous materials. No mitigation measures would be required. This topic will not be addressed in the EIR.

E.18. Mineral Resources

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☐	☒

In accordance with the California Surface Mining and Reclamation Act, the California Geological Survey has delineated areas by the presence and significance of mineral deposits.[282] The general plan indicates that mineral resources are not found in San Francisco to "any appreciable extent." Mineral resources therefore are not addressed in the general plan.[283] All land in San Francisco, including the project site, is designated Mineral Resource Zone 4 (MRZ-4) by the California Division of Mines and Geology under the Surface Mining and Reclamation Act of 1975.[284] This designation indicates that there is inadequate information available for assignment to any other mineral resource zone; therefore, the project site is not a designated area of significant mineral deposits. No resources are mapped within or near the project boundaries, and no active or proposed mines are present in the project site.[285] Therefore, topics E.18 (a) and E.18 (b) are not applicable to the proposed project or the expanded streetscape variant, and no mitigation measures would be required. These topics will not be addressed in the EIR.

[282] California Department of Conservation (CDC), California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designations of Mineral Lands, 2004.

[283] San Francisco General Plan, Environmental Protection Element, *http://generalplan.sfplanning.org/*, accessed July 17, 2018.

[284] California Division of Mines and Geology, Update of Mineral Land Classification: Aggregate Materials in the South San Francisco Bay Production-Consumption Region, Open-File Report 96-03 and Special Report 146, parts I and II. 1996.

[285] California Division of Mines and Geology, Mineral Land Classification Map San Mateo and San Francisco Counties, Special Report 146 Plate 2.42, 1982, *ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_146-2/SR-146_Plate_2.42.pdf*.

E.19. Energy

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐	☐

Impact EN-1 **The proposed project or variant would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; nor would it conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (Less than Significant)**

PROPOSED PROJECT

The following discussion provides an assessment of the proposed project's construction and operational energy use, including energy use calculations and a discussion of energy conservation measures, and presents the estimated energy use associated with existing land uses at the project site. Electrical energy demand is measured by power flow, expressed in kilowatt-hours, and natural gas is measured in cubic feet of gas or by its heat content in British thermal units,[286] or therms. Diesel and gasoline fuel use is measured in gallons. Energy calculations were estimated in the San Francisco Gateway Project Energy Consumptions Calculations Memorandum and are based on project-specific inputs regarding anticipated construction equipment and vehicle activity for the duration of construction, project-specific operational vehicle trips and operational equipment usage, and CalEEMod default data regarding building operational energy consumption associated with the proposed land uses.[287] The specific construction-related and operational energy consuming activities are described in more detail in the following sections.

Construction Energy

Nonrenewable energy consumption would occur during the proposed project's construction. Construction energy consumption would be primarily in the form of indirect energy inherent in the production of materials used for construction (e.g., the energy necessary to manufacture a steel beam from raw materials) and direct energy consumption in the fuel used by construction equipment and vehicles. Construction-related energy consumption is roughly proportional to the size of the new buildings proposed.

Energy use associated with construction of the proposed project would include that associated with the use of diesel fuel consumption from on-road hauling trips and off-road construction diesel equipment, and gasoline and diesel fuel consumption from on-road worker commute and vendor trips. Construction of the

[286] 1 thousand British thermal units = 3.412 kilowatt-hours.
[287] AECOM, San Francisco Gateway Project Energy Consumption Calculations Memorandum, March 3, 2022.

proposed project would use approximately 98,500 gallons of diesel for off-road construction equipment. Approximately 36,600 gallons of diesel and 71,300 gallons of gasoline would be used for on-road trips during construction of the proposed project. Construction of the proposed project would be phased over a 31-month timeframe, so construction-related energy use would be temporary. The proposed project would also include the use of sustainable building materials, and would comply with the city's Construction and Demolition Debris Recovery Ordinance, which requires all construction and demolition debris material removed from a project to be recycled or reused, thereby conserving its embodied energy[288] and reducing future energy requirements to produce new materials and products. Furthermore, in comparison to other states and the country as a whole, construction projects in California and, in particular in the San Francisco Bay Area, use energy-efficient equipment and best practices. For example, the proposed project would adhere to the California Air Resource Board's heavy-duty equipment idling restrictions,[289] comply with the city's Construction and Demolition Debris Recovery Ordinance described above, and comply with the city's requirements for Director's Bulletin 2 Clean Construction Projects for Type 3 Priority Projects. The provisions relating to Type 3 applications included in planning department Planning Director's Bulletin 2 Clean Construction Project reduce criteria air pollutant and greenhouse gas emissions by requiring the use of lower emitting construction equipment; limiting idling of construction equipment to two minutes; and requiring construction contractors to maintain and properly tune all construction equipment in accordance with the manufacturer's specifications, which would ensure that equipment is operating efficiently. Furthermore, the proposed project would implement applicable regulatory standards of the CALGreen Code and sustainable construction practices consistent with the project's intent to seek LEED Gold certification or higher. CALGreen Code and LEED standards, among other things, reduce physical waste going to landfills and conserve energy associated with the embodied energy of construction materials. These practices limit wasteful and unnecessary energy consumption associated with construction.

State plans adopted for the purpose of promoting energy efficiency include the California Renewable Portfolio Standard, the Clean Energy and Pollution Reduction Act of 2015 (SB 350), the California Energy Efficiency Standards for Nonresidential Buildings, and the CALGreen Code. Construction activities under the proposed project would be conducted in accordance with all applicable laws and regulations, including applicable federal, state, and local laws that are intended to promote efficient utilization of resources and minimize environmental impacts.

As a result, construction activities would not result in inefficient, wasteful, or unnecessary use of fuel or other energy sources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Operational Energy

Energy use associated with operation of the proposed project would include onsite electricity use associated with PDR and retail uses in the two new buildings (e.g., building space heating, cooling, and lighting, as well as operation of equipment and machines); electricity for offsite water treatment and distribution; and fuel for vehicle travel, including commute trips by onsite employees as they commute to and from work and travel by visiting worker vehicles servicing the proposed land uses (i.e., those vehicles

[288] Embodied energy is the total energy required for the extraction, processing, manufacturing, and delivery of building materials to a project site.
[289] California Air Resources Board, Regulation for In-use Off-road Diesel-fueled Fleets, 2016, *https://ww2.arb.ca.gov/sites/default/files/2019-03/finalregorder-dec2011.pdf*, accessed November 2021.

associated with proposed land use operations but not related to onsite employees, such as parcel delivery trips).

In California, energy consumption in buildings is regulated by Title 24 of the California Code of Regulations. Title 24 includes standards that regulate energy consumption for the heating, cooling, ventilation, and lighting of residential and nonresidential buildings. In San Francisco, documentation demonstrating compliance with Title 24 standards is required to be submitted with a building permit application. Compliance with Title 24 standards is enforced by the building department. The proposed project would be required to comply with the standards of Title 24 and the San Francisco Green Building Code, which incorporates all mandatory elements of the 2019 CALGreen Code and stricter local requirements. [290] In addition, as of January 2018, new construction in the city is required to construct all off-street parking spaces for passenger vehicles and trucks with dimensions capable of accommodating future electrical charging infrastructure, and to install sufficient electrical infrastructure to supply electricity for electric vehicle charging, in accordance with San Francisco's Electric Vehicle Readiness Ordinance. [291]

Energy conservation design features to meet state and local goals for energy efficiency and renewable energy have been incorporated into the project design to further reduce wasteful, inefficient, and unnecessary consumption of energy during project operations. In addition to compliance with Title 24 standards, and accommodating of future electrical charging infrastructure, the proposed project would be designed without natural gas infrastructure. The project would incorporate a solar array that would be sized to meet the San Francisco Better Roof Ordinance; and generate electricity that could be used to offset the electrical use of the building and equipment and/or the electric vehicles housed at and/or visiting the site. Both the elimination of dependence on natural gas power and the inclusion of onsite solar generation would substantially increase the project site's reliance on renewable and clean energy sources. The proposed project would also incorporate TDM measures into its design, such as car-share parking, bicycle parking, and showers and lockers; it would also provide electric docking stations to minimize onsite idling and resultant fuel use by trucks. These features would minimize the amount of transportation fuel consumed. The project would seek LEED Gold certification or higher and would include the use of sustainable building materials; water- and energy-efficient mechanisms in the building design; and other measures that would further minimize the amount of fuel, water, and energy consumed. Furthermore, the project site is in an area with a low level of VMT per capita, in comparison to the regional average. [292] In this way, project siting and co-benefits of land-use and transportation planning would minimize potential transportation-related energy demand.

The following provides a summary of energy consumption in the form of electricity and natural gas for existing onsite uses, and electricity for the proposed project (no natural gas would be used for the proposed project). [293] The total estimated energy consumption for proposed onsite building operations would be approximately 23,689,000 kilowatt-hours per year for the proposed project. The estimated annual electricity

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290 City and County of San Francisco Department of Building Inspection, Administrative Bulletin AB093, updated 2020, *https://sfdbi.org/sites/default/files/AB-093.pdf*, accessed June 2020.

291 City and County of San Francisco Department of the Environment, San Francisco's Electric Vehicle Ready Community Blueprint, July 2019 https://sfenvironment.org/sites/default/files/editor-uploads/transportation_vehicle/san_francisco_ev_blueprint.pdf, accessed November 2021.

292 San Francisco Planning Department, Eligibility Checklist: CEQA section 21099 – Modernization of Transportation Analysis, San Francisco Gateway Project, December 19, 2018.

293 AECOM, San Francisco Gateway Project Energy Consumption Calculations Memorandum, March 3, 2022. Note that totals do not necessarily add as a result of rounding.

use associated with water supply, treatment, and distribution during operation of the proposed project would be approximately 7,400 kilowatt-hours per year. Energy consumption by existing land uses at the project site are estimated to be approximately 5,138,000 thousand British thermal units per year in natural gas and 3,708,500 kilowatt-hours per year in electricity to serve onsite building operations, and approximately 1,500 kilowatt-hours per year in electricity for water supply, treatment, and distribution. The net increase in energy consumption by the proposed project relative to existing site land uses would be approximately 19,979,000 kilowatt-hours per year in electricity, but a net decrease of approximately 5,138,000 thousand British thermal units per year due to the elimination of natural gas use onsite. Onsite renewable energy generation is not included in these building energy use estimates and would further reduce the project's dependence on regional energy sources because a portion of the project site's energy requirements would be met by this onsite renewable energy resource. During operation, the solar arrays on the project roofs would be sized to meet the San Francisco Better Roof Ordinance and would generate between approximately 1,600,000 and 1,900,000 kilowatt-hours annually from this renewable energy resource, which could power onsite uses or be sold back to the electricity grid.

Fuel consumption was also estimated for the proposed project and existing onsite operations, the results of which are summarized here.[294] Mobile sources used during operation of the proposed project would use approximately 1,711,500 gallons of diesel and 2,004,300 gallons of gasoline per year, based on an estimate of 49,102,000 annual VMT for worker and visitor trips to and from the site,[295] onsite vehicle activity, use of transportation refrigeration units on a portion of the visiting trucks, and potential fuel use by emergency generators. The existing onsite land use is estimated to require approximately 289,300 gallons of diesel fuel per year and 276,600 gallons of gasoline per year, based on an estimate of 6,965,300 annual VMT for worker and visitor trips. The net increase in fuel use by the proposed project relative to existing site land uses would be approximately 1,422,200 gallons of diesel per year and 1,727,700 gallons of gasoline per year. As described in more detail in Section E.8, Greenhouse Gas Emissions, project siting accounted for demand and regional proximity to the anticipated customer base to minimize VMT for parcel and last-mile delivery uses. Therefore, although the proposed project would result in increased diesel fuel and gasoline consumption, the siting of a new PDR site that is designed to accommodate parcel and last-mile delivery tenants closer to its customer base would improve efficiency over alternate siting, and would minimize the net increase in regional fuel consumption for the portion of the project that may include parcel and last-mile delivery tenants. Additionally, the project siting in a low-VMT region further contributes to the efficiency with which the proposed project's transportation-related energy demands may be met. Therefore, the fuel consumption associated with the proposed project would not be wasteful or inefficient.

Compliance with the Title 24 conservation standards of the California Code of Regulations and the local San Francisco Green Building Code would reduce the proposed project's consumption of fuel, water, and energy. Electric service would be provided to meet the needs of the project, as required by the California Public Utilities Commission, which obligates PG&E and the SFPUC to provide service to its existing and potential customers. PG&E and the SFPUC update their service projections to meet regional energy and water

294 Ibid.

295 VMT estimates reflect data obtained from Adavant and LCW Consultants, 749 Toland Street and 2000 McKinnon Avenue Project, Final Estimation of Project Travel Demand, December 10, 2021, with the exception of visitor trip distances for the Parcel and Last Mile Delivery use. These were revised for the purposes of fuel estimation to not account for the project siting efficiency and trip distance reductions, rather using the same travel distances applied to the other PDR uses for the VMT estimates. This is considered a conservative estimate and does not account for reduced vehicle travel that would be achieved as a result of the project's siting efficiency.

demand.[296] Energy conservation and production measures in the proposed project would decrease reliance on nonrenewable energy sources and increase use of renewable energy sources.

In summary, construction and operation of the proposed project would not use energy resources in an inefficient, wasteful, or unnecessary manner and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the proposed project would have a less-than-significant impact on energy resources, and no mitigation measures are required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, site plan, development intensity, employment, and operations as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the proposed expanded streetscape variant would have energy resource impacts similar to those of the proposed project, but would include a slightly larger footprint. The footprint would involve additional ground disturbance to improve the remainder of the adjacent public rights-of-way. As a result, the same construction equipment and related fuel consumption used for the street and sidewalk improvements for the proposed project would be needed for the expanded streetscape variant but only for the limited area and time to complete the additional roadway, curb cut, sidewalk, planting, and other upgrades. For the same reasons cited for the proposed project, construction and operation of the expanded streetscape variant would not use energy resources in an inefficient, wasteful, or unnecessary manner and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the expanded streetscape variant would have a less-than-significant impact on energy resources, and no mitigation measures are required. This topic will not be addressed in the EIR.

Impact C-EN-1 The proposed project or variant, in combination with cumulative projects, would not result in a significant cumulative impact related to energy resources. (Less than Significant)

PROPOSED PROJECT

The proposed project would use energy resources. The cumulative development projects identified in Section B, Cumulative Setting, and mapped in Figure 22 (p. 44), as well as other projects in the city, would be required by the building department to comply with Title 24 and the San Francisco Green Building Code. All new construction projects in San Francisco would be required to minimize the use of large amounts of fuel, water, or energy by, for instance, installing energy-efficient appliances and water-efficient fixtures, which would reduce cumulative impacts on fuel, water, and energy consumption. Additionally, statewide efforts are being made to increase power supply and to encourage energy conservation; the demand for energy from the proposed project would not be substantial in the context of the total demand in San Francisco and the state; and the proposed project would not require a major expansion of power facilities. As further detailed in Section E.8.3 of the Greenhouse Gas Emissions section of this initial study, the city also adopted updates to Ordinance 81-08 in July 2021, thereby establishing the following greenhouse gas reduction targets:

[296] Section E.12, *Utilities*, further discusses the project's requirements and impacts associated with utility systems, including power.

- by 2030, reduce sector-based greenhouse gas emissions to 61 percent below 1990 levels;
- by 2030, reduce consumption-based greenhouse gas emissions to 30 metric tons of CO_2e per household or less, equivalent to a 40 percent reduction compared to 1990 levels;
- by 2040, reach net-zero sector-based emissions and sequester any residual emissions using nature-based solutions;[297] and
- by 2050, reduce consumption-based greenhouse gas emissions to 10 metric tons of CO_2e per household or less, equivalent to an 80 percent reduction compared to 1990 levels.

Achieving these emissions reduction targets would be accomplished through a number of different strategies, including energy efficiency.[298]

Furthermore, much of San Francisco is an area with a per capita level of VMT that is low in comparison to the regional average.[299] Therefore, energy associated with transportation fuel for the proposed project and cumulative projects would be lower than for comparable land uses elsewhere in the region and would not result in a wasteful consumption of fuel to support transportation activities. Therefore, the proposed project, combined with cumulative projects in the project vicinity, would not result in a significant cumulative impact on energy resources, and no mitigation measures would be required. This topic will not be addressed in the EIR.

EXPANDED STREETSCAPE VARIANT

The expanded streetscape variant comprises the same land uses, site plan, development intensity, employment, and operations as the proposed project, but proposes rebuilding the entire cross section of the streets along the project perimeter to Better Streets standards. Therefore, the proposed expanded streetscape variant would have energy resource impacts similar to those of the proposed project, but would include a slightly larger footprint. The footprint would involve additional ground disturbance to improve the remainder of the adjacent public rights-of-way. For the same reasons cited for the proposed project, energy associated with transportation fuel for the expanded streetscape variant and cumulative projects would be lower than for comparable land uses elsewhere in the region and would not result in a wasteful consumption of fuel to support transportation activities. Therefore, the expanded streetscape variant, combined with cumulative projects in the project vicinity, would not result in a significant cumulative impact on energy resources, and no mitigation measures would be required. This topic will not be addressed in the EIR.

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297 Nature-based solutions are those that remove remaining emissions from the atmosphere by storing them in natural systems that support soil fertility, or by employing other carbon farming practices.

298 San Francisco established greenhouse gas emissions targets in section 902 of the environment code, as follows: by 2017, reduce greenhouse gas emissions by 25 percent below 1990 levels; by 2025, reduce greenhouse gas emissions by 40 percent below 1990 levels; and by 2050, reduce greenhouse gas emissions by 80 percent below 1990 levels.

299 San Francisco Planning Department, Eligibility Checklist: CEQA section 21099 – Modernization of Transportation Analysis, San Francisco Gateway Project, December 19, 2018.

E.20. Agriculture and Forestry Resources

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
. Would the project or variant:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or forest land to non-forest use?	☐	☐	☐	☐	☒

The project site is in an urbanized area of San Francisco. Furthermore, no land in the city has been designated by the California Department of Conservation's Farmland Mapping and Monitoring Program as active or important agricultural land. The project site does not contain agricultural uses and is not zoned for such uses; therefore, the proposed project or expanded streetscape variant would not require the conversion of any land designated by the state farmland mapping and monitoring program as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use. The proposed project or expanded streetscape variant would not conflict with any existing agricultural zoning or Williamson Act contracts because neither applies to the project site, nor would the project involve any changes to the environment that could result in the conversion of farmland.[300] Therefore, topics E.20 (a), (b), and (e) are not applicable to the proposed project or expanded streetscape variant. No mitigation is required, and this topic will not be addressed in the EIR.

No land in San Francisco is designated as forest land or timberland by the California Public Resources Code. The project site does not contain forest land or timberland and is not zoned for such uses; the proposed project or expanded streetscape variant would not convert any forest land or timberland to nonforest use; and they would not conflict with existing zoning for forest land or timberland use, nor would the proposed project or expanded streetscape variant involve any changes to the environment that could result in the

[300] California Department of Conservation Important Farmland in California Map (San Francisco is identified as "Urban and Built-Up Land"), 2012 – Updated 2015, *ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/regional/2012/bay_area_2012_fmmp_base.pdf*, accessed December 8, 2018.

conversion of forest land or timberland. Therefore, topics E.20 (c) and (d) are not applicable to the proposed project or expanded streetscape variant. No mitigation is required. This topic will not be addressed in the EIR.

E.21. Wildfire

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, Would the project or variant:					
a) Substantially impair an adopted emergency response plan or emergency evacuation plans?	☐	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☐	☒
d) Expose people or structure to significant risks including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☐	☒

The city does not have any state responsibility areas for fire prevention or lands that have been classified as very high fire hazard severity zones.[301, 302] The project site, as well as the entire city, falls under the local responsibility area of the San Francisco Fire Department and is classified as local responsibility unzoned by the office of the state fire marshal.[303] Therefore, this topic is not applicable to the proposed project or expanded streetscape variant. Refer to Section E.17, Hazards and Hazardous Materials, for a discussion of wildland fire risks. No mitigation is required. This topic will not be addressed in the EIR.

[301] California Board of Forestry and Fire Protection, State Responsibility Area Viewer, updated July 2016, *https://bofdata.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer/*, accessed July 22, 2019.

[302] California Department of Forestry and Fire Protection, Fire Hazard Severity Zones Maps, *https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/*, accessed July 22, 2019. California Department of Forestry and Fire Protection has determined that the City and County of San Francisco has no Very High Fire Hazard Severity Zones in Local Responsibility Areas.

[303] California Department of Forestry and Fire Protection, Fire Hazard Severity Zones Maps, *https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/*, accessed July 22, 2019. California Department of Forestry and Fire Protection has determined that the City and County of San Francisco has no Very High Fire Hazard Severity Zones in Local Responsibility Areas.

E.22. Mandatory Findings of Significance

Topics:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
Would the project or variant:					
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐	☐

The discussion of biological resources in Section E.14, p. 148, shows that the proposed project and expanded streetscape variant would not significantly affect any habitats, plant or animal communities, or threatened or endangered species. The discussion of cultural resources in Section E.3, p. 64, shows that the proposed project and expanded streetscape variant would have no effect on historic resources of the built environment; and that, with mitigation, the proposed project and expanded streetscape variant would not significantly affect archaeological resources or human remains. The discussion of tribal cultural resources in Section E.4, p. 78, shows that, with mitigation, the proposed project and expanded streetscape variant would not significantly affect tribal cultural resources. The discussion of geology and soils in Section E.15, p. 154, shows that the proposed project and expanded streetscape variant, with mitigation, would have a less-than-significant effect on paleontological resources.

The initial study has addressed cumulative impacts under each environmental topic and determined that cumulative impacts related to wind, cultural resources and tribal cultural resources would require mitigation to reduce impacts to a less-than-significant level. For all other topics, except those specifically identified below, the initial study supports a determination that the proposed project and expanded streetscape variant, in combination with cumulative projects, would not result in significant cumulative impacts. The EIR will address potential environmental impacts, including cumulative impacts, related to transportation and circulation, air quality, and noise. These topics will be evaluated in the EIR.

As discussed in Section E.5, Transportation and Circulation, Section E.6, Noise, and Section E.7, Air Quality, the proposed project and expanded streetscape variant have the potential to result in significant impacts on transportation, noise, and air quality, which all could impact human beings. Accordingly, these three topics will be analyzed further and included in the EIR.

The discussion in Section E, Evaluation of Environmental Effects, identifies significant impacts related to wind that could adversely affect human beings. Mitigation measures have been provided in this initial study to reduce these significant project-level impacts to a less-than-significant level. No project-level potentially significant impacts were identified for the following environmental issue areas that could affect human beings: land use and planning, population and housing, greenhouse gas emissions, shadow, recreation, utilities and service systems, public services, geology and soils, hydrology and water quality, and hazards and hazardous materials. Therefore, with implementation of the mitigation measures specified in Section E.9, Wind (Mitigation Measures M-WI-1a and M-WI-1b), the proposed project and expanded streetscape variant would not result in substantial adverse effects, direct or indirect, on human beings.

F. MITIGATION MEASURES

The following mitigation measures have been agreed to by the project sponsor and are necessary to reduce the potentially significant environmental impacts of the proposed project and expanded streetscape variant to less-than-significant levels.

Mitigation Measure M-CR-2

Archeological Testing. Based on a reasonable presumption that archeological resources may be present in the project site, the following measures shall be undertaken to avoid any potentially significant adverse effects from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of an archeological consultant from the rotational qualified archeological consultants list maintained by the planning department. After the first project approval action or as directed by the environmental review officer, the project sponsor shall contact the department archeologist to obtain the names and contact information for the next three archeological consultants on the qualified archeological consultants list.

The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the environmental review officer. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the environmental review officer for review and comment and shall be considered draft reports subject to revision until final approval by the environmental review officer. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for a maximum of four weeks. At the direction of the environmental review officer, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines section 15064.5 (a)(c).

Archeological Testing Program. The purpose of the archeological testing program shall be to determine to the extent possible the presence or absence of archeological resources and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

The archeological testing program shall be conducted in accordance with the approved archeological testing plan. The archeological consultant and the environmental review officer shall consult on the scope of the archeological testing plan, which shall be approved by the environmental review officer prior to commencing any project-related soils-disturbing

activities. The archeological testing plan shall be submitted first and directly to the environmental review officer for review and comment and shall be considered a draft subject to revision until final approval by the environmental review officer. The archaeologist shall implement the testing as specified in the approved archeological testing plan prior to and/or during construction.

The archeological testing plan shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project and lay out what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The archeological testing plan shall also identify the testing method to be used, the depth or horizonal extent of testing, the locations recommended for testing, and the archeological monitoring requirements for construction soil disturbance, as warranted.

Paleoenvironmental Analysis of Paleosols. When a submerged paleosol is identified during the testing program, irrespective of whether cultural material is present, samples shall be extracted and processed for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction.

Discovery Treatment Determination. At the completion of the archeological testing program, the archeological consultant shall submit a written summary of the findings to the environmental review officer. The findings memorandum shall describe and identify each resource and provide an initial assessment of the integrity and significance of encountered archeological deposits.

If the environmental review officer, in consultation with the archeological consultant, determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, the environmental review officer, in consultation with the project sponsor, shall determine whether preservation of the resource in place is feasible. If so, the proposed project shall be redesigned so as to avoid any adverse effect on the significant archeological resource, and the archeological consultant shall prepare an archeological resource preservation plan, which shall be implemented by the project sponsor during construction. The consultant shall submit a draft archeological resource preservation plan to the planning department for review and approval.

If preservation in place is not feasible, a data recovery program shall be implemented, unless the environmental review officer determines that the archeological resource is of greater interpretive than research significance,

and that interpretive use of the resource is feasible. The environmental review officer, in consultation with the archeological consultant, shall also determine whether additional treatment is warranted, which may include additional testing and/or construction monitoring.

Consultation with Descendant Communities. On discovery of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, the environmental review officer and an appropriate representative of the descendant group shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the environmental review officer regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the archeological resources report shall be provided to the representative of the descendant group.

Archeological Data Recovery Plan. An archeological data recovery program shall be conducted in accordance with an archeological data recovery plan if all three of the following apply: 1) a resource has potential to be significant, 2) preservation in place is not feasible, and 3) the environmental review officer determines that an archeological data recovery program is warranted. The archeological consultant, project sponsor, and environmental review officer shall meet and consult on the scope of the archeological data recovery plan prior to preparation of a draft archeological data recovery plan. The archeological consultant shall submit a draft archeological data recovery plan to the environmental review officer. The archeological data recovery plan shall identify how the proposed data recovery program shall preserve the significant information the archeological resource is expected to contain. That is, the archeological data recovery plan shall identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the archeological data recovery plan shall include the following elements:

- *Field Methods and Procedures*: descriptions of proposed field strategies, procedures, and operations

- *Cataloguing and Laboratory Analysis*: description of selected cataloguing system and artifact analysis procedures
- *Discard and Deaccession Policy:* description of and rationale for field and post-field discard and deaccession policies
- *Security Measures:* recommended security measures to protect the archeological resource from vandalism, looting, and unintentionally damaging activities
- *Final Report*: description of proposed report format and distribution of results
- *Curation:* description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities

Coordination of Archaeological Data Recovery Investigations. In cases in which the same resource has been or is being affected by another project for which data recovery has been conducted, is in progress, or is planned, to maximize the scientific and interpretive value of the data recovered from both archeological investigations, the following measures shall be implemented:

A) In cases where neither investigation has yet begun, both archeological consultants and the environmental review officer shall consult on coordinating and collaboration on archeological research design, data recovery methods, analytical methods, reporting, curation and interpretation to ensure consistent data recovery and treatment of the resource.

B) In cases where archeological data recovery investigation is already underway or has been completed for a prior project, the archeological consultant for the subsequent project shall consult with the archeological consultant for the prior project, if available; review prior treatment plans, findings, and reporting; inspect and assess existing archeological collections/inventories from the site prior to preparation of the archaeological treatment plan for the subsequent discovery; and incorporate prior findings in the final report of the subsequent investigation. The objectives of this coordination and review of prior methods and findings shall be to identify refined research questions; determine appropriate data recovery methods and analyses; assess new findings relative to prior

research findings; and integrate prior findings into subsequent reporting and interpretation.

Human Remains and Funerary Objects. The treatment of any human remains and funerary objects discovered during any soils-disturbing activity shall comply with applicable state laws, including Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.98. If human remains or suspected human remains are encountered during construction, the contractor and project sponsor shall ensure that ground-disturbing work within 50 feet of the remains is halted immediately and shall arrange for the protection in place of the remains until appropriate treatment and disposition have been agreed upon and implemented in accordance with this section. Upon determining that the remains are human, the project archeologist shall immediately notify the city's Medical Examiner of the find. The archeologist shall also immediately notify the environmental review officer and the project sponsor of the find. In the event of the Medical Examiner's determination that the human remains are Native American in origin, the Medical Examiner shall notify the California State Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall immediately appoint and notify a most likely descendant. The most likely descendant shall complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site.

If the remains cannot be permanently preserved in place, the land owner may consult with the project archeologist, project sponsor, and CEQA lead agency and shall consult with the most likely descendant on recovery of the remains and any scientific treatment alternatives. The land owner shall then make all reasonable efforts to develop a burial agreement with the most likely descendant, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). In accordance with Public Resources Code 5097.98 (c)(1), the burial agreement shall address, as applicable and to the degree consistent with the wishes of the most likely descendant, the appropriate excavation, removal, recordation, scientific analysis, custodianship prior to reinterment or curation, and final disposition of the human remains and funerary objects. If the most likely descendant agrees to scientific analyses of the remains and/or funerary objects, the archeological consultant shall retain possession of the remains and funerary objects until completion of any such analyses, after which the remains and funerary objects shall be reinterred or curated as specified in the burial agreement.

Both parties are expected to make a concerted and good faith effort to arrive at an agreement, consistent with the provisions of Public Resources Code 5097.98. However, if the land owner and the most likely descendant are

unable to reach an agreement, the land owner, environmental review officer, and project sponsor shall ensure that the remains and/or mortuary materials are stored securely and respectfully until they can be reinterred on the property, with appropriate dignity, in a location not subject to further or future subsurface disturbance, consistent with state law.

Treatment of historic-period human remains and/or funerary objects discovered during any soil-disturbing activity shall be in accordance with protocols laid out in the project archeological treatment document, and other relevant agreements established between the project sponsor, Medical Examiner, and environmental review officer. The project archeologist shall retain custody of the remains and associated materials while any scientific study scoped in the treatment document is conducted, after which the remains shall be curated or respectfully reinterred by arrangement on a case-by case-basis.

Archeological Public Interpretation Plan. The project archeological consultant shall submit an archeological public interpretation plan if a significant archeological resource is discovered during a project. If the resource to be interpreted is a tribal cultural resource, the archeological public interpretation plan shall be prepared in consultation with and developed with the participation of tribal representatives, including the Association of Ramaytush Ohlone and other interested Ohlone parties. The archeological public interpretation plan shall describe the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program. The archeological public interpretation plan shall be sent to the environmental review officer for review and approval. The archeological public interpretation plan shall be implemented prior to occupancy of the project.

Archeological Resources Report. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the testing program to the environmental review officer. The archeological consultant shall submit a draft archeological resources report to the environmental review officer that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken, and if applicable, discusses curation arrangements. Formal site recordation forms (CA DPR 523 series) shall be attached to the archeological resources report as an appendix.

Once approved by the environmental review officer, copies of the archeological resources report shall be distributed as follows: California Archeological Site Survey Northwest Information Center shall receive one

copy, and the environmental review officer shall receive a copy of the transmittal of the archeological resources report to the Northwest Information Center. The environmental planning division of the planning department shall receive one bound hardcopy of the archeological resources report. Digital files that shall be submitted to the environmental division include an unlocked, searchable PDF version of the archeological resources report, GIS shapefiles of the site and feature locations, any formal site recordation forms (CA DPR 523 series), and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. The PDF archeological resources report, GIS files, recordation forms, and/or nomination documentation should be submitted via USB or other stable storage device. If a descendant group was consulted during archeological treatment, a PDF of the archeological resources report shall be provided to the representative of the descendant group.

Curation. Significant archeological collections and paleoenvironmental samples of future research value shall be permanently curated at an established curatorial facility. The facility shall be selected in consultation with the environmental review officer. Upon submittal of the collection for curation, the sponsor or archeologist shall provide a copy of the signed curatorial agreement to the environmental review officer.

Mitigation Measure M-TCR-1 Tribal Cultural Resources Interpretive Program.

Preservation in Place. In the event of the discovery of an archeological resource of Native American origin, the environmental review officer, the project sponsor, and the local Native American representative shall consult to determine whether preservation in place would be feasible and effective. Coordination shall take place with local Native American representatives, including the Association of Ramaytush Ohlone and other interested Ohlone parties. If it is determined that preservation-in-place of the tribal cultural resource would be both feasible and effective, then the archeological consultant, in consultation with the local Native American representative, shall prepare an archeological resource preservation plan, which shall be implemented by the project sponsor during construction. The consultant shall submit a draft archeological resource preservation plan to the planning department for review and approval.

Interpretive Program. If the environmental review officer, in consultation with local Native American representatives (including the Association of Ramaytush Ohlone and other interested Ohlone parties) and the project sponsor, determines that preservation-in-place of the tribal cultural resources is not a sufficient or feasible option, then archeological data recovery shall be implemented as required by the environmental review

officer and in consultation with affiliated Native American tribal representatives.

After data recovery, the project sponsor, in consultation with local Native American representatives, shall prepare a tribal cultural resources interpretation plan to guide the interpretive program. The tribal cultural resources interpretation plan may be prepared in tandem with the archeological public interpretation plan described in Mitigation Measure M-CR-2: Archeological Testing. The tribal cultural resources interpretation plan shall be submitted to the environmental review officer for review and approval prior to implementation of the program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, cultural displays, educational panels, or other interpretive elements agreed upon by the environmental review officer, sponsor, and local Native American representatives. Upon approval of the tribal cultural resources interpretation and prior to project occupancy, the interpretive program shall be implemented by the project sponsor. Local Native American representatives who are substantially involved in preparation or implementation of the interpretive program shall be appropriately compensated by the project sponsor.

Mitigation Measure M-WI-1a **Wind Hazard Evaluation for Building Design and Streetscape Modifications.** If the proposed project's design, including the wind mitigation measures (M-WI-1b), is modified in any way that could affect ground-level wind conditions, the new design shall be evaluated by a qualified wind expert to determine the potential for the modified project to result in a new wind hazard exceedance (defined as the one-hour wind hazard criterion of 26 miles per hour equivalent wind speed). The evaluation may require wind tunnel testing by the qualified expert to determine whether the modified project would result in an exceedance of the wind hazard criterion. If the modified project could exceed the wind hazard criterion, the project buildings shall be shaped (e.g., by including setbacks or using other building design techniques) or other wind-baffling measures shall be implemented, so that the project does not result in an exceedance of the one-hour wind hazard criterion of 26 miles per hour equivalent wind speed.

Mitigation Measure M-WI-1b **Maintenance of Landscaping Features that Reduce Wind Hazards.** The project sponsor shall maintain, for the life of the proposed project buildings, all landscaping features required to ensure that the proposed project does not result in in an exceedance of the one-hour wind hazard criterion of 26 miles per hour equivalent wind speed. These features include installation

of nine evergreen street trees, each approximately 25 feet tall with a 15-foot-diameter canopy, along the eastern sidewalk of Toland Street *or* any landscaping features required pursuant to Mitigation Measure M-WI-1a: Wind Hazard Evaluation for Building Design and Streetscape Modifications.

Mitigation Measure M-GE-5 Inadvertent Discovery of Paleontological Resources

Worker Environmental Awareness Training. Prior to commencing construction, the project sponsor shall engage a paleontologist meeting the standards of the Society of Vertebrate Paleontology[304] to conduct training for all onsite construction workers regarding paleontological resources and the contents of the paleontological resources alert sheet, as provided by the planning department. The paleontological resources alert sheet shall be prominently displayed at the construction site, during ground-disturbing activities.

In addition, the project sponsor (through a designated representative) shall inform construction personnel of the immediate stop work procedures and contact information to be followed if bones or other potential fossils are unearthed at the project site, and the laws and regulations protecting paleontological resources. As new workers arrive at the project site for ground-disturbing activities, they shall be trained by the construction supervisor.

The paleontologist shall submit a letter confirming the timing of the worker training to the planning department. The letter shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The letter shall be transmitted to the planning department within five business days of conducting the training.

In the event of the inadvertent discovery of a paleontological resource during construction, excavations within 25 feet of the find shall temporarily be halted until the discovery is examined by a qualified paleontologist (as defined by the Society of Vertebrate Paleontology). Work in the sensitive area shall resume only when deemed appropriate by the qualified paleontologist, in consultation with the planning department.

The qualified paleontologist shall determine: 1) whether the discovery is scientifically significant; 2) the necessity for involving other agencies and stakeholders; 3) the significance of the resource; and 4) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a paleontological evaluation letter to demonstrate

[304] Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010, *https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf*, accessed January 2022.

compliance with applicable statutory requirements. The paleontological evaluation letter shall be submitted to the planning department for review within 30 days of the discovery.

If a paleontological resource is determined to be of scientific importance and there are no feasible avoidance measures, a paleontological mitigation program must be prepared by the qualified paleontologist engaged by the project sponsor. The mitigation program shall include measures to fully document and recover the resource and shall be approved by the planning department. Ground-disturbing activities in the project area shall resume and be monitored, as determined by the qualified paleontologist in collaboration with the planning department, for the duration of such activities.

The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation into an appropriate repository; and 4) preparation of a paleontological resources report at the conclusion of ground-disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The project sponsor shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The mitigation program shall be submitted to the planning department for review within 10 business days of the discovery. The paleontology report shall be submitted to the planning department for review within 30 business days from conclusion of ground-disturbing activities, or as negotiated following consultation with the planning department.

G. DETERMINATION

On the basis of this initial study:

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

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

DATE March 9, 2022

Lisa Gibson
Environmental Review Officer

H. INITIAL STUDY PREPARERS

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LCW Consulting (Transportation Consultant)

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Project Sponsor Team

Prologis (Project Sponsor)

Coblentz Patch Duffy & Bass LLP (Project Attorney)

Jackson Liles Architecture (Project Architect)

APPENDIX C
PROJECT SPONSOR-PREPARED PROJECT DESCRIPTION SUPPORTING INFORMATION

Memorandum

To: San Francisco Planning Department
From: Prologis, Project Sponsor
Date: 04/14/2020 [Updated 06/30/2020]
Project: San Francisco Gateway Project, 749 Toland St. & 2000 McKinnon Ave.
Case No: 2015-012491ENV
Regarding: **E-commerce – Existing Demand and Future Trends in San Francisco and the Greater Bay Area**

Introduction

The proposed San Francisco Gateway (SF Gateway) project is located within an area of the City zoned specifically for Production, Distribution and Repair (PDR) uses and will provide approximately 1,166,800 square feet of new space for PDR and other permitted uses, including e-commerce uses.[1] At the request of the San Francisco Planning Department, Prologis has compiled a number of key metrics which illustrate the economic conditions affecting demand for e-commerce uses at the proposed project.

The vision of e-commerce's role in the SF Gateway project is informed by several key factors, namely, the past and projected growth in e-commerce sales and the past and projected growth of e-commerce costumers. These guiding factors are reflected both directly in sales growth and increase in users of e-commerce services as well as indirectly in the continued expansion of e-commerce related distribution facilities throughout the Bay Area. Specifically, the following key metrics underpin the anticipated demand for e-commerce uses at the facility.

A. Population growth in San Francisco and greater Bay Area[2]
B. E-commerce growth in San Francisco and greater Bay Area
C. E-commerce sales per capita for San Francisco and greater Bay Area
D. Growth of e-commerce related distribution centers

This memo covers past statistics relating to these metrics from 2010-2018 as well as projected statistics from 2019-2024. Statistical information underlying the summary below is based on the analysis of multiple sources, including *Oxford Analytics, Euromonitor, San Francisco Planning Department, Bureau of Land Statistics, CBRE* and *Prologis Research*.

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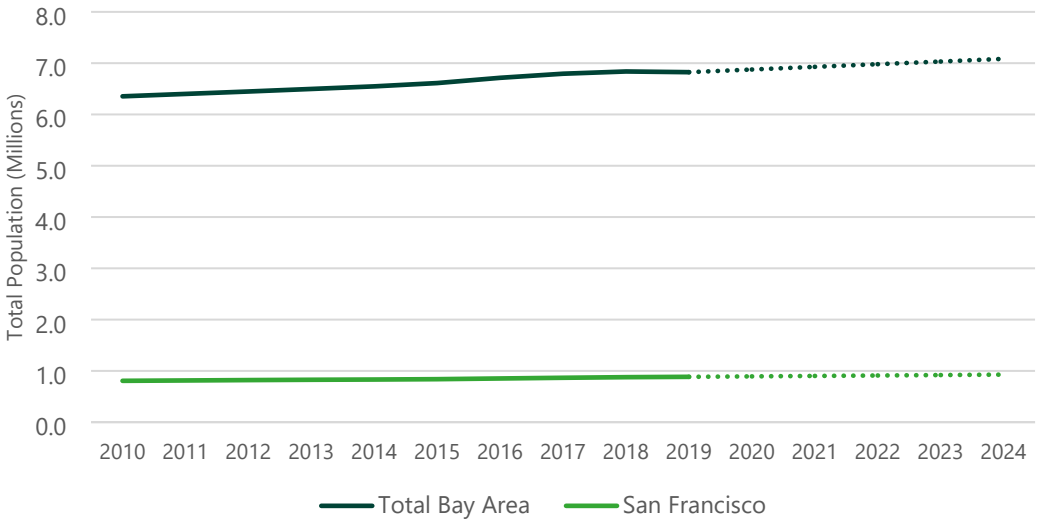
[1] For the purpose of this memorandum, e-commerce is defined as retail commercial transactions conducted on the internet and involving the delivery of goods to end users.
2 For the purpose of this memorandum, the greater Bay Area comprises the counties of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, and Marin.

Population growth in San Francisco and Greater Bay Area

The population in San Francisco and the greater Bay Area has grown and continues to grow at a modest pace with the greater Bay Area growth rate outpacing that of San Francisco, as shown in Figure 1: San Francisco and Greater Bay Area Population Growth.[3]

While population growth rates have been declining both locally and nationwide, the particularly modest growth reflected in San Francisco is the result of several factors. As noted in the 2018 *San Francisco Housing Needs and Trends Report* published by the San Francisco Planning Department, there is a complex relationship between the City's housing stock and the changes in the City's population and demographics. In general, the report finds a lack of housing to support a number of the City's diverse populations such as low- and moderate-income households.[4] Along with other factors, this shortage in supply of certain types of housing may be inhibiting population growth in certain areas. The *2019 Q2 Housing Development Pipeline Report,* published by the San Francisco Planning Department notes a total of 72,565 net new residential units in the pipeline at various stages of development. Over 9,000 new units are under construction; over 12,000 units have filed or received building permits; over 28,000 units are a part of major multi-phased projects; and over 18,000 have development applications filed with the Planning Department.[5] This information indicates a residential development landscape that will continue to grow over time and will likely result in a continued modest increase in population.

FIGURE 1: SAN FRANCISCO AND BAY AREA POPULATION GROWTH



[3] Bureau of Land Statistics, Population data from 2010-2019 and projected growth from 2020-2024
[4] San Francisco Housing Needs and Trends Report, San Francisco Planning Department, July 2018
[5] 2019 Q2 Housing Development Pipeline Report, San Francisco Planning Department, updated Sept. 2019

While the residential population is a key metric for understanding the demand for e-commerce services, e-commerce trends also reflect a robust business-to-business component. According to city and regional projections, employment in San Francisco is expected to grow at historic rates, reaching approximately 942,00 jobs in San Francisco by 2050.[6] With the passage of the Central SOMA Plan in 2018 and the approval of numerous large and small development projects, the City has over 7 million square feet of office development underway. According to *2019 Office Development Annual Limitation Program*, there is 2.8 million square feet of office development under construction with an additional 4 million square feet in various stages of permitting.[7] This development will carry with it an estimated additional 30,000 occupants[8]. This additional daytime occupancy may not be reflected in the City's residential population but is expected to continue to contribute to the growth of e-commerce sales and demand for related distribution activities. An overview of areas within the City with the highest rates of user engagement in e-commerce can be seen in Figure 2: Annual E-commerce in San Francisco. This data, based on customer participation in the e-commerce marketplace in the last 12 months[9], indicates a relationship between significant business districts, such as the Financial District and SOMA, and e-commerce activity.[10]

[6] 2019 Statement of Needs Report, ConnectSF, December 2019

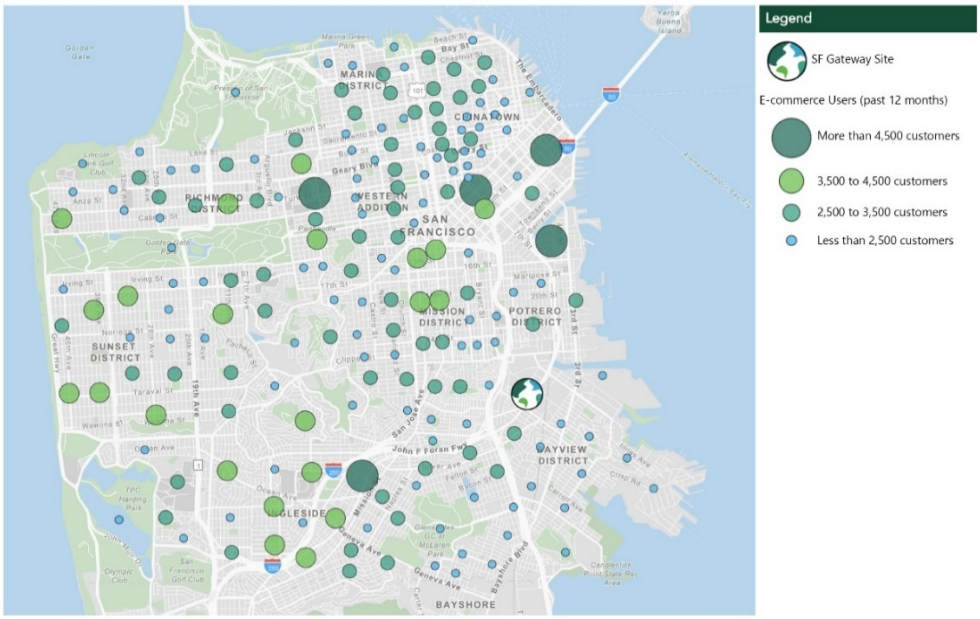
[7] Office Development Annual Limitation Program, San Francisco Planning Department, December 20, 2019

[8] This occupancy is generated by dividing the total office development underway by 240 sf, the approximate office occupant load factor per the May 2019 Jobs Housing Nexus Analysis prepared by Keyser Marston Associates to update the city's nexus fees.

[9] Data reflects Esri national household survey data for the number of people who respond "yes" to having ordered an item online in the past 12 months correlated with population segmentation data from the Bureau of Labor Statistics.

[10] CBRE Research, Urban E-commerce Demand Map for Past 12 Months, ESRI, 2020. Map was created using ArcGIS® software by Esri. ArcGIS® and ArcMap™ are the intellectual property of Esri and are used herein under license. Copyright © Esri. All rights reserved. For more information about Esri® software, please visit www.esri.com

FIGURE 2: ANNUAL E-COMMERCE IN SAN FRANCISCO



As commercial districts experience the expansion described above, one can expect an increase in overall use of e-commerce sourcing to meet the needs of growing commercial districts.

Past, current, and projected e-commerce growth - San Francisco and Bay Area Metropolitan Centers

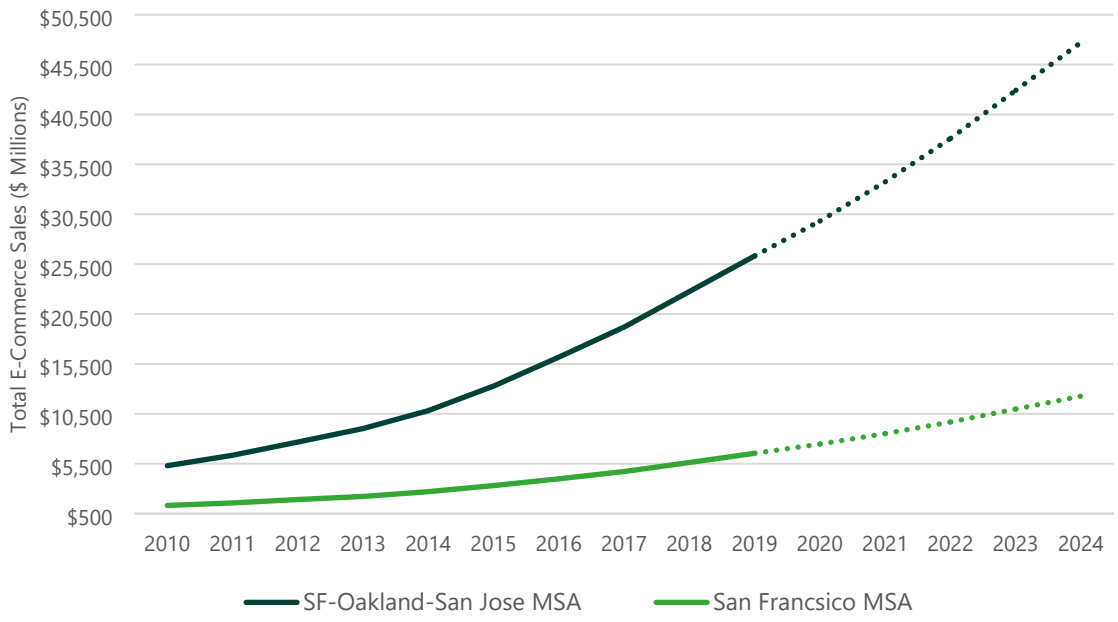
E-commerce growth, as an emerging trend in urban centers of the greater Bay Area and more specifically San Francisco, can be recognized by examining the growth of retail-based e-commerce sales over the past 10 years. Focusing on the major Bay Area metropolitan statistical areas of San Francisco, Oakland, and San Jose, market share for e-commerce retail transactions have consistently expanded as compared to retail transactions as a whole.[11]

As noted above, San Francisco (and the greater Bay Area) has experienced increases in population over the past 10 years and is projected to stay on a similar trajectory in the near future, however growth of e-commerce sales have increased at a much higher rate over the same period. Nationally, within total retail sales, the proportion of sales occurring on-line has rapidly increased. From 2010 to 2020, the percentage of total retail sales transacted via e-commerce has grown from 5.5% to 16.7% and is expected to continue to grow to 24.2% by 2024.[12] As seen in Figure 3: San Francisco and Bay Area E-commerce Sales, e-commerce sales in

[11] Proportion of e-commerce sales to total retail sales in U.S., Euromonitor Research
[12] Proportion of e-commerce sales to total retail sales in U.S., Euromonitor Research

the combined Bay Area metropolitan centers[13] have seen pronounced growth, increasing more than five-fold over the 10 year period from 2010 – 2020.[14] In 2010, customers in the San Francisco MSA[15] transacted roughly $1.3 billion in e-commerce retail sales. Ten years later, in 2020, total San Francisco e-commerce retail transactions increased over five-fold to $7.5 billion.[16]

FIGURE 3: SAN FRANCISCO AND BAY AREA E-COMMERCE SALES



While it is evident that the rate of growth for e-commerce sales has been increasing rapidly in Bay Area metropolitan centers, the trend in San Francisco is even more pronounced when accounting for San Francisco's population growth rate.

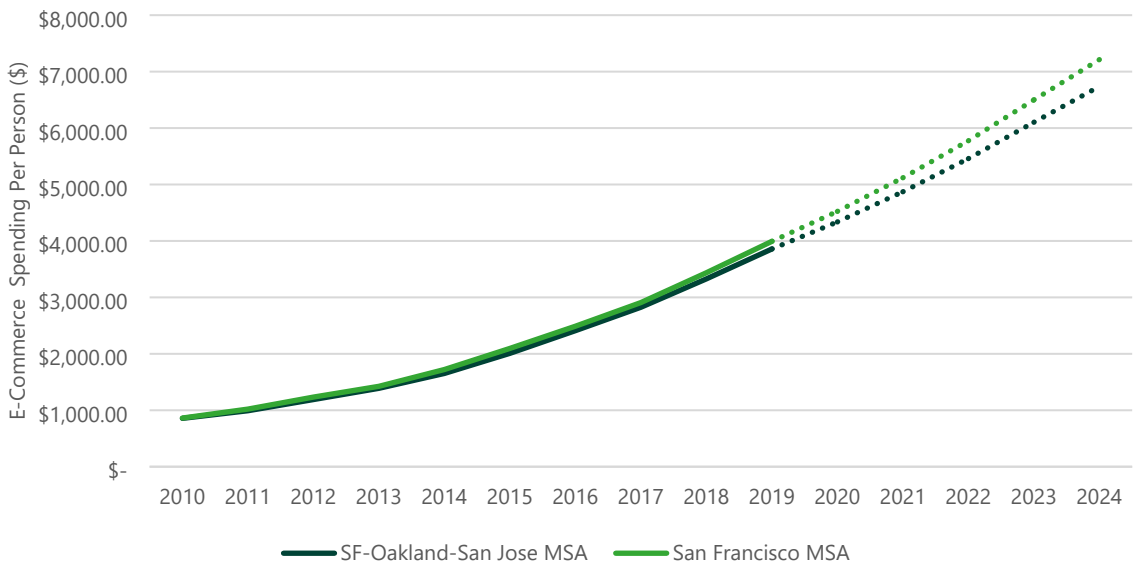
[13] For the purpose of this memo, Bay Area metropolitan centers consist of the San Francisco-Oakland-Berkeley Metropolitan Statistical Area (MSA) and the San Jose-Sunnyvale-Santa Clara MSA

[14] Estimated E-commerce Sales, Euromonitor, Oxford Economics, and Prologis Research

[15] San Francisco-San Mateo-Redwood City Metropolitan Statistical Area (MSA) consists of San Francisco and San Mateo counties

[16] Estimated E-commerce Sales, Euromonitor, Oxford Economics, and Prologis Research

FIGURE 4: SAN FRANCISCO AND BAY AREA E-COMMERCE SALES PER CAPITA



As shown in Figure 4: San Francisco and Bay Area E-commerce Sales Per Capita, per person e-commerce spending in the San Francisco MSA has increased at a faster rate than that of the population, surpassing the per capita spending of the Bay Area in the past few years.[17] This indicates that population growth is not the sole cause nor even a dominant factor driving the expanded market share of e-commerce retail transactions. The increase in per capita e-commerce sales in San Francisco indicates the broadening acceptance and demand in the e-commerce marketplace. In San Francisco, as technology evolves and customer acceptance and engagement increases, e-commerce sales growth rates are projected to continue climbing in the coming years.[18]

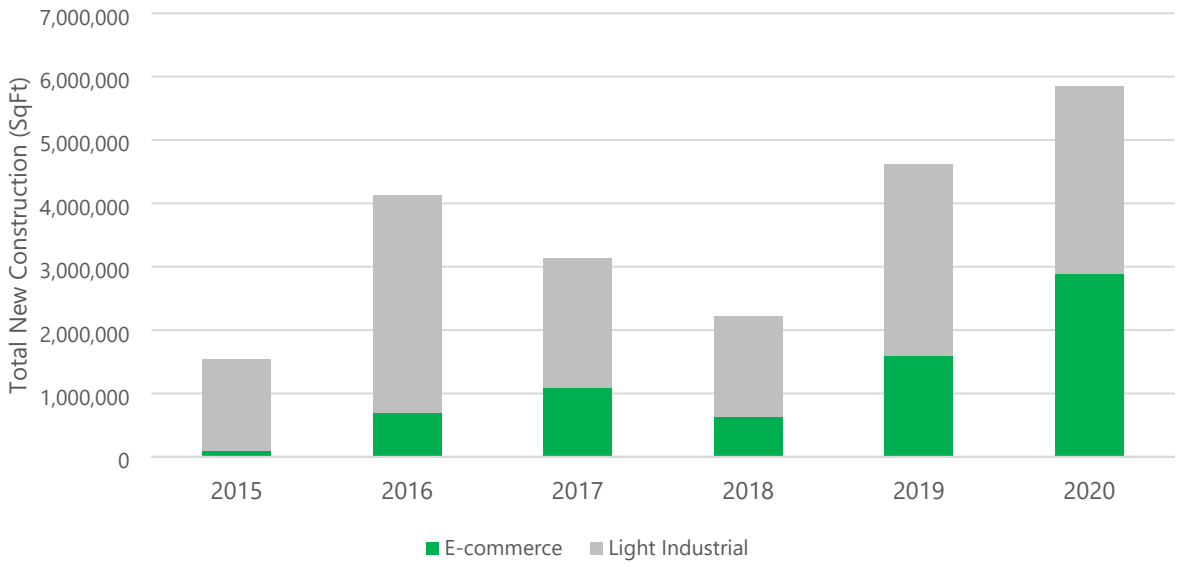
As seen above, statistics from 2010 to 2019 clearly document a steady increase of the e-commerce market share within the total retail landscape that is projected to grow at a steadily increasing rate over the coming years. Statistics for 2020 have been affected by global and national impact of the COVID-19 pandemic.[19]

Growth of E-Commerce Related Distribution Centers in the Greater Bay Area

[17] Estimated e-commerce sales and projected growth 2010-2024, Euromonitor, Oxford Economics, and Prologis Research.
[18] Projected e-commerce sales growth 2019-2024, Euromonitor, Oxford Economics and Prologis Research.
[19] In March 2020, the dollar value of online sales for consumer packaged goods had increased by 91% and the number of people who had shopped on line for packaged goods had increased 35% in comparison to March 2019. "Tracking the Unprecedented Impact of Covid-19 on CPG Shopping Behavior", The Nielsen Company, March 30, 2020,

Generally speaking, the increase in e-commerce sales leads to an increase in demand for light industrial facilities which can support e-commerce activities. Growing demand for warehouse space within close proximity to major population centers is a national trend. Demand for warehouse space went from 0.7 percent annually from 2007 to 2012 to 1.1 percent annually from 2012 to 2017. Much of this increase has been attributed to the 11 percent increase in e-commerce sales over the same period.[20] The increase in the greater Bay Area e-commerce sales is reflected in the increased square footage of construction dedicated to this function in the area. In the past 6 years (including the pipeline projects which will be completed and occupied in 2020) a total of approximately 59 new buildings (50,000 sf or larger) have been built to support light industrial uses in the greater Bay Area, of which 46 have been partially or fully dedicated to e-commerce uses. In terms of square footage, of the approximately 12.4 million square feet of new light industrial space developed in the greater Bay Area in the past 6 years , 7 million square feet, or 56.6%, has been leased to logistics users to support e-commerce operations.[21] As seen in Figure 5: Greater Bay Area E-Commerce Related Distribution Center Growth, the overall trend toward e-commerce uses is gaining momentum.[22]

FIGURE 5: GREATER BAY AREA E-COMMERCE RELATED DISTRIBUTION CENTER GROWTH



[20] "The future of the industrial real estate market". Mahajan, Saurabh. Deloitte Insights. May 2019.
[21] CBRE Research, 2020.
[22] CBRE Research, 2020.

The vast majority of new development of light industrial space in the greater Bay Area is occurring in the East Bay market. This market is primarily comprised of locations in Alameda County along the Interstate 880 corridor. Of the 12.4 million new square feet of Bay Area light industrial space constructed since 2015, 79% has been built in the East Bay market The North Bay market (primarily centered in and around Richmond[23]) has seen the development of approximately 11%, while the South Bay market (Santa Clara County) has contributed 10% of the new space in the greater Bay Area.

The Peninsula (San Mateo County) and San Francisco markets have seen very little, if any, development of new light industrial space over this time period. Significant barriers to entry and the changing land use priorities of municipalities in San Mateo and San Francisco Counties may partially explain the lack of new light industrial construction. As discussed in the "Urban E-commerce Distribution Facility Selection Criteria" memorandum,[24] the presence of impediments to traffic flow such as bridges make the locations in the East Bay market less efficient as e-commerce locations to serve the San Francisco market. This combines with the overall lack of new light industrial development occurring in the San Francisco and Peninsula markets to heighten demand for such spaces in San Francisco designed to meet the needs of logistics users in particular. The San Francisco Gateway project is uniquely positioned to serve this increased demand.

Conclusion

Taken as a whole, the combination of the above key metrics provides a compelling picture of the expected growth of e-commerce in San Francisco and the need for logistics spaces to accommodate this growth. It is clear from the above metrics that e-commerce demand in San Francisco exists and is growing at a steady rate As the population of the City and the Bay Area expands and more office space is brought online in San Francisco, demand for e-commerce will grow to meet the needs of the increased number of potential customers. Potentially more impactful is the rapidly increasing popularity of e-commerce as a method for purchasing products.[25] This rapid expansion is expected to continue with the advancement of technology, availability of goods through e-commerce, and marketplace acceptance. The San Francisco Gateway project will not create additional e-commerce demand, but is intended to meet a portion of this existing and growing demand, by providing a distribution facility located in close proximity to the Bay Area's highest-density residential and employment centers.

[23] In Bay Area logistics and distribution real estate market, Richmond is considered as part of the North Bay market.
[24] "Urban E-commerce Distribution Facility Selection Criteria", Langan Engineering and Environmental Services, April 13, 2020.
[25] State of the Retail Sector: Challenges and Opportunities for San Francisco's Neighborhood Commercial Districts. San Francisco Office of Workforce Development. February 15, 2018.

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Memorandum

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To: Ken Sun

From: Daniel D. Disario, P.E., PTOE

Date: February 26, 2021

Re: Urban E-commerce Distribution Facility Selection Criteria

This memorandum describes key criteria that influence the selection of urban e-commerce (last mile logistics)[1] sites and relates these criteria to the San Francisco Gateway site (SF Gateway) and other Bay Area industrial markets. As demand for e-commerce grows in San Francisco, the goal of the SF Gateway project is to provide an efficient location for the collection, sorting and distribution of goods that meets the needs of the current and projected customers of San Francisco while reducing the vehicular impact of deliveries within the City. The key site selection criteria focus on identifying sites which provide an efficient platform for the final handling and distribution of goods to the end customer. Key metrics of this efficiency include time, certainty, and the miles traveled by delivery vehicle. Currently, most last mile delivery for San Francisco originates outside of the City and locating last mile delivery stations within the City will increase efficiency and decrease miles traveled.

I. CURRENT CONDITIONS SERVICING SAN FRANCISCO

In order to contextualize the need for and benefits of last mile facilities located with in San Francisco, understanding the current locations of last mile which serve the San Francisco market is key. The vast majority of new development of light industrial space utilized for e-commerce distribution in the greater Bay Area is occurring in the East Bay Market. The Peninsula and San Francisco markets have seen very little, if any, development in the past 5 years.[2]

Key Site Selection

There are a number of key criteria that lead to the selection of a particular last mile logistics location. These criteria relate primarily to two sets of factors, those that are external to the e-commerce business and those that are internal.

External factors relate primarily to the availability of suitably zoned land and the timing to attain the local government approvals required for the construction of a facility of this nature. As cities evolve, planning agencies and other city leaders have had to balance competing demands on historically industrial areas in and around population centers. These competing interests (e.g. office, commercial, and residential uses) can lead to a reduction in land appropriately zoned to support e-commerce logistics use. This can be seen in San Francisco's recent Eastern Neighborhoods rezoning effort which converted some land formerly zoned for light industrial uses (uses compatible with requirements for e-commerce facilities) to mixed-use zoning centered around residential and offices uses. The rapidly evolving e-commerce industry encourages a quick and reliable response to meet customers' needs. As the industry commits financial

[1] For purposes of this memo, "last mile logistics" is defined as the overall transfer of goods from central distribution hubs (fulfillment centers) via long-haul trucks to last mile delivery facilities for ultimate distribution (typically via delivery vans).

[2] E-commerce – Existing Demand and Future Trends in San Francisco and the Greater Bay Area. Prologis Research. 2020

resources to facility construction, it seeks both a reliable timeframe and a rapid transition from planning to operations. This combination of factors - sites possessing the appropriate land use designation(s) and rapid and reliable municipal approvals process allowing for a nimble response to customers - significantly limits the potential locations for last mile delivery.

In addition, ***internal metrics*** drive site selection for e-commerce companies. While these metrics vary from business to business and tend to change rapidly, they typically focus on physical proximity to population centers, time and efficiency to delivery and access to adequate support for business activities. Last mile delivery facilities serve an area that, on average, is within a 45-minute drive from a particular site. In areas of high population density, the service area could be as small as a 20-minute drive. Additionally, each delivery vehicle (e.g. van) and driver completes a route by delivering 150-200 packages. In more densely populated areas, the distance to complete a route with this volume of packages is typically shorter than in less densely populated areas.

From our experience, in no particular order, the following are key criteria that influence the selection of last mile delivery sites:

1. **Proximity to Regional Road Network** – Sites that are close to the regional network are desirable for last mile delivery facilities because the regional road network connects the location to other nodes in a logistics network such as fulfillment centers[3]. Being close to the regional road network makes travel between the last mile delivery facilities and fulfillment centers more efficient.

   For San Francisco, the closest fulfillment center serving the area is over 60 miles away, driving the need for a last mile facility that is located along the Route 101 and Route 280 corridors either within the city or in other municipalities such as South San Francisco, San Bruno or Daly City.[4]

2. **Natural/Artificial Barriers** – The presence of a physical barrier between the last mile delivery center and its service area raises significant logistical issues. Examples of significant barriers are bridge crossings, toll roads, or having to traverse other significant geographical features such as mountain passes. Barriers can slow delivery times, due to associated traffic or cause reliability issues.

   For San Francisco, locating last mile delivery facilities east or north of the City is not desirable, due to the significant bridge crossings and toll checkpoints. These bridge crossings and/or toll checkpoints typically bring a combination of congestion, delays, reliability concerns, and additional expense. Any delivery facility located in Oakland, for example, would likely serve the market east of San Francisco but not the City itself.

3. **Appropriately Sized Sites** – Sites that can meet the size requirements of a contemporary multi-story last mile delivery program must be significantly sized, providing a minimum of 4 acres and must often be large to meet the contemporary urban logistics center requirements. Available sites of this size are rare in urban areas. Sites must be able accommodate both internal processing functions for last mile delivery and the associated vehicles (long haul trucks, delivery vehicles, and employee vehicles). Accordingly, parameters for space for vehicles (staging and parking) can be high.

[3] For purposes of this memo, "fulfillment centers" are large logistics facilities which aggregate products for distribution to last mile delivery facilities. Fulfillment centers are a middle point in the distribution chain.

[4] See Figure 1 for map of potential last mile delivery facility sites.

4. **Proximity to Workforce** – The majority of last mile delivery facility employees are working the package sorting operation inside the building or are driving delivery vans. A ready blue-collar workforce provides a true synergy between community and a potential facility. The proposed SF Gateway project is located within or close to a number of neighborhoods (Bayview, Visitacion Valley, Excelsior, Mission) whose income and occupation demographics suggest that these communities have workforce capabilities which are in line with employment opportunities an e-commerce facility can provide. According to census occupation data, the largest concentration of blue-collar workforce in San Francisco is primarily located in these districts.[5] A closer look at income inequality statistics further indicates a need for additional workforce opportunities in the southeastern districts of San Francisco.[6]
5. **Site Locations with Public Transit Connectivity** – Sites that have ready access to public transit are attractive because convenient public transit makes a site more accessible to employees. Public transportation provides a cost-effective method of commuting to work for the employees of last mile facilities. Facilities with efficient public transit options to and from neighborhoods which have a ready blue-collar workforce provide for an efficiency in travel that can reduce overall vehicle miles traveled. For San Francisco, this is a key need as potential employees in the industrial sector may continue to disperse throughout the region as cost-of-living increases.[7]

Currently, and for the past 5 years, the closest last mile delivery facilities serving San Francisco have been developed outside of the City in South San Francisco, Richmond, Oakland, San Leandro and Hayward. While external factors may have led to development in these locations, these sites are unable to meet the required internal metrics to efficiently serve present and future San Francisco populations.

II. DEVELOPMENT WITHIN A TRAVEL-EFFICIENT LOCATION

As noted above, locations for delivery facilities to the north and east are limited due to the presence of several barriers and require delivery vehicles to travel significant distances to complete their routes when servicing San Francisco. Furthermore, there are limited opportunities for last mile delivery facilities in San Francisco and areas south due to current zoning restrictions and availability of appropriately sized sites. The San Francisco Gateway site is located in an appropriately zoned area and its proximity to the City's population center will shorten the trip length for last mile delivery services when compared to both existing and potential facilities located outside of the City limits including potential sites in South San Francisco, Oakland or elsewhere. This shortened trip length increases efficiency and reduces overall vehicle miles traveled.

III. MILES PER DELIVERY ROUTE

To better understand the impact of site location on delivery logistics, alternate sites within similar Bay Area light industrial markets (e.g. Peninsula, East Bay) can be compared to San Francisco, in terms of their ability to service the San Francisco market. A site related examination - limited to an analysis of the miles travelled per delivery route to reach the San Francisco county line - shows an increase in likely miles travelled per service route of any location other than one in San Francisco itself. An analysis of this type

[5] "San Francisco, California" Statistical Atlas. US Census Bureau (2010 census) and American Community Survey (2010-2016) ("US Census")

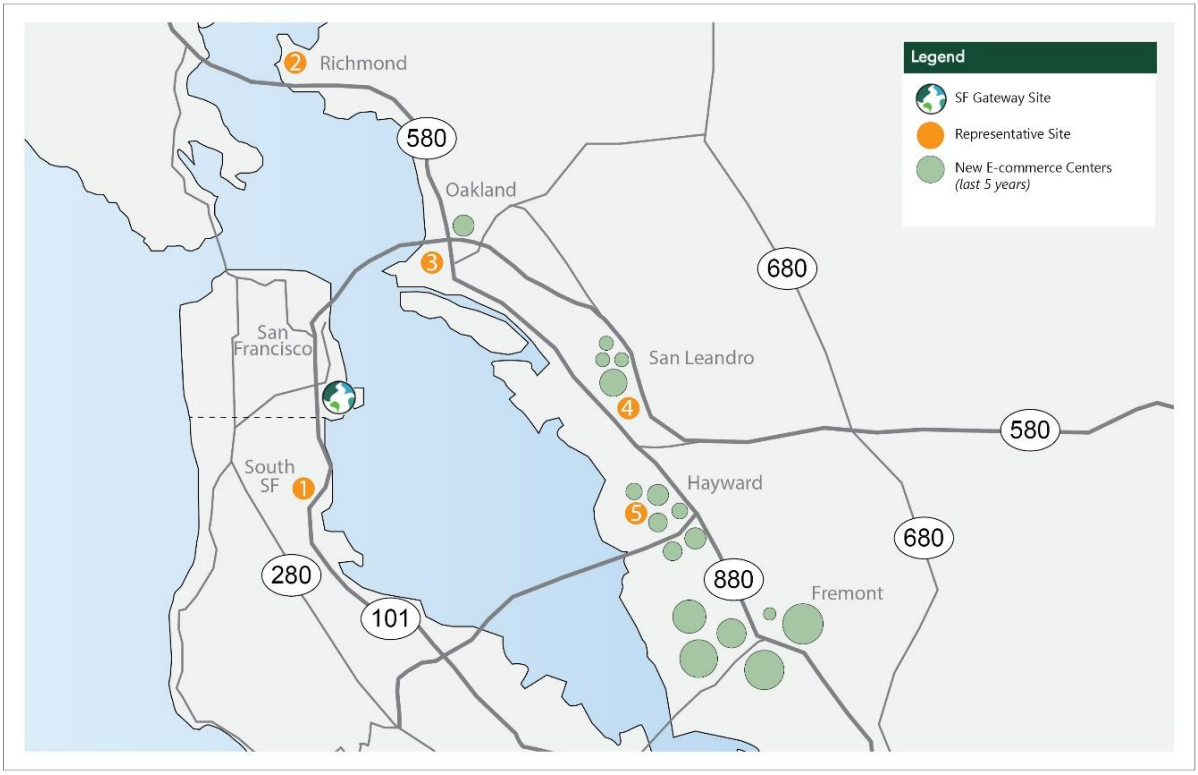
[6] US Census

[7] Make to Manufacture: An Advanced Manufacturing Playbook. San Francisco Mayor's Office of Civic Innovation, SFOEWD, SFMade. 2016

is *hypothetical in nature* as it does not account for the key criteria of natural/artificial barriers, site size, public transit and workforce availability all which shape and restrict site selection.

The following figure, **Figure 1**: **Greater Bay Area Industrial Markets,** demonstrates the travel distances from several alternate representative sites within the Bay Area to the San Francisco county line (excluding Treasure Island). Other than San Francisco, there are 5 main light industrial markets in the immediate greater Bay Area that could be considered proximate enough to San Francisco to service its growing e-commerce demand: Richmond, Oakland, San Leandro, Hayward and South San Francisco. Distances from each of these alternate sites are shown in **Figure 2: Relative Comparison of Miles per Delivery Route.** Each of the distances shown are one way and would be travelled to and from the site.

Figure 1: Greater Bay Area Industrial Markets[8]



[8] Data for new e-commerce center locations in the past 5 years compiled from CBRE Research and Prologis Research

Figure 2: Relative Comparison of Miles per Delivery Route

	Site Location	Miles per Route to San Francisco County line (one way)
1	South San Francisco	5.3 miles
2	Richmond	20.2 miles
3	Oakland	6.4 miles
4	San Leandro	20.9 miles
5	Hayward	25.4 miles

Routes originating from representative sites in San Leandro and Hayward generate the most miles above baseline at 20.9 and 25.4 respectively, while the representative site in South San Francisco would require traveling an additional 5.3 miles on average to reach the closest San Francisco County line. Along with confirming that SF Gateway is well located to serve the e-commerce demand in San Francisco, this comparative analysis reaffirms that facilities located in other Bay Area light industrial markets will likely generate a significant number of additional delivery related miles to access and serve San Francisco's demand for e-commerce transactions.

The proposed project at the San Francisco Gateway meets the key criteria for the location of a last mile delivery facility. The site is one of the closest appropriately sized and zoned areas to the dense population centers (both residential and commercial) of San Francisco, providing short drive times and distances for distribution routes, which will maximize efficiency. The site is readily accessible to both the Highway 101 and 280 corridors, providing efficient connections to the fulfillment centers to the east and minimizing large long-haul truck miles within the City's neighborhoods. The proposed project provides the needed size for a fully functional last mile delivery center with a design that facilitates both the required internal processes and provides the appropriate accommodations for all vehicles that will service the facility. The proposed site is served by SFMTA transit lines, and is close to the Bayview, Visitacion Valley, Excelsior, and Mission, all neighborhoods for which the project could provide attractive blue-collar employment opportunities while also reducing commute travel times from adjacent neighborhoods thus potentially reducing the employee VMT through the project's siting. In comparison with other greater Bay Area light industrial sites, SF Gateway provides the shortest average route distances and ready access to public transportation making for a travel efficient location for last mile distribution sought by e-commerce businesses and supported governmental agencies.

SUMMARY

Three (3) criteria are key to the selection of the San Francisco Gateway site as a center for parcel last might delivery. First, demand for e-commerce in San Francisco will continue to grow to meet the needs of the increased number of potential customers.[9] New development of distribution centers to meet this

[9] E-commerce – Existing Demand and Future Trends in San Francisco and the Greater Bay Area. Prologis Research. 2020

need will occur regardless of location. As such, the proposed project would not create new delivery trips, but has the potential to positively impact the distance of those trips. Second, based on the trajectory of current and future demand if a distribution center were not developed at the current site, it would likely be located outside of San Francisco (South San Francisco, the East Bay or beyond). Lastly, given San Francisco's unique geography and the Bay Area's regional road grid, locating the facility at the proposed site within San Francisco and proximate to Highways 101 and 280, would be the most travel efficient location, potentially reducing mile traveled by vehicles while meeting the demand of the San Francisco market.

APPENDIX D
TRANSPORTATION SUPPORTING INFORMATION

APPENDIX D
TRANSPORTATION SUPPORTING INFORMATION

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Appendix D.1
EXISTING TRAFFIC VOLUME SOURCE DATA

D.1.1: Existing Field Counts (2010-2018-2021)

San Francisco Gateway Project [June 2021]
Weekday AM Peak Hour (6 AM to 9 AM period)
and Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1 - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
Existing Counts (November 2021)														
1	Evans Ave / Napoleon St / Toland St	581	651	1,232	594	443	1,037	104	129	233	105	161	266	1,384
2	Jerrold Ave / Toland St	154	146	300	157	120	277	170	176	346	134	173	307	615
6	McKinnon Ave / Toland St	160	185	345	65	24	89	166	145	311	21	58	79	412
7	McKinnon Ave / Selby St	22	32	54	23	23	46	97	43	140	20	64	84	162
Existing Counts (June 2018)														
1	**Evans Ave / Napoleon St / Toland St**	582	693	1,275	570	416	986	162	158	320	102	149	251	1,416
2	**Jerrold Ave / Toland St**	160	172	332	382	215	597	228	176	404	182	389	571	952
3	Kirkwood Ave / Toland St	176	228	404	8	19	27	231	168	399	0	0	0	415
4	Kirkwood Ave / Selby St	0	24	24	22	9	31	0	0	0	19	8	27	41
5	Kirkwood Ave / Rankin St	74	68	142	0	0	0	73	66	139	9	22	31	156
6	**McKinnon Ave / Toland St**	168	231	399	65	47	112	220	145	365	26	56	82	479
7	**McKinnon Ave / Selby St**	0	0	0	66	73	139	26	1	27	47	65	112	139
8	Oakdale Ave / Toland St	162	188	350	471	341	812	0	0	0	413	517	930	1,046
Existing Counts (April 2010)														
1	**Evans Ave / Napoleon St / Toland St**	620	515	1,135	405	454	859	132	185	317	94	97	191	1,251
2	**Jerrold Ave / Toland St**	197	169	366	357	192	549	207	193	400	154	361	515	915
5	Kirkwood Ave / Rankin St	40	37	77	20	5	25	29	46	75	4	5	9	93
8	Oakdale Ave / Toland St	154	232	386	411	337	748	0	0	0	460	456	916	1,025
9	Jerrold Ave / Rankin St	12	32	44	272	120	392	33	30	63	143	278	421	460
Existing Counts (June 2018)														
1	**Evans Ave / Napoleon St / Toland St**	619	695	1,314	513	392	905	129	163	292	214	225	439	1,475
2	**Jerrold Ave / Toland St**	195	148	343	263	155	418	141	217	358	186	265	451	785
3	Kirkwood Ave / Toland St	217	141	358	5	2	7	136	215	351	0	0	0	358
4	Kirkwood Ave / Selby St	2	0	2	4	3	7	0	0	0	2	5	7	8
5	Kirkwood Ave / Rankin St	53	35	88	0	0	0	35	52	87	3	4	7	91
6	**McKinnon Ave / Toland St**	215	136	351	59	45	104	114	197	311	42	52	94	430
7	**McKinnon Ave / Selby St**	2	5	7	52	35	87	5	5	10	45	59	104	104
8	Oakdale Ave / Toland St	186	120	306	351	506	857	0	0	0	519	430	949	1,056

D.1.2: Project Traffic Assignment – AM peak hour

San Francisco Gateway Project [June 2021]
Weekday AM Peak Hour (6 AM to 10 AM period)

#	Intersection Name	TABLE 1A - INTERSECTION TURNING MOVEMENTS																
		Northbound				Southbound				Eastbound				Westbound				Total All
		Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Approaches
Existing Counts (June 2018)																		
1	Entrance @ Toland St		231		231		168		168				0				0	399
2	Entrance @ Selby St				0				0				0				0	0
3	Entrance @ Rankin St		73		73		66		66				0				0	139
4	Evans Ave / Napoleon St / Toland St	10	129	23	162	363	120	99	582	53	30	19	102	19	40	511	570	1,416
5	Jerrold Ave / Toland St	52	113	63	228	30	91	39	160	34	122	26	182	59	298	25	382	952
6	Kirkwood Ave / Toland St		223	8	231	11	165		176				0	3		5	8	415
7	McKinnon Ave / Toland St	22	184	14	220	22	132	14	168	9	11	6	26	7	20	38	65	479
8	Oakdale Av / Toland St				0	33		129	162	105	308		413		388	83	471	1,046
9	Kirkwood Ave / Rankin St	10	63		73		62	12	74	5		4	9				0	156
10	Kirkwood Ave / Selby St	0	0	0	0	0	0	0	0	10	9		19	0	8	14	22	41
11	McKinnon Ave / Selby St			26	26				0		47		47	1	65		66	139
Existing Baseline																		
1	Entrance @ Toland St		231	0	231	0	146		146				0	0		0	0	377
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	0	51		51		66	0	66	0		0	0				0	117
4	Evans Ave / Napoleon St / Toland St	10	129	23	162	363	120	99	582	53	30	19	102	19	40	511	570	1,416
5	Jerrold Ave / Toland St	52	108	63	223	30	91	39	160	34	122	26	182	59	298	47	404	969
6	Kirkwood Ave / Toland St		223	8	231	33	143		176				0				0	407
7	McKinnon Ave / Toland St	22	184		206		132	14	146	9		6	15	7	20	38	65	432
8	Oakdale Av / Toland St				0	33		129	162	105	319		424		388	69	457	1,043
9	Kirkwood Ave / Rankin St		51		51		62		62	27		4	31				0	144
10	Kirkwood Ave / Selby St		0	0	0	0	0		0	10	31	0	41				0	41
11	McKinnon Ave / Selby St	0	0	51	51	0	0	0	0				0	1	65	0	66	117
Project - All Autos+Vans																		
1	Entrance @ Toland St		29	0	30	3	0		3				0	15		36	51	84
2	Entrance @ Selby St	78	0	2	80	3	0	96	99	0	0	1	1	45	0	6	52	232
3	Entrance @ Rankin St	46	0		46		31	126	157	0		0	0				0	203
4	Evans Ave / Napoleon St / Toland St	0	17	0	17	0	124	0	124	0	0	0	0	0	0	0	0	141
5	Jerrold Ave / Toland St	42	17	0	59	60	65	0	124	0	36	38	74	0	0	0	0	257
6	Kirkwood Ave / Toland St		59	6	65	99	3		103				0				0	168
7	McKinnon Ave / Toland St	0	0		0		15	0	15	0		0	0	0	0	29	29	44
8	Oakdale Av / Toland St				0	13		2	15	0	12		12		2	0	2	29
9	Kirkwood Ave / Rankin St		0		0		157		157	13		0	13				0	171
10	Kirkwood Ave / Selby St		0	7	7	0	0		0	0	6	99	105				0	112
11	McKinnon Ave / Selby St	0	50	46	95	0	17	29	46				0	0	0	31	31	172

San Francisco Gateway Project [June 2021]
Weekday AM Peak Hour (6 AM to 10 AM period)

#	Intersection Name	TABLE 1A - INTERSECTION TURNING MOVEMENTS																
		Northbound				Southbound				Eastbound				Westbound				Total All
		Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Approaches
Project - All Buses+Trucks																		
1	Entrance @ Toland St		8	0	8	1	0		1				0	3		11	14	23
2	Entrance @ Selby St	5	1	0	7	1	1	9	10	0	0	0	1	10	0	5	15	32
3	Entrance @ Rankin St	3	0		3		3	11	14	0		0	0				0	17
4	Evans Ave / Napoleon St / Toland St	0	4	0	4	0	9	0	9	0	0	0	0	0	0	0	0	13
5	Jerrold Ave / Toland St	12	3	0	15	4	5	0	9	0	2	5	7	0	2	0	2	34
6	Kirkwood Ave / Toland St		15	3	19	10	1		11				0				0	30
7	McKinnon Ave / Toland St	0	1		1		3	0	3	0		0	0	0	0	7	7	11
8	Oakdale Av / Toland St				0	3		1	3	0	1		1		1	1	1	6
9	Kirkwood Ave / Rankin St		0		0		11		11	6		3	9				0	20
10	Kirkwood Ave / Selby St		0	6	6	0	0		0	0	4	10	14				0	19
11	McKinnon Ave / Selby St	0	4	3	7	0	5	7	11				0	1	0	2	3	22
Project - All Vehicles																		
1	Entrance @ Toland St		37	0	37	4	0		4				0	18		47	65	106
2	Entrance @ Selby St	84	1	2	87	4	1	104	109	1	0	1	2	55	0	11	66	265
3	Entrance @ Rankin St	49	0		49		34	137	171	1		0	1				0	220
4	Evans Ave / Napoleon St / Toland St	0	21	0	21	0	134	0	134	0	0	0	0	0	0	0	0	154
5	Jerrold Ave / Toland St	54	20	0	74	64	70	0	134	0	38	43	81	0	2	0	2	291
6	Kirkwood Ave / Toland St	0	74	10	84	109	4	0	114	0	0	0	0	0	0	0	0	197
7	McKinnon Ave / Toland St	0	1	0	1	0	18	0	18	0	0	0	0	0	0	36	36	55
8	Oakdale Av / Toland St				0	15		3	18	0	13		13		3	1	4	35
9	Kirkwood Ave / Rankin St	0	1		1		168	0	168	19		3	22				0	191
10	Kirkwood Ave / Selby St	0	0	12	12	0	0	0	0	0	10	109	119	0	0	0	0	132
11	McKinnon Ave / Selby St	0	54	49	103	0	22	36	58	0	0	0	0	1	0	33	34	194
Existing Baseline + All Project Vehicles																		
1	Entrance @ Toland St		268	0	268	4	146		150				0	18		47	65	483
2	Entrance @ Selby St	84	1	2	87	4	1	104	109	1	0	1	2	55	0	11	66	265
3	Entrance @ Rankin St	49	51		100		100	137	237	1		0	1				0	337
4	Evans Ave / Napoleon St / Toland St	10	150	23	183	363	254	99	716	53	30	19	102	19	40	511	570	1,570
5	Jerrold Ave / Toland St	106	128	63	297	94	161	39	294	34	160	69	263	59	300	47	406	1,260
6	Kirkwood Ave / Toland St	0	297	18	315	142	147	0	290	0	0	0	0	0	0	0	0	604
7	McKinnon Ave / Toland St	22	185	0	207	0	150	14	164	9	0	6	15	7	20	74	101	487
8	Oakdale Av / Toland St				0	48		132	180	105	332		437		391	70	461	1,078
9	Kirkwood Ave / Rankin St	0	52		52		230	0	230	46		7	53				0	335
10	Kirkwood Ave / Selby St	0	0	12	12	0	0	0	0	10	41	109	160	0	0	0	0	173
11	McKinnon Ave / Selby St	0	54	100	154	0	22	36	58	0	0	0	0	2	65	33	100	311

San Francisco Gateway Project [June 2021]
Weekday AM Peak Hour (6 AM to 10 AM period)

#	Intersection Name	TABLE 1B - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
	Existing Counts (June 2018)													
1	Entrance @ Toland St	168	231	399	0	0	0	231	168	399	0	0	0	399
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	66	73	139	0	0	0	73	66	139	0	0	0	139
4	Evans Ave / Napoleon St / Toland St	582	693	1,275	570	416	986	162	158	320	102	149	251	1,416
5	Jerrold Ave / Toland St	160	172	332	382	215	597	228	176	404	182	389	571	952
6	Kirkwood Ave / Toland St	176	228	404	8	19	27	231	168	399	0	0	0	415
7	McKinnon Ave / Toland St	168	231	399	65	47	112	220	145	365	26	56	82	479
8	Oakdale Av / Toland St	162	188	350	471	341	812	0	0	0	413	517	930	1,046
9	Kirkwood Ave / Rankin St	74	68	142	0	0	0	73	66	139	9	22	31	156
10	Kirkwood Ave / Selby St	0	24	24	22	9	31	0	0	0	19	8	27	41
11	McKinnon Ave / Selby St	0	0	0	66	73	139	26	1	27	47	65	112	139
	Existing Baseline													
1	Entrance @ Toland St	146	231	377	0	0	0	231	146	377	0	0	0	377
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	66	51	117	0	0	0	51	66	117	0	0	0	117
4	Evans Ave / Napoleon St / Toland St	582	693	1,275	570	416	986	162	158	320	102	149	251	1,416
5	Jerrold Ave / Toland St	160	189	349	404	215	619	223	176	399	182	389	571	969
6	Kirkwood Ave / Toland St	176	223	399	0	41	41	231	143	374	0	0	0	407
7	McKinnon Ave / Toland St	146	231	377	65	0	65	206	145	351	15	56	71	432
8	Oakdale Av / Toland St	162	174	336	457	352	809	0	0	0	424	517	941	1,043
9	Kirkwood Ave / Rankin St	62	78	140	0	0	0	51	66	117	31	0	31	144
10	Kirkwood Ave / Selby St	0	10	10	0	31	31	0	0	0	41	0	41	41
11	McKinnon Ave / Selby St	0	0	0	66	51	117	51	1	52	0	65	65	117
	Project - All Autos+Vans													
1	Entrance @ Toland St	3	65	68	51	4	54	30	15	44	0	0	0	84
2	Entrance @ Selby St	99	7	106	52	5	57	80	46	126	1	174	175	232
3	Entrance @ Rankin St	157	0	157	0	0	0	46	31	76	0	172	173	203
4	Evans Ave / Napoleon St / Toland St	124	17	141	0	0	0	17	124	141	0	0	0	141
5	Jerrold Ave / Toland St	124	17	141	0	96	96	59	103	161	74	42	116	257
6	Kirkwood Ave / Toland St	103	59	161	0	105	105	65	3	68	0	0	0	168
7	McKinnon Ave / Toland St	15	30	44	29	0	29	0	15	15	0	0	0	44
8	Oakdale Av / Toland St	15	0	15	2	25	27	0	0	0	12	4	17	29
9	Kirkwood Ave / Rankin St	157	14	171	0	0	0	0	157	157	13	0	13	171
10	Kirkwood Ave / Selby St	0	0	0	0	13	13	7	99	106	105	0	105	112
11	McKinnon Ave / Selby St	46	80	126	31	46	76	95	17	112	0	29	29	172

San Francisco Gateway Project [June 2021]
Weekday AM Peak Hour (6 AM to 10 AM period)

#	Intersection Name	TABLE 1B - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
	Project - All Buses+Trucks													
1	Entrance @ Toland St	1	19	19	14	1	15	8	3	11	0	0	0	23
2	Entrance @ Selby St	10	6	16	15	1	16	7	11	18	1	14	15	32
3	Entrance @ Rankin St	14	0	14	0	0	0	3	3	6	0	14	14	17
4	Evans Ave / Napoleon St / Toland St	9	4	13	0	0	0	4	9	13	0	0	0	13
5	Jerrold Ave / Toland St	9	4	13	2	6	8	15	11	26	7	14	21	34
6	Kirkwood Ave / Toland St	11	15	26	0	14	14	19	1	19	0	0	0	30
7	McKinnon Ave / Toland St	3	8	11	7	0	7	1	3	4	0	0	0	11
8	Oakdale Av / Toland St	3	1	4	1	4	5	0	0	0	1	1	2	6
9	Kirkwood Ave / Rankin St	11	6	17	0	0	0	0	14	14	9	0	9	20
10	Kirkwood Ave / Selby St	0	0	0	0	9	9	6	10	16	14	0	14	19
11	McKinnon Ave / Selby St	11	7	18	3	3	6	7	6	13	0	7	7	22
	Project - All Vehicles													
1	Entrance @ Toland St	4	84	88	65	4	69	37	18	55	0	0	0	106
2	Entrance @ Selby St	109	12	122	66	6	73	87	58	144	2	188	190	265
3	Entrance @ Rankin St	171	1	172	0	0	0	49	34	82	1	186	187	220
4	Evans Ave / Napoleon St / Toland St	134	21	154	0	0	0	21	134	154	0	0	0	154
5	Jerrold Ave / Toland St	134	21	154	2	101	104	74	114	187	81	55	136	291
6	Kirkwood Ave / Toland St	114	74	187	0	119	119	84	4	88	0	0	0	197
7	McKinnon Ave / Toland St	18	37	55	36	0	36	1	18	19	0	0	0	55
8	Oakdale Av / Toland St	18	1	19	4	28	32	0	0	0	13	6	19	35
9	Kirkwood Ave / Rankin St	168	19	187	0	0	0	1	171	172	22	0	22	191
10	Kirkwood Ave / Selby St	0	0	0	0	22	22	12	109	122	119	0	119	132
11	McKinnon Ave / Selby St	58	87	144	34	49	82	103	22	125	0	36	36	194
	Existing Baseline + All Project Vehicles													
1	Entrance @ Toland St	150	315	465	65	4	69	268	164	432	0	0	0	483
2	Entrance @ Selby St	109	12	122	66	6	73	87	58	144	2	188	190	265
3	Entrance @ Rankin St	237	52	289	0	0	0	100	100	199	1	186	187	337
4	Evans Ave / Napoleon St / Toland St	716	714	1,429	570	416	986	183	292	474	102	149	251	1,570
5	Jerrold Ave / Toland St	294	210	503	406	316	723	297	290	586	263	444	707	1,260
6	Kirkwood Ave / Toland St	290	297	586	0	160	160	315	147	462	0	0	0	604
7	McKinnon Ave / Toland St	164	268	432	101	0	101	207	163	370	15	56	71	487
8	Oakdale Av / Toland St	180	175	355	461	380	841	0	0	0	437	523	960	1,078
9	Kirkwood Ave / Rankin St	230	97	327	0	0	0	52	237	289	53	0	53	335
10	Kirkwood Ave / Selby St	0	10	10	0	53	53	12	109	122	160	0	160	173
11	McKinnon Ave / Selby St	58	87	144	100	100	199	154	23	177	0	101	101	311

D.1.3: Project Traffic Assignment – PM peak hour

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1A - INTERSECTION TURNING MOVEMENTS																
		Northbound				Southbound				Eastbound				Westbound				Total All
		Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Approaches
Existing Counts (June 2018)																		
1	Entrance @ Toland St		136		136		215		215				0				0	351
2	Entrance @ Selby St				0				0				0				0	0
3	Entrance @ Rankin St		35		35		52		52				0				0	87
4	Evans Ave / Napoleon St / Toland St	3	93	33	129	322	122	175	619	163	37	14	214	27	47	439	513	1,475
5	Jerrold Ave / Toland St	34	85	22	141	20	143	32	195	35	113	38	186	36	199	28	263	785
6	Kirkwood Ave / Toland St		136		136	2	215		217				0			5	5	358
7	McKinnon Ave / Toland St	16	92	6	114	25	173	17	215	13	14	15	42	9	19	31	59	430
8	Oakdale Av / Toland St				0	54		132	186	67	452		519		298	53	351	1,056
9	Kirkwood Ave / Rankin St	2	33		35		51	2	53	2		1	3				0	91
10	Kirkwood Ave / Selby St	0	0	0	0	1	0	1	2	0	2	0	2	0	4	0	4	8
11	McKinnon Ave / Selby St	5			5			2	2	5	35	5	45		52		52	104
Existing Baseline																		
1	Entrance @ Toland St		136	0	136	0	190		190				0	0		0	0	326
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	0	20		20		52	0	52	0		0	0				0	72
4	Evans Ave / Napoleon St / Toland St	3	93	33	129	322	122	175	619	163	37	14	214	27	47	439	513	1,475
5	Jerrold Ave / Toland St	34	80	22	136	20	143	32	195	35	113	38	186	36	199	35	270	787
6	Kirkwood Ave / Toland St		136	0	136	27	190		217				0				0	353
7	McKinnon Ave / Toland St	16	92		108		173	17	190	13		20	33	9	17	31	57	388
8	Oakdale Av / Toland St				0	59		132	191	67	466		533		298	47	345	1,069
9	Kirkwood Ave / Rankin St		20		20		51		51	35		1	36				0	107
10	Kirkwood Ave / Selby St		0	0	0	9	0		9	0	27	0	27				0	36
11	McKinnon Ave / Selby St	5	0	20	25	0	0	0	0				0	0	52	0	52	77
Project - All Autos+Vans																		
1	Entrance @ Toland St		95	0	95	2	0		2				0	49		114	162	259
2	Entrance @ Selby St	59	0	1	60	2	0	63	65	1	0	2	3	146	0	19	164	292
3	Entrance @ Rankin St	35	0		35		24	87	111	1		0	1				0	146
4	Evans Ave / Napoleon St / Toland St	0	58	0	58	0	88	0	88	0	0	0	0	0	0	0	0	146
5	Jerrold Ave / Toland St	132	58	0	190	43	46	0	88	0	20	21	41	0	0	0	0	319
6	Kirkwood Ave / Toland St		190	19	208	65	2		67				0				0	275
7	McKinnon Ave / Toland St	0	0		0		49	0	49	0		0	0	0	0	95	95	144
8	Oakdale Av / Toland St				0	41		8	49	0	9		9		8	0	8	65
9	Kirkwood Ave / Rankin St		1		1		111		111	38		0	38				0	149
10	Kirkwood Ave / Selby St		0	19	19	0	0		0	0	19	65	83				0	103
11	McKinnon Ave / Selby St	0	36	35	71	0	53	95	148				0	0	0	24	24	242

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1A - INTERSECTION TURNING MOVEMENTS																
		Northbound				Southbound				Eastbound				Westbound				Total All
		Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Approaches
Project - All Buses+Trucks																		
1	Entrance @ Toland St		6	0	6	0	0		0				0	1		7	9	15
2	Entrance @ Selby St	3	0	0	3	0	0	6	6	0	0	1	1	7	0	2	9	20
3	Entrance @ Rankin St	2	0		2		1	7	8	0		0	0				0	10
4	Evans Ave / Napoleon St / Toland St	0	2	0	2	0	4	0	4	0	0	0	0	0	0	0	0	7
5	Jerrold Ave / Toland St	10	2	0	12	1	3	0	4	0	3	4	7	0	1	0	1	25
6	Kirkwood Ave / Toland St		12	1	13	7	0		7				0				0	20
7	McKinnon Ave / Toland St	0	0		0		1	0	1	0		0	0	0	0	6	6	7
8	Oakdale Av / Toland St				0	1		0	1	0	1		1		0	0	1	2
9	Kirkwood Ave / Rankin St		0		0		7		7	2		2	4				0	11
10	Kirkwood Ave / Selby St		0	2	2	0	0		0	0	1	6	8				0	10
11	McKinnon Ave / Selby St	0	2	2	4	0	3	6	8				0	0	0	1	1	13
Project - All Vehicles																		
1	Entrance @ Toland St		101	0	101	2	0		2				0	50		121	171	274
2	Entrance @ Selby St	62	0	1	63	2	0	69	71	1	0	2	3	153	0	20	174	311
3	Entrance @ Rankin St	36	0		36		25	94	119	1		0	1				0	156
4	Evans Ave / Napoleon St / Toland St	0	60	0	60	0	92	0	92	0	0	0	0	0	0	0	0	152
5	Jerrold Ave / Toland St	142	60	0	202	44	48	0	92	0	23	25	48	0	1	0	1	344
6	Kirkwood Ave / Toland St	0	202	19	222	72	2	0	74	0	0	0	0	0	0	0	0	295
7	McKinnon Ave / Toland St	0	0	0	0	0	50	0	50	0	0	0	0	0	0	100	101	151
8	Oakdale Av / Toland St				0	42		8	50	0	9		9		8	0	8	67
9	Kirkwood Ave / Rankin St	0	1		1		117	0	117	40		2	42				0	160
10	Kirkwood Ave / Selby St	0	0	22	22	0	0	0	0	0	20	71	91	0	0	0	0	113
11	McKinnon Ave / Selby St	0	39	36	75	0	55	101	156	0	0	0	0	0	0	25	25	256
Existing Baseline + All Project Vehicles																		
1	Entrance @ Toland St		237	0	237	2	190		192				0	50		121	171	600
2	Entrance @ Selby St	62	0	1	63	2	0	69	71	1	0	2	3	153	0	20	174	311
3	Entrance @ Rankin St	36	20		56		77	94	171	1		0	1				0	228
4	Evans Ave / Napoleon St / Toland St	3	153	33	189	322	214	175	711	163	37	14	214	27	47	439	513	1,627
5	Jerrold Ave / Toland St	176	140	22	338	64	191	32	287	35	136	63	234	36	200	35	271	1,131
6	Kirkwood Ave / Toland St	0	338	19	358	99	192	0	291	0	0	0	0	0	0	0	0	648
7	McKinnon Ave / Toland St	16	92	0	108	0	223	17	240	13	0	20	33	9	17	131	158	539
8	Oakdale Av / Toland St				0	101		140	241	67	475		542		306	47	353	1,136
9	Kirkwood Ave / Rankin St	0	21		21		168	0	168	75		3	78				0	267
10	Kirkwood Ave / Selby St	0	0	22	22	9	0	0	9	0	47	71	118	0	0	0	0	149
11	McKinnon Ave / Selby St	5	39	56	100	0	55	101	156	0	0	0	0	0	52	25	77	333

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1B - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
	Existing Counts (June 2018)													
1	Entrance @ Toland St	215	136	351	0	0	0	136	215	351	0	0	0	351
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	52	35	87	0	0	0	35	52	87	0	0	0	87
4	Evans Ave / Napoleon St / Toland St	619	695	1,314	513	392	905	129	163	292	214	225	439	1,475
5	Jerrold Ave / Toland St	195	148	343	263	155	418	141	217	358	186	265	451	785
6	Kirkwood Ave / Toland St	217	141	358	5	2	7	136	215	351	0	0	0	358
7	McKinnon Ave / Toland St	215	136	351	59	45	104	114	197	311	42	52	94	430
8	Oakdale Av / Toland St	186	120	306	351	506	857	0	0	0	519	430	949	1,056
9	Kirkwood Ave / Rankin St	53	35	88	0	0	0	35	52	87	3	4	7	91
10	Kirkwood Ave / Selby St	2	0	2	4	3	7	0	0	0	2	5	7	8
11	McKinnon Ave / Selby St	2	5	7	52	35	87	5	5	10	45	59	104	104
	Existing Baseline													
1	Entrance @ Toland St	190	136	326	0	0	0	136	190	326	0	0	0	326
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	52	20	72	0	0	0	20	52	72	0	0	0	72
4	Evans Ave / Napoleon St / Toland St	619	695	1,314	513	392	905	129	163	292	214	225	439	1,475
5	Jerrold Ave / Toland St	195	150	345	270	155	425	136	217	353	186	265	451	787
6	Kirkwood Ave / Toland St	217	136	353	0	27	27	136	190	326	0	0	0	353
7	McKinnon Ave / Toland St	190	136	326	57	0	57	108	202	310	33	50	83	388
8	Oakdale Av / Toland St	191	114	305	345	525	870	0	0	0	533	430	963	1,069
9	Kirkwood Ave / Rankin St	51	55	106	0	0	0	20	52	72	36	0	36	107
10	Kirkwood Ave / Selby St	9	0	9	0	36	36	0	0	0	27	0	27	36
11	McKinnon Ave / Selby St	0	0	0	52	20	72	25	0	25	0	57	57	77
	Project - All Autos+Vans													
1	Entrance @ Toland St	2	208	210	162	2	164	95	49	144	0	0	0	259
2	Entrance @ Selby St	65	19	84	164	3	167	60	148	208	3	122	125	292
3	Entrance @ Rankin St	111	1	111	0	0	0	35	24	58	1	121	122	146
4	Evans Ave / Napoleon St / Toland St	88	58	146	0	0	0	58	88	146	0	0	0	146
5	Jerrold Ave / Toland St	88	58	146	0	63	63	190	67	256	41	132	174	319
6	Kirkwood Ave / Toland St	67	190	256	0	83	83	208	2	210	0	0	0	275
7	McKinnon Ave / Toland St	49	95	144	95	0	95	0	49	49	0	0	0	144
8	Oakdale Av / Toland St	49	0	49	8	50	58	0	0	0	9	15	24	65
9	Kirkwood Ave / Rankin St	111	38	149	0	0	0	1	111	111	38	0	38	149
10	Kirkwood Ave / Selby St	0	0	0	0	38	38	19	65	84	83	0	83	103
11	McKinnon Ave / Selby St	148	60	208	24	35	58	71	53	124	0	95	95	242

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1B - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
	Project - All Buses+Trucks													
1	Entrance @ Toland St	0	13	13	9	0	9	6	1	7	0	0	0	15
2	Entrance @ Selby St	6	2	9	9	0	10	3	8	11	1	9	10	20
3	Entrance @ Rankin St	8	0	9	0	0	0	2	1	3	0	9	9	10
4	Evans Ave / Napoleon St / Toland St	4	2	7	0	0	0	2	4	7	0	0	0	7
5	Jerrold Ave / Toland St	4	2	7	1	4	6	12	7	19	7	11	18	25
6	Kirkwood Ave / Toland St	7	12	19	0	8	8	13	0	13	0	0	0	20
7	McKinnon Ave / Toland St	1	6	7	6	0	6	0	1	2	0	0	0	7
8	Oakdale Av / Toland St	1	0	2	1	1	2	0	0	0	1	1	1	2
9	Kirkwood Ave / Rankin St	7	3	9	0	0	0	0	8	9	4	0	4	11
10	Kirkwood Ave / Selby St	0	0	0	0	4	4	2	6	9	8	0	8	10
11	McKinnon Ave / Selby St	8	3	11	1	2	3	4	3	7	0	6	6	13
	Project - All Vehicles													
1	Entrance @ Toland St	2	222	224	171	2	173	101	50	151	0	0	0	274
2	Entrance @ Selby St	71	22	93	174	3	177	63	156	219	3	131	134	311
3	Entrance @ Rankin St	119	1	120	0	0	0	36	25	61	1	130	131	156
4	Evans Ave / Napoleon St / Toland St	92	60	152	0	0	0	60	92	152	0	0	0	152
5	Jerrold Ave / Toland St	92	60	152	1	67	69	202	74	276	48	143	192	344
6	Kirkwood Ave / Toland St	74	202	276	0	91	91	222	2	224	0	0	0	295
7	McKinnon Ave / Toland St	50	101	151	101	0	101	0	50	51	0	0	0	151
8	Oakdale Av / Toland St	50	0	51	8	51	59	0	0	0	9	16	25	67
9	Kirkwood Ave / Rankin St	117	41	158	0	0	0	1	119	120	42	0	42	160
10	Kirkwood Ave / Selby St	0	0	0	0	42	42	22	71	93	91	0	91	113
11	McKinnon Ave / Selby St	156	63	219	25	36	61	75	56	130	0	101	101	256
	Existing Baseline + All Project Vehicles													
1	Entrance @ Toland St	192	358	550	171	2	173	237	240	477	0	0	0	600
2	Entrance @ Selby St	71	22	93	174	3	177	63	156	219	3	131	134	311
3	Entrance @ Rankin St	171	21	192	0	0	0	56	77	133	1	130	131	228
4	Evans Ave / Napoleon St / Toland St	711	755	1,466	513	392	905	189	255	444	214	225	439	1,627
5	Jerrold Ave / Toland St	287	210	497	271	222	494	338	291	629	234	408	643	1,131
6	Kirkwood Ave / Toland St	291	338	629	0	118	118	358	192	550	0	0	0	648
7	McKinnon Ave / Toland St	240	237	477	158	0	158	108	252	361	33	50	83	539
8	Oakdale Av / Toland St	241	114	356	353	576	929	0	0	0	542	446	988	1,136
9	Kirkwood Ave / Rankin St	168	96	264	0	0	0	21	171	192	78	0	78	267
10	Kirkwood Ave / Selby St	9	0	9	0	78	78	22	71	93	118	0	118	149
11	McKinnon Ave / Selby St	156	63	219	77	56	133	100	56	155	0	158	158	333

Appendix D.2
PROJECT TRAVEL DEMAND INFORMATION

D.2.1: Land Use Summary

San Francisco Gateway Project [June 2021]

Land Use Comparison Summary

	[1]	[2]	[3]=[1]+[2]	[4]	[5]	[6]=[4]+[5]	[8]=[2]+[6]	[9]=[3]+[6]	[10]	[11]=[9]+[10]	[1] / [11]
	Development Area			Logistics Yard Area			Total	Total			Active
	Active Development	Vehicle Staging	Total	Yard	Veh & Ped Circulation	Total	Veh. Staging & Yard Area	Development & Yard Areas	Accessory Parking	TOTAL PROJECT	Development Percentage
PDR Uses											
Maker and Manufacturing	35,000		35,000			-	-	35,000		35,000	100%
Parcel/Last Mile Delivery	364,715	394,685	759,400	97,686	18,537	116,223	510,908	875,623	340,092	1,215,715	30%
Wholesale and Storage	209,575	162,825	372,400	48,114	10,763	58,877	221,702	431,277	167,508	598,785	35%
Public Fleet Staging & Maint.		-	-	-		-	-	-			
Private Fleet Staging & Maint.		-	-	-		-	-	-			
Total PDR Uses	**609,290**	**557,510**	**1,166,800**	**145,800**	**29,300**	**175,100**	**732,610**	**1,341,900**	**507,600**	**1,849,500**	**33%**
Laboratory / R&D		-	-	-		-	-	-			
Subtotal PDR + Laboratory / R&D	**609,290**	**557,510**	**1,166,800**	**145,800**	**29,300**	**175,100**	**732,610**	**1,341,900**	**507,600**	**1,849,500**	**33%**
Retail	8,400		8,400			-	-	8,400		8,400	100%
Vehicle Circulation											
Ramp and ramp circulation			-		239,600	239,600	239,600	239,600		239,600	
Parking circulation (Level 1)			-			-	-	-	35,900	35,900	
Total Vehicle Circulation	**-**	**-**	**-**	**-**	**239,600**	**239,600**	**239,600**	**239,600**	**35,900**	**275,500**	
Vertical Circulation (stairs & exit corridors)			-		26,600	26,600	26,600	26,600		26,600	
TOTAL	**617,690**	**557,510**	**1,175,200**	**145,800**	**295,500**	**441,300**	**998,810**	**1,616,500**	**543,500**	**2,160,000**	

GSF used for travel demand calculations
GSF used in Project Description summary (Table 3)
GSF used in Project Characteristics summary (Table 2)

D.2.2: Travel Demand Memorandum

Adavant Consulting

Memorandum

To: Sherie George/Elizabeth White – San Francisco Planning Department

From: José I. Farrán – Adavant Consulting
Luba C. Wyznyckyj – LCW Consulting

Date: December 10, 2021 **FINAL UPDATED**

Re: 749 Toland Street and 2000 McKinnon Avenue Project Case No. 2015-012491ENV
Estimation of Project Travel Demand

This technical memorandum describes the assumptions and methodology used to develop the travel demand, including vehicle trip classification, for the San Francisco Gateway project (proposed project). Travel demand refers to the vehicle, transit, pedestrian, and bicycle trips that would be generated by the proposed project. The analysis presents the estimate of project-generated person and vehicle trips that would travel to and from the project site, including the number of commercial vehicles (i.e., service vans and trucks).

The travel demand analysis presented in this document is based on standard methodology and practices used in the evaluation of transportation impacts as part of environmental review in San Francisco, which are described in detail in the *Transportation Impact Analysis Guidelines for Environmental Review* (SF Guidelines)[1] prepared by the San Francisco Planning Department (department). Detailed travel demand calculations and supporting data are included in the attached appendices.

This memorandum also presents the methodology and analysis results for estimation of the average daily Vehicle Miles Traveled (VMT) per worker for the proposed project. This particular calculation of VMT per worker rate was conducted because specific information on VMT for the types of PDR uses proposed by the SF Gateway project have not been estimated by the department, nor are they available from the San Francisco County Transportation Authority's (SFCTA) travel demand forecasting model.

[1] San Francisco Planning Department, *Transportation Impact Analysis Guidelines for Environmental Review*, October 2002 and *Transportation Impact Analysis Guidelines*, February 2019 (Updated October 2019). Referred to in this memorandum as 2002 SF Guidelines or 2019 SF Guidelines, as appropriate.

PROJECT DESCRIPTION

The project sponsor, Prologis Inc., proposes to redevelop two parcels in an industrial area of San Francisco. The proposed project would construct two similar new multi-story production, distribution, and repair (PDR)[2] buildings that would provide new industrial space in the city. The project site is located within the Bayview Hunters Point Area Plan. The site consists of two parcels that combine for a total gross site area of approximately 743,800 square feet (17.1 total gross acres).

Four one-story, metal clad buildings currently occupy the project site. The project sponsor would demolish these existing buildings and construct two three-story buildings (each building would also have an active roof). Each building would include a combination of enclosed and partially enclosed spaces, with a multi-level vehicular system (comprised of staging, circulation, and logistic yard areas) serving each level. In both buildings, the three levels of the PDR space would have direct vehicular access via a one-way ramp system for vehicles as large as tractor trailers. The roof level would provide a solar array and a screened, open-air multi-purpose deck that could be used for parking, and/or material and vehicle staging. The two new buildings (including PDR space, logistics yard, vehicular systems and ground-floor retail spaces) would total approximately 2,160,000 gross square feet (gsf). **Appendix A** provides a graphic summary of the buildings sizes, possible layout, access, and vehicular circulation.

The proposed development would provide space for a variety of potential PDR uses, including maker and light manufacturing space, parcel delivery and last-mile delivery, wholesale and storage space, and vehicle fleet management uses, as well as other uses permitted within the PDR-2 zoning designation, such as certain types of laboratories, and retail. An average of up to 1,980 employees would be onsite on a typical day.[3]

The travel demand analysis presented in this document was conducted for the project sponsor's preferred mix of PDR uses, which is subsequently referred as the proposed project. The project sponsor proposes to dedicate a total of 1,341,900 gsf to PDR uses within the two buildings (excluding the areas dedicated to vehicle and vertical circulation, and accessory parking), with approximately 35,000 gsf in the ground-floor allocated to maker and light manufacturing space, plus, in the upper floors, about 875,600 gsf allocated to parcel and last-mile delivery, and approximately 431,300 gsf allocated to wholesale/storage space. In addition, the proposed project would provide 8,400 gsf of retail space on the ground floor. **Table 1** presents a summary of the proposed land uses for the two buildings combined.

[2] PDR use is a grouping of uses that includes but is not limited to: all industrial and agricultural uses, ambulance services, animal hospital, automotive service station, automotive repair, automotive wash, arts activities, business services, cat boarding, catering service, commercial storage, kennel, motor vehicle tow service, livery stable, parcel delivery service, public utilities yard, storage yard, trade office, trade shop, wholesale sales, and wholesale storage.

[3] About 25 retail and 1,955 PDR employees; Jillian Betro, Project Manager, AECOM, May 17, 2021.

Table 1
Proposed Project Land Uses

Land Use Type	Land Use Size (gross square feet)
Maker/Light manufacturing space	35,000
Parcel delivery and Last-mile delivery	
Goods handling [a]	*364,715*
Vehicle staging and yard [b]	*510,908*
Total Parcel delivery and Last-mile delivery	875,623
Wholesale and Storage	
Goods handling [c]	*209,575*
Vehicle staging and yard [b]	*221,702*
Total Wholesale and Storage	431,277
Retail	
General Retail	*4,200*
Café/Quick Service Restaurant	*4,200*
Total Retail	8,400
Other areas	
Vehicle Circulation [d]	*275,500*
Vertical Circulation [e]	*26,600*
Accessory Parking [f]	*507,600*
Total other areas	809,700
Total project area	**2,160,000**
Land Use Summary	
PDR active development [g]	609,290
PDR vehicle staging and yards	732,610
Retail [g]	8,400
Building circulation and accessory parking	809,700
Total project area	**2,160,000**

Notes:
a. Area dedicated to goods handling within the overall Parcel delivery and Last-mile delivery space. Consistent with current industry standards, this area represents about 30 percent of the total space allocated to this use (1,215,715 gsf, including parking).
b. Truck staging, maneuvering, and loading/unloading area within each land use space.
c. Area dedicated to goods handling within the overall Wholesale and Storage space. Consistent with current industry standards, this area represents about 35 percent of the total space allocated to this use (598,785 gsf, including parking).
d. Vehicle ramps and ramp circulation.
e. Stairs and exit corridors.
f. About two thirds of the total accessory parking supply (340,092 gsf) would be allocated to Parcel and Last-mile delivery uses, while the remaining one third (167,508 gsf) would be allocated to Wholesale and Storage uses.
g. Building area used for trip generation estimation purposes.

Source: Prologis – July 2021.

Data Collection and Analysis

The 2019 SF Guidelines do not include specific travel demand information (trip generation rates, peak hour daily percentages, etc.) for most of the types of PDR uses that the project sponsor considers as potential uses that could be accommodated within the proposed project site. As a result, an extensive transportation data collection effort was developed and conducted specifically for this project, in consultation with the department, to document the travel characteristics of these uses. The potential PDR uses for the project include maker and light manufacturing, parcel delivery and last mile delivery, and wholesale and storage. Additionally, public fleet staging and maintenance and private fleet staging and maintenance uses were initially considered as a possible use for the proposed project, and were therefore included as part of the data collection and post-processing analysis effort conducted specifically for this project (but not for the remainder of the analysis).

The data collection effort included several multi-day counts of person and vehicle trips at 15-minute intervals, as well as detailed vehicle classification counts, conducted at various facilities in the San Francisco Bay Area that were considered similar to the proposed project in terms of their size, location (urban industrial area), and planned activities. This information was then supplemented, as needed, with a review of additional data obtained from nationally recognized sources, such as the Institute of Transportation Engineers (ITE). Detailed count information, including daily charts of trip arrivals and departures, is presented in **Appendix B**.

Field Survey Sites

Field data collection was conducted for maker and manufacturing, parcel delivery and last-mile delivery, public fleet staging and maintenance, and private fleet staging and maintenance uses. The site selection was coordinated with and approved by the department. Each use and the details of the data collection effort are described below.

Maker and Manufacturing Uses

This use is defined as a light industrial use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers, wholesalers, or the public. Makers are often characterized by their production and custom activities that usually involve individual or special design or handiwork.

Person and vehicle counts were conducted on Thursday, April 19, 2018 at the American Industrial Center building, located at 2345 Third Street in San Francisco. This site was selected because it consists of a single building with multiple varied tenants, similar to those that can be expected to be at the proposed project site. In addition, the limited walk access to the upper floors of the building (four in total, including the docks) made the data collection effort more effective and the count more accurate.

The building is bounded by Third, 20th, Illinois and 22nd streets. Person counts were conducted at the four building entrances serving the upper floors from 4 a.m. until 8 p.m., at 15-minute intervals. The tenants at the two upper floors represent a mixture of food, craft, and small assembly tenants, occupying an area of approximately 200,000 gsf. In

addition, vehicle classification counts were conducted during the same time period at the entrances to the building from the adjacent parking lot and two multi-tenant loading docks serving the two upper floors and located on Illinois Street and Third Street.

Parcel Delivery and Last-Mile Delivery Uses
This use is defined as the movement of retail goods, typically purchased via e-commerce, from a transportation hub to the final delivery destination (typically a personal residence or business) within a specified timeframe (typically as quickly as feasible, e.g. on the same day of purchase). This use includes staging of long-haul trucks delivering good to the facility, small delivery trucks and vans for local deliveries, and the use of some small-scale, personal-type vehicles. Examples of regional delivery services include UPS, FedEx, and OnTrac. Last-mile delivery services include services such as Amazon Prime or Google Express.

Person and vehicle counts were conducted at OnTrac's parcel distribution center and at an Amazon's shipping and package processing center, both located within the approximately 310,000 gsf building at 250 Utah Avenue/299 Littlefield Avenue in South San Francisco. This site was selected because it is an existing parcel distribution and last-mile delivery center currently serving San Francisco, and with similar operations to those that can be expected to occur at the proposed project site. The limited number of entryways in and out of the center facilitated the installation of video cameras to record multiple day person and vehicle trip activity.

The OnTrac site consists of an approximately 112,400 gsf facility, with an adjacent surface parking lot, a truck staging area, and 13 back-in loading docks. The site is accessible from both Utah and Littlefield avenues. Using multiple video cameras, person and vehicle classification counts were recorded continuously during 48 hours at the employee and vehicle entrances to the facility on Tuesday, April 17 and Wednesday, April 18, 2018.

Person and vehicle counts were also conducted at Amazon's shipping and package processing center located at 250 Utah Avenue in South San Francisco. The Amazon site consists of an approximately 75,600 gsf facility with an adjacent surface parking lot, a truck staging area, and eight back-in loading docks. The facility is accessible from two driveways on Utah Avenue. Using multiple video cameras, person and vehicle classification counts were recorded during 48 hours at the employee and vehicle entrances to the facility on Wednesday, April 25 and Thursday, April 27, 2018.

Public Fleet Staging and Maintenance Uses
Public fleet staging and maintenance includes the storage and maintenance of buses, trolleys, and/or shuttles for a public transportation agency, such as Muni, the transit division of the San Francisco Municipal Transportation Agency (SFMTA), or San Francisco Paratransit.

Person and vehicle counts were conducted at Muni's Kirkland Division yard located at 2498 Powell Street, in San Francisco's Fisherman's Wharf area. This site was selected because it represents a self-contained public transit vehicle maintenance and storage facility with clearly defined points of access. The facility covers an entire city block bounded by North

Point, Powell, Beach, and Stockton streets. It has approximately 113,400 square feet (about 2.6 acres) and has a capacity for 135 40-foot long motor coach buses. The operations and maintenance buildings have a combined area of 13,200 square feet; the facility includes three bus maintenance pits and washing facilities.

Vehicular access to the yard is available from North Point and Stockton streets. About 20 personal vehicles of maintenance employees and 80 personal vehicles of bus operators park at the yard during the day when many buses are out of the yard. All personal vehicles are out of the yard by 7 p.m. when buses start to return. Using multiple video cameras, person, bus and other vehicle classification counts were collected at the site entrances for a 72-hour period from Wednesday, June 6 through Friday, June 8, 2018.

Private Fleet Staging and Maintenance Uses
This use includes the storage, staging, and maintenance, and potential light maintenance of shuttles servicing specific institutions, businesses, and/or independent shuttle services, such as Academy of Art University, Bauer Transportation, Hornblower's motorized cable cars, etc. Other related uses include the storage of vehicles to be sold/rented and light maintenance for private vehicles that are operated by a single entity.

Person and vehicle counts were conducted at Bauer's Transportation bus storage and staging facility located at Pier 50 in the San Francisco's Mission Bay area. Bauer leases from the Port of San Francisco approximately 68,800 square feet of covered space in Shed C, at the end of Pier 50, for storage, maintenance, and washing of company vehicles, plus about 4,400 square feet of office space in Shed A at the Pier 50 bulkhead, near Terry A. Francois Boulevard and Mission Rock Street. In addition, Bauer vehicles are also stored on a paved exterior fenced yard adjacent to Shed C. Using multiple video cameras, person, bus and other vehicle classification counts were conducted at Bauer offices in Shed A (persons) and the Pier 50 entrance (Bauer vehicles), for a 72-hour period from Wednesday, June 20 to Friday, June 22, 2018.

Person and vehicle counts were also conducted at Hornblower's motorized cable car storage facility located at 749 Toland Street, in San Francisco (part of the project site). When the counts were conducted, Hornblower's leased approximately 36,000 gsf at the west end of Building 418, near the intersection of Toland Street and McKinnon Avenue. Direct vehicular access to the site is available via Toland Street. Using multiple video cameras, person and vehicle classification counts were recorded for a 72-hour period at the entrance to Building 418 from Wednesday, June 13 through Friday, June 15, 2018.

Person and vehicle counts were also conducted at San Francisco Royal Motor's (an automobile dealership) vehicle storage facility located at 749 Toland Street (part of the project site). At the time of the field survey, SF Royal Motor leased a total of approximately 141,600 gsf inside Buildings 417, 418 and 428 for the storage and set up of vehicles to be sold or rented at the dealerships. Vehicular access to the site is provided onto McKinnon Avenue via Selby Street. Using multiple video cameras, person and vehicle classification counts were recorded for a 72-hour period at each building entrance from Wednesday, June 13 through Friday, June 15, 2018.

The three last sites, located at Pier 50 and at 749 Toland Street, were selected as representatives for private fleet staging and maintenance uses because they provide a range of activities and sizes of facilities similar to those that can be expected at the project site, and because they contain clearly defined points of access that efficiently facilitate the data collection efforts.

Data Analysis

Using the data collected from the surveys described above, a series of travel demand related rates were developed for each of the sites and land uses surveyed. These included, among others, number of total daily vehicle trips per 1,000 gsf, percentage of daily trips occurring during the a.m. and p.m. peak hours, number of daily employee trips per 1,000 gsf, and vehicle classifications. This information, which is summarized in **Table 2**, was then used to develop the project-specific trip generation rates and peak hour trip percentages for these land uses. **Table 2** also includes comparable information from other sources for similar land uses, such as the 2002 SF Guidelines and the Institute of Transportation Engineers (similar information is not available in the 2019 SF Guidelines). Additional factors and rates are presented in **Appendix C**.

As shown in **Table 2**, the 2002 SF Guidelines daily rate for manufacturing/industrial use (which covers light and heavy manufacturing and industrial uses) is higher than the surveyed rate for the maker and manufacturing uses. The Amazon site has the highest value for the parcel delivery and last mile delivery uses, while the OnTrac site shows similar values to those provided by the ITE. Among the private fleet management and staging uses, Bauer's Transportation has the highest values, which are approximately half of those estimated for a public fleet. It can be seen in **Table 2**, as well as in the charts included in **Appendix B**, that several of these land uses (i.e., maker and manufacturing, and private and public fleet staging and maintenance) experience their highest 60-minute vehicle trip generation earlier or later than the typical morning and evening peak hours of adjacent street traffic, which generally occurs between 7 a.m. and 9 a.m., and between 4 p.m. and 6 p.m., respectively. Parcel delivery and last-mile delivery uses on the other hand, experience their highest vehicle trips generation at around 5:30 p.m. or later, which overlaps with the tail end of the evening peak traffic period.

The following section presents the travel demand methodology for the proposed project, including the trip generation information later presented in **Table 3** that was selected for use in the analysis of the proposed project.

Proposed Project Travel Demand Methodology

The travel demand forecasts for the proposed project are based on the methodology and information presented in the SF Guidelines, as appropriate, and supplemented with information that accounts for the specific characteristics of the proposed land uses. The methods commonly used for forecasting travel demand for development projects in San Francisco are based on the SF Guidelines, which are based on a number of detailed travel behavior surveys conducted within San Francisco.

Table 2
Travel Demand Surveys and Secondary Source Data Collection Results
Marker/Manufacturing, Parcel/Last Mile Delivery, and Public/Private Fleet Staging & Maintenance Uses

Average Values of Trip Rates	Maker and Manufacturing				Parcel Delivery and Last-Mile Delivery			Public Fleet Stag./Maint.	Private Fleet Staging & Maintenance		
	American Industrial Center [a]		Manufact./ Industrial [b]		OnTrac [a]	Amazon [a]	Fulfillment Center [c]	Muni Kirkland Division [a]	Bauer's Transp. [a]	Hornblower [a]	SF Royal Motor [a]
Daily											
All vehicle trips / 1000 gsf	5.72	[d]	7.90	[d]	8.63	18.28	8.18	7.36	3.51	1.80	0.63
Van trips / 1000 gsf	0.29				1.55	3.49		0.12	0.02	0.17	0.05
Truck trips / 1000 gsf	0.34				1.39	1.11	0.72	0.16	0.01	0.16	0.02
Bus trips / 1000 gsf	--		--		--	--	--	3.77	2.60	0.43	--
Highest hourly volume [e]	1:00 p.m.				5:45 p.m.	5:30 p.m.		5:45 a.m.	5:45 a.m.	7:30 p.m.	11:15 a.m.
AM peak hour [f]											
% of all daily vehicles	10%				8%	6%	10%	6%	6%	7%	6%
All vehicle trips / 1000 gsf	0.55	[d]			0.71	1.10	0.82	0.44	0.20	0.13	0.04
Van trips / 1000 gsf	0.06				0.13	0.60		0.01	0.00	0.02	0.01
Truck trips / 1000 gsf	0.08				0.13	0.09	0.02	0.03	0.00	0.02	0.00
Bus trips / 1000 gsf	--		--		--	--	--	0.31	0.13	0.04	--
PM peak hour [f]											
% of all daily vehicles	8%		12%		9%	11%	10%	5%	7%	7%	10%
All vehicle trips / 1000 gsf	0.46	[d]	0.98	[d]	0.77	2.01	0.85	0.39	0.25	0.13	0.06
Van trips / 1000 gsf	0.00				0.13	0.47		0.00	0.01	0.01	0.02
Truck trips / 1000 gsf	0.02				0.07	0.05	0.04	0.01	0.00	0.02	0.00
Bus trips / 1000 gsf	--		--		--	--	--	0.22	0.15	0.06	--

Notes:
a. Based on surveys conducted specifically for this project in April and June 2018 (see **Appendix B**)
b. Based on the 2002 SF Guidelines; information not available in the 2019 SF Guidelines
c. High-cube Warehouse Vehicle Trip Generation Analysis, Institute of Transportation Engineers, 2016.
d. Person trips by all ways of travel (auto, transit, walking, bicycling, etc.); used for comparison between the two Maker/Manufacturing uses.
e. Start time of the highest measured total traffic volume during a consecutive 60-minute period.
f. Represents the a.m. and p.m. peak hour of the adjacent streets, which typically occurs between 7 a.m. and 9 a.m., and between 4 p.m. and 6 p.m., respectively.

Source: Adavant Consulting – 2021

The data in the SF Guidelines are generally accepted as more appropriate for use in transportation impact analyses for San Francisco development projects than conventional transportation planning data because of the unique mix of uses, density, availability of transit, and cost of parking in San Francisco. In the case of the proposed project, several of the proposed land uses, such as parcel delivery or fleet management uses, are not included in the SF Guidelines data, and, as such, as described in the previous section, additional travel demand information was obtained through local field surveys. Furthermore, the SF Guidelines do not include data for the analysis of the a.m. peak hour, which was instead derived from the field surveys previously described, and nationally recognized sources of trip generation rates.

The travel demand model developed for the analysis of the proposed project follows. The four main steps are outlined first, followed by additional explanation. The detailed travel demand calculations for the proposed project are presented in **Appendix D**.

- **Step 1: Trip Generation**. Total person trip generation was calculated each of the individual land uses. The person-trip generation estimates for the proposed project include employees and visitors associated with the proposed development.
- **Step 2: Trip Distribution**. The person trips estimated in the previous step were then distributed to various points of trip origin or destination for each specific land use. Specifically, the trips origins and destinations were allocated to the four superdistricts of San Francisco (Superdistrict 1 – northeast quadrant, Superdistrict 2 – northwest quadrant, Superdistrict 3 – southeast quadrant, Superdistrict 4 – southwest quadrant), the East Bay, North Bay, South Bay, and outside the region. **Appendix D** includes an aerial view of the four San Francisco superdistrict boundaries.
- **Step 3: Mode of Travel**. The person trips estimated for each geographical are in step 2 were independently allocated to travel modes to determine the number of trips by auto, transit, and other modes. The "auto" mode includes persons traveling by private auto, carpool, app-based ride hailing services (e.g., Uber, Lyft), etc., as well as commercial vehicle traffic generated by the project. The "transit" mode includes individuals traveling by local and regional public means of transportation. The "other" category includes people walking, bicycling, motorcycling, and traveling by additional modes, such as taxis or limousines.
- **Step 4: Trip Assignment**. The project-generated trips and directional distribution obtained in the previous step were then used as the basis for assigning vehicle-trips to the local streets in the study area.

STEP 1: TRIP GENERATION

As discussed above, the development program for the proposed project includes various PDR uses, which cover a range of different types of activities with different travel demand characteristics. As shown in **Table 1**, the types of PDR uses that comprise the proposed project include Maker and Manufacturing, Parcel Delivery and Last-Mile Delivery, and Wholesale and Storage. Similarly, the types of retail uses include general retail and café/quick service restaurant uses.

The data developed from the field surveys described in the previous section and presented in **Table 2** was used as input to develop the project-specific trip generation rates for the maker and manufacturing, and parcel delivery and last-mile delivery uses. Where trip generation rates from the field survey data collection effort were used, which for the most part represented vehicle trips, the vehicle trip rates were converted into person trip rates by applying an average vehicle occupancy, and the rates were rounded up to account for other related activities that may not have occurred at the surveyed site.[4]

Table 3 presents the weekday daily, a.m. peak hour, and p.m. peak hour person-trip generation rates used in the analysis for all of the proposed land uses.

Table 3
Proposed Project
Person Trip Generation Rates by Land Use
(number of person trips per 1,000 gsf of area of use) [a]

Land Use Type	Daily Person-trip Rate		AM Peak Hour Person-trips			PM Peak Hour Person-trips		
			% of daily		Rate	% of daily		Rate
PDR Uses								
Maker and Manufacturing	7.9	[b]	11.5%	[e]	0.91	12.4%	[b]	0.98
Parcel delivery and Last-mile delivery	14.7	[c]	7.0%	[c]	1.03	10.0%	[c]	1.47
Wholesale and Storage	12.0	[d]	7.0%	[d]	0.84	3.5%	[f]	0.42
Retail Uses								
General Retail	150	[g]	2.2%	[e]	3.33	9.0%	[g]	13.5
Café/Quick Service Restaurant	600	[g]	13.7%	[e]	82.4	13.5%	[g]	81.0

Notes:
a. Represents the active development area of the proposed project; see **Table 1**.
b. 2002 San Francisco Guidelines, Table C-1.
c. Field survey of OnTrac and Amazon facilities (see **Appendix B** and **Appendix C**).
d. San Francisco Wholesale Produce Market Retention and Expansion Project, Case No. 2009.1153E, Transportation Study Final Report, Adavant Consulting, March 23, 2011.
e. Based on a.m. to p.m. peak hour trip generation ratio, taken from ITE Trip Generation Report, 10th Edition (2017).
f. Assumed half of the a.m. peak hour value, based on traffic data from San Francisco Produce Market Expansion Transportation Study (2011).
g. 2019 San Francisco Guidelines, Table 1.

Source: Adavant Consulting – 2021

[4] For example, the survey of the Amazon and OnTrac facilities in South San Francisco included employees driving and parking on site, while the survey of Muni's and Bauer's facilities in San Francisco did not account for employee person and vehicle trips who parked elsewhere outside the site. Professional judgement assessments were made on a case-by-case basis to account for these differences when making any adjustments to develop the trip generation rates.

- For the maker and manufacturing use, the 2002 SF Guidelines daily and p.m. peak hour trip generation rates were selected for the proposed project, as they are higher than the rates from the field survey of the American Industrial Center. As noted in **Table 3** above, the a.m. peak hour rate was calculated based on the ratio of a.m. to p.m. peak hour trip generation rates from the ITE Trip Generation Report.
- For the parcel and last mile delivery use, the higher of the field-calculated vehicle trip generation rates from either the OnTrac or Amazon facilities were selected for the proposed project. These field survey rates were higher than the trip generation rates included in the ITE Trip Generation Report for the high-cube warehouse use. As noted above, the vehicle trip rates were converted into person-trip rates by applying an average vehicle occupancy for commuter trips and rounded up to account for other activities that may not have occurred at the surveyed site.
- The daily and a.m. peak hour trip generation rates for the Wholesale and Storage use were based on information presented in the San Francisco Wholesale Produce Market project (2011).[5] As noted in the **Table 3** above, the p.m. peak hour rate was calculated as half of the a.m. peak hour trip generation rate.
- Trip generation assumptions for the General Retail and Café/Quick Service Restaurant uses were obtained from the 2019 SF Guidelines. Consistent with previous studies of visitor trips conducted in San Francisco, in order to account for linked visitor trips to retail and restaurant uses, a 33 and 67 percent trips reduction was applied to non-work (visitor) trips to the General Retail and Café/Quick Service Restaurant uses (i.e., one third and two thirds of the visitor trips to the retail and restaurant uses, respectively, are considered to be made by customers who are already in the immediate vicinity).

Table 4 presents the total number of weekday daily, a.m. peak hour, and p.m. peak hour person trips by land use for the proposed project calculated using the project-specific trip generation rates in **Table 3**. The proposed project would generate an estimated 9,666 person-trips on a weekday daily basis, including 741 person-trips during the a.m. peak hour, and 842 person-trips during the p.m. peak hour. The number of project generated p.m. peak hour trips would be greater than during the a.m. peak hour because several land uses, such as parcel delivery and general retail, have a higher proportion of daily trips occurring during the p.m. peak hour than during the a.m. peak hour.

Consistent with the 2019 SF Guidelines, the travel demand analysis included a credit for trips generated by the existing uses on the project site. The credit was based on empirical data collection conducted at the project site.[6] **Table 4** also summarizes the total number of weekday daily, a.m. peak hour and p.m. peak hour person trips for the existing site, based

[5] *San Francisco Wholesale Produce Market Retention and Expansion Project*, Case No. 2009.1153E, Transportation Study Final Report, Adavant Consulting, March 23, 2011.

[6] As described on page 5, the project site currently accommodates private fleet staging on a portion of the site. The proposed project's PDR uses would not be considered a net new expansion of the existing use.

on counts conducted from June 13 through June 15, 2018. (See description of data collection efforts at the site in **page 5**; a count summary is presented in **Appendix D**). As a result, the net new person trips generated by the proposed project would be 8,948 person-trips on a weekday daily basis, including 653 person-trips during the a.m. peak hour, and 798 person-trips during the p.m. peak hour.

Table 4
Proposed Project
Person Trip Generation by Land Use [a]

Land Use Type	Land Use Intensity (gsf)	Daily Person Trips	AM Peak Hour Person Trips	PM Peak Hour Person Trips
Maker and Manufacturing	35,000	278	32	34
Parcel Delivery and Last-mile Delivery	364,715	5,362	376	536
Wholesale and storage	209,575	2,514	176	88
General retail [b]	4,200	448	12	41
Café/Quick service restaurant [c]	4,200	1,064	145	143
Total Proposed Project	**617,690**	**9,666**	**741**	**842**
Peak hour trips as percentage of daily trips			7.7%	8.7%
Existing site [d]		718	88	44
Total Net New Trips		**8,948**	**653**	**798**

Notes:
a. Person trips by all modes of travel. Numbers may not sum to total due to rounding.
b. The General Retail trip generation estimates assume that approximately one third of all visitor trips would be made by customers who are already in the area (a linked visitor trip reduction factors of 33 percent).
c. The Café/Quick service restaurant trip generation estimates assume that approximately two thirds of all visitor trips would be made by customers who are already in the area (a linked visitor trip reduction factors of 66 percent).
d. Based on field daily vehicle counts by vehicle type conducted from June 13 through June 15, 2018; includes people walking plus vehicle trips, assuming an average occupancy of one person per vehicle. (trip generation calculations are presented in **Appendix D**)

Source: Adavant Consulting – 2021

STEP 2: TRIP DISTRIBUTION

The number of person-trips generated by the proposed project (**Table 4**) were then allocated to origins and destinations as follows:

- The trip distribution for General Retail and Café/Quick Service Restaurant trips to or from the site were based on work (commuter) and non-work (visitors, shoppers) origin/destination rates for retail trips obtained from the 2019 SF Guidelines for the Bayshore District, where the project is located.
- The trip origin/destination distribution for employee (i.e., commuter) trips for the Maker/Manufacturing, Parcel/Last mile delivery, and Wholesale/Storage uses were based on trip rates contained in the 2002 SF Guidelines for Superdistrict 3, where the project is located (Appendix E, Table E-5 Work Trips to SD3). The trip

distribution of non-commuter (i.e., visitor, deliveries, etc.) trips were based on non-commuter trip rates from the same sources (Appendix E, Table E-15 All Other Visitor Trips to SD3). Information from the 2002 SF Guidelines information was used, because the 2019 SF Guidelines do not provide data for manufacturing or industrial-type uses.

Table 5 provides a summary of the trip distribution patterns for each land use type.

Table 5
Proposed Project
Person Trip Distribution Patterns by Land Use

Place of Trip Origin or Destination	Maker & Manufacturing / Parcel & Last Mile Delivery / Wholesale & Storage		General Retail / Quick Service Restaurant		All Daily Person Trips [e]
	Commuter Trips [a]	Non-Commuter Trips [b]	Commuter Trips [c]	Non-Commuter Trips [d]	
San Francisco					
Superdistrict 1	8.3%	13.0%	31.7%	12.8%	12.0%
Superdistrict 2	10.6%	14.0%	9.7%	11.6%	12.2%
Superdistrict 3	23.9%	44.0%	41.9%	41.2%	35.6%
Superdistrict 4	7.9%	7.0%	1.2%	16.5%	8.2%
All San Francisco	50.7%	78.0%	84.5%	82.1%	68.0%
East Bay	14.3%	9.0%	1.1%	4.6%	10.2%
North Bay	5.6%	1.0%	1.7%	1.0%	2.9%
Peninsula/South Bay	26.9%	9.0%	12.7%	12.3%	16.6%
Outside of Bay Area	2.5%	3.0%	0.0%	0.0%	2.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Notes:
a. 2002 SF Guidelines Appendix E - Tables E-5 Work Trips to/from SD3 (All).
b. 2002 SF Guidelines Appendix E - Tables E-15 Visitor Trips to/from SD3 (All Other).
c. 2019 SF Guidelines Work Retail Trips to/from Bayshore District (located in SD3).
d. 2019 SF Guidelines Non-Work Trips to/from Bayshore District (located in SD3).
e. Calculated based on the individual land use trip distribution patterns.

Source: Adavant Consulting – 2021

As shown in **Table 5**, about 51 to 85 percent of the project-generated commuter trips would be within San Francisco, while 78 to 82 percent of the non-commuter trips would also occur within San Francisco. Overall, about 68 percent of the trips for all the proposed land uses combined would be within San Francisco, with the largest proportion of trips (about 36 percent) occurring within Superdistrict 3, which includes the project site. These trip distribution patterns were used, as later described in step 4, as the basis for assigning project-generated trips to the local street and highway network.

STEP 3: MODE OF TRAVEL

The SF Guidelines identifies different ratios for mode of travel and average vehicle occupancy for work and visitor trips, which are different for each of the four San Francisco superdistricts, so that factors that influence travel behavior such as transit accessibility, walkability, roadway and transit infrastructure, etc. for that area are considered in the analysis. For example, work trips originating in or destined to Superdistrict 1 exhibit the highest transit usage in San Francisco, while those to or from Superdistrict 3 have the lowest.

For the purposes of this analysis, the person-trips generated by the proposed project (presented in **Table 4**) were assigned to various modes of travel using the information presented in the 2019 SF Guidelines (General Retail and Café/Quick Service Restaurant uses) and 2002 SF Guidelines (all PDR land uses)[7], with the following adjustments:

- The modal split allocation for the general retail and quick service restaurant uses were based on work and visitor rates obtained from the 2019 SF Guidelines for the Bayshore District (where the project is located), except that ⅔ of the transit person trips were shifted to auto person trips to reflect the limited transit accessibility of the site, compared with other locations in the superdistrict, such as along Mission or Third streets. The percentage shift is based on professional judgement and knowledge of the transportation characteristics of the Bayshore District. This shift is consistent with the assumptions presented in the prior transportation analysis of the San Francisco Wholesale Produce Market project, which is adjacent to the project site and included retail uses, and is therefore a reasonable adjustment to the travel mode inputs.[8] Walk and bicycle trips for the general retail and quick service restaurant uses would represent local trips from nearby uses during the day, and were not considered in need of adjustments.
- The modal split allocation for the Maker/Manufacturing, Parcel/Last Mile Delivery, and Wholesale/Storage uses were based on commuter and non-commuter rates contained in the 2002 SF Guidelines for Superdistrict 3, where the project is located (Appendix E, Tables E-5 and E-15). In addition to shifting ⅔ of the transit trips to the auto trips category, as described in the previous paragraph for the retail trips, those person trips in the "other" category[9] were also shifted to "auto", to better account for longer hours of operation of such uses, including the night, when those non-auto modes of transportation may not be as accessible or desirable as during the daytime. This approach is also consistent with the assumptions presented in the

[7] The Site Surveys and Data Collection (**Table 4**) that inform project-specific person-trip generation rates are obtained from locations mostly suburban in nature. The SF Guidelines are the most appropriate source of travel modal split shares applicable to the proposed project.

[8] *San Francisco Wholesale Produce Market Retention and Expansion Project*, Case No. 2009.1153E, Transportation Study Final Report, Adavant Consulting, March 23, 2011.

[9] Other modes include walk, bicycle, motorcycle, and additional modes such as taxis.

prior transportation analysis of the San Francisco Wholesale Produce Market project for PDR uses.

Table 6 presents the travel mode assumptions for the proposed project by trip purpose and land use type. As shown in the table, the person trips by auto represent approximately 85 percent of all the trips made to or from the project site.

Table 6
Proposed Project
Travel Mode Split by Land Use

Mode of Travel for Project Employees and Visitors (Non-Commuters)	Maker & Manufacturing / Parcel & Last Mile Delivery / Wholesale & Storage	General Retail / Quick Service Restaurant	All Daily Person Trips
Employees (Commuters)	[a]	[b]	[e]
Auto [f]	89.9%	55.0%	86.4%
Transit	10.1%	20.0%	11.1%
Other [g]	0.0%	25.0%	2.5%
All modes	**100.0%**	**100.0%**	**100.0%**
Visitors/Non-Commuters	[c]	[d]	[e]
Auto [f]	90.6%	64.2%	85.3%
Transit	9.4%	6.3%	8.8%
Other [g]	0.0%	29.5%	5.9%
All modes	**100.0%**	**100.0%**	**100.0%**

Notes:
a. 2002 SF Guidelines Appendix E - Tables E-5 Work Trips to SD3 (All) with adjustments; the percentages of "Walk" and "Other" have been added to "Auto", as well as 2/3 of the "Transit" percentage.
b. 2019 SF Guidelines for work trips in the Bayshore District with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
c. 2002 SF Guidelines Appendix E - Tables E-15 Visitor Trips to SD3 (All Other) with adjustments; the percentages of "Walk" and "Other" have been added to "Auto", as well as 2/3 of the "Transit" percentage.
d. 2019 SF Guidelines for visitor trips in the Bayshore District with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
e. Calculated based on the individual land use modal split.
f. Auto mode includes persons traveling by private auto, carpool, and for-hire vehicles (e.g., Uber, Lyft), as well as commercial bus fleet vehicles.
g. Other modes include walk, bicycle, and motorcycle.
Numbers may not sum to total due to rounding

Source: Adavant Consulting – 2021

Table 7 on the next page presents the number of daily, a.m. peak hour, and p.m. peak hour person trips generated by the proposed project (as presented in **Table 4**) by mode of travel and land use type (as presented in **Table 6**). In addition, the number of vehicle trips that would be generated by each land use is presented. The vehicle trips were calculated using average vehicle occupancy rates obtained from the 2019 SF Guidelines (General Retail and Café/Quick Service Restaurant uses) and 2002 SF Guidelines (all PDR land uses), and applied to the auto person trips; detailed calculations are included in **Appendix D**.

Table 7
Proposed Project Daily and Peak Hour Trip Generation
by Mode of Travel and Land Use [a]

Land Use Type	Person Trips by Mode of Travel				Vehicle Trips [d]
	Auto [b]	Transit	Other [c]	Total	
Daily					
Maker and manufacturing	250	28	-	278	222
Parcel delivery / last-mile delivery	4,838	524	-	5,362	4,568
Wholesale and storage	2,270	244	-	2,514	1,406
General retail	280	40	128	448	158
Café/Quick service restaurant	652	112	300	1,064	372
Total Project Daily Trips	**8,290**	**948**	**428**	**9,666**	**6,726**
Modal split	**86%**	**10%**	**4%**	**100%**	
Existing Site [e]				756	718
Net New Trips				**8,910**	**6,008**
AM Peak Hour					
Maker and manufacturing	29	3	-	32	25
Parcel delivery / last-mile delivery	339	37	-	376	322
Wholesale and storage	159	17	-	176	117
General retail	7	2	3	12	4
Café/Quick service restaurant	89	15	41	145	51
Total Project AM Peak Hour Trips	**623**	**74**	**44**	**741**	**519**
Percent of daily	*8%*	*8%*	*10%*	*8%*	*8%*
Existing Site [e]				93	88
Net New Trips				**648**	**431**
PM Peak Hour					
Maker and manufacturing	31	3	-	34	27
Parcel delivery / last-mile delivery	485	51	-	536	471
Wholesale and storage	79	9	-	88	53
General retail	25	4	12	41	14
Café/Quick service restaurant	88	15	40	143	50
Total Project PM Peak Hour Trips	**708**	**82**	**52**	**842**	**615**
Percent of Daily	*9%*	*9%*	*12%*	*9%*	*9%*
Existing Site [e]				47	44
Net New Trips				**795**	**571**

Notes:
a. Numbers may not sum to total due to rounding.
b. Auto mode includes persons traveling by private auto, carpool, and for-hire vehicles.
c. Other modes include walk, bicycle, and motorcycle.
d. Vehicle trips for the proposed project were calculated by dividing the auto person trips by an average occupancy per vehicle (see **Appendix D**).
e. Based on field counts collected at the site in June 2018; calculations are presented in **Appendix D**.

Source: Adavant Consulting – 2021

As shown in **Table 7**, on a daily basis, the proposed project would generate 9,666 person trips (86 percent by auto, 10 percent by transit, and 4 percent by walking, bicycling, and other modes) and 6,726 vehicle trips. During the a.m. peak hour, the proposed project would generate 741 person trips and 519 vehicle trips, while during the p.m. peak hour the proposed project would generate 842 person trips and 615 vehicle trips.

Table 7 also summarizes the total number of weekday daily, a.m. peak hour and p.m. peak hour person and vehicle trips for the existing facility, based on field counts collected at the site in June 2018 (a count summary is presented in **Appendix D**). As a result the net new vehicle trips generated by the proposed project would be 6,008 vehicle-trips on a weekday daily basis, including 431 vehicle-trips during the a.m. peak hour, and 571 vehicle-trips during the p.m. peak hour.

Table 8, on the following page, presents this same trip generation information by mode of travel and place of origin/destination; detailed calculations are included in **Appendix D**. As presented in **Table 8,** the majority of trips would be within Superdistrict 3, to and from the South Bay and Peninsula, to and from Superdistrict 2 (the northwest quadrant), to and from Superdistrict 1 (the northeast quadrant which includes downtown), and to and from the East Bay.

Table 8
Proposed Project Daily and Peak Hour Trip Generation
by Mode of Travel and Place of Origin/Destination [a]

Place of Trip Origin or Destination	Person Trips by Mode of Travel				Vehicle Trips [d]
	Auto [b]	Transit	Other [c]	Total	
Daily					
San Francisco Superdistrict 1	858	144	154	1,156	700
San Francisco Superdistrict 2	996	106	78	1,180	822
San Francisco Superdistrict 3	2,886	374	188	3,448	2,280
San Francisco Superdistrict 4	720	66	4	790	558
East Bay	838	152	-	990	694
North Bay	262	12	2	276	226
Peninsula/South Bay	1,534	64	2	1,600	1,276
Outside of Bay Area Region	196	30	-	226	170
Total Project Daily Trips	**8,290**	**948**	**428**	**9,666**	**6,726**
Modal split	**86%**	**10%**	**4%**	**100%**	
AM Peak Hour					
San Francisco Superdistrict 1	63	13	16	92	53
San Francisco Superdistrict 2	73	8	8	89	62
San Francisco Superdistrict 3	215	31	18	264	177
San Francisco Superdistrict 4	55	5	-	60	44
East Bay	62	10	1	73	52
North Bay	21	1	-	22	18
Peninsula/South Bay	120	4	1	125	100
Outside of Bay Area Region	14	2	-	16	13
Total Project AM Peak Hour Trips	**623**	**74**	**44**	**741**	**519**
Modal split	**84%**	**10%**	**6%**	**100%**	
PM Peak Hour					
San Francisco Superdistrict 1	77	15	18	110	70
San Francisco Superdistrict 2	89	9	9	107	77
San Francisco Superdistrict 3	268	35	20	323	232
San Francisco Superdistrict 4	64	5	3	72	52
East Bay	64	12	-	76	58
North Bay	17	-	1	18	14
Peninsula/South Bay	112	4	1	117	95
Outside of Bay Area Region	17	2	-	19	17
Total Project PM Peak Hour Trips	**708**	**82**	**52**	**842**	**615**
Modal split	**84%**	**10%**	**6%**	**100%**	

Notes:
a. Numbers may not sum to total due to rounding.
b. Auto mode includes persons traveling by private auto, carpool, and for-hire vehicles.
c. Other modes include walk, bicycle, and motorcycle.
d. Vehicle trips were calculated by dividing the auto person trips by an average occupancy per vehicle (see **Appendix C**).

Source: Adavant Consulting – 2021

STEP 4: TRIP ASSIGNMENT

The project-generated trips by the various travel mode and origin/destination presented in **Table 8** were used as a basis for assigning trips to the transportation network during the a.m. and p.m. peak hours. The percentage of trips inbound to the site versus outbound from the site for each land use were based on information presented in the 2002 and 2019 SF Guidelines, values gathered from the ITE Trip Generation Manual, or data collected from the field surveys (see **Appendix B** and **Appendix C**).

Table 9 summarizes the inbound and outbound vehicle and transit trips for the a.m. and p.m. peak hours by place of origin; detailed calculations are included in **Appendix D**. As shown in the table, the proposed project would generate 519 vehicle trips during the a.m. peak hour and 615 vehicle trips during the p.m. peak hour, as well as 74 person transit trips during the a.m. peak hour, and 82 person transit trips during the p.m. peak hour. About 75 to 80 percent of the vehicle and transit trips during the a.m. peak hour would be inbound to the site, while the number of total vehicle and transit trips during the p.m. peak hour would be split approximately 40%/60% between the inbound and outbound directions.

Table 9 also summarizes the inbound and outbound vehicle trips for the a.m. and p.m. peak hours for the existing facility, based on field counts collected at the site in June 2018 (a count summary is presented in **Appendix D**). As a result the net new vehicle trips generated by the proposed project would be 330 inbound and 101 outbound vehicle trips during the a.m. peak hour, as well as 246 inbound and 325 outbound vehicle trips during the p.m. peak hour. The number of existing transit trips generated at the project site is not known, so, conservatively, no transit trip generation credit was assumed in the analysis.

The vehicle trips presented in **Table 9** were then assigned to the local streets near the project site based on the distribution patterns identified in step 3. Travel paths were developed based on the most direct routes according to the type of vehicle, number of travel lanes on streets, and knowledge of current travel patterns in the study area. It was assumed that the existing vehicle trips would generally be distributed in a similar pattern as those of the proposed project.

Figure 1 and **Figure 2** depict the paths for the proposed project inbound and outbound vehicle trips, respectively. As shown in the figures, travel paths to and from the site would be generally evenly split between north and south of the project site. Freeway access would likely be used when approaching the project site from the south due to the options available (U.S. 101 or I-280), and, in general, less freeway congestion than for freeway access from the north. Arterial streets (César Chavez Street, Potrero Avenue, and Third Street) would be used when approaching the site from the north and east.

Table 9
Proposed Project
Peak Hour Vehicle and Transit Trip Generation
by Place of Origin/Destination and Direction [a]

Place of Trip Origin or Destination	Inbound versus Outbound Trips					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Vehicle Trips						
SF Superdistrict 1	37	16	53	32	38	70
SF Superdistrict 2	44	18	62	36	41	77
SF Superdistrict 3	120	57	177	114	118	232
SF Superdistrict 4	31	13	44	24	28	52
East Bay	42	10	52	21	37	58
North Bay	16	2	18	3	11	14
Peninsula/South Bay	86	14	100	28	67	95
Outside of Bay Area	9	4	13	8	9	17
Total Project Vehicle Trips	**385**	**134**	**519**	**266**	**349**	**615**
	74%	**26%**	**100%**	**43%**	**57%**	**100%**
Existing Site [b]	55	33	88	20	24	44
Net New Vehicle Trips	**330**	**101**	**431**	**246**	**325**	**571**
Transit Trips						
SF Superdistrict 1	11	2	13	5	10	15
SF Superdistrict 2	6	2	8	3	6	9
SF Superdistrict 3	23	8	31	15	20	35
SF Superdistrict 4	4	1	5	2	3	5
East Bay	8	2	10	5	7	12
North Bay	1	-	1	-	-	-
Peninsula/South Bay	4	-	4	1	3	4
Outside of Bay Area	2	-	2	1	1	2
Total Project Transit Trips [c]	**59**	**15**	**74**	**32**	**50**	**82**
	80%	**20%**	**100%**	**39%**	**61%**	**100%**

Notes:
a. Numbers may not sum to total due to rounding.
b. Based on field counts collected at the site in June 2018; calculations are presented in **Appendix D**.
c. The number of existing transit trips generated at the project site is not known, therefore, conservatively, no trip generation credit for transit trips is assumed.

Source: Adavant Consulting – 2021

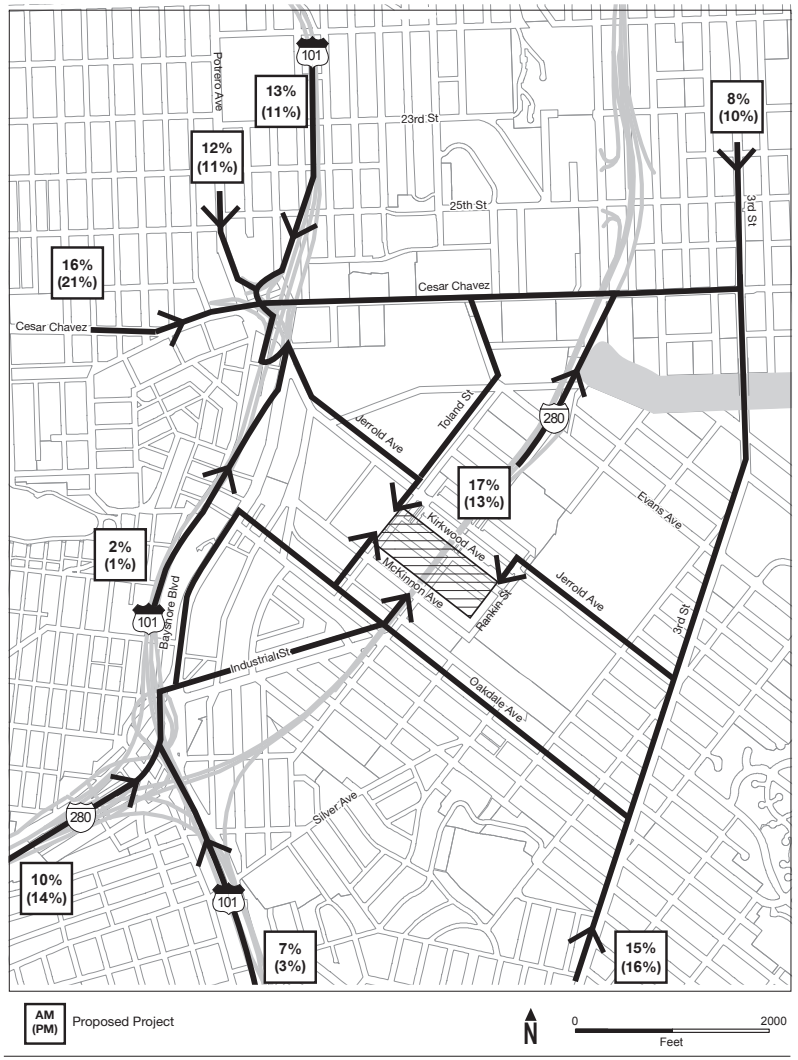


Figure 1: Inbound Vehicle Trip Paths

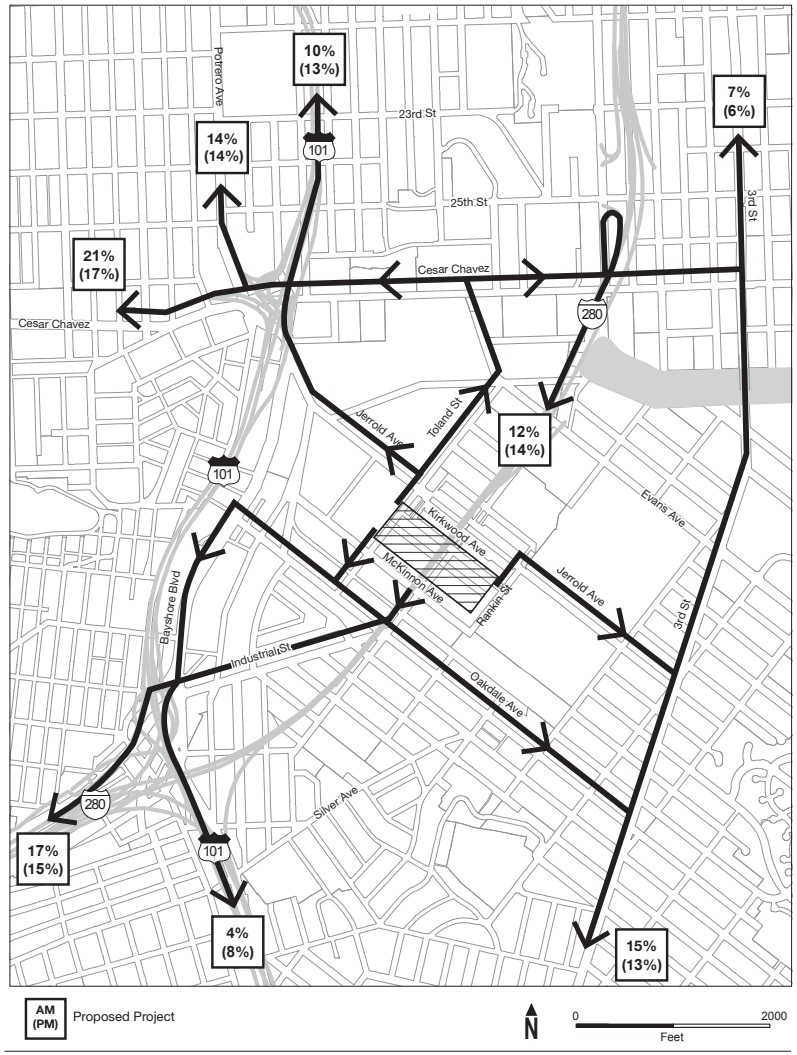


Figure 2: Outbound Vehicle Trip Paths

COMMERCIAL VEHICLE TRIP GENERATION

For development projects in San Francisco, the 2019 SF Guidelines provide a methodology for estimating the number of truck and service vehicles generated by the proposed development project, which is then used to estimate the demand for the number of truck loading spaces required to accommodate the freight delivery and service vehicle demand. Given that most of the proposed project components are truck intensive uses, innate to loading, that would be accommodated within the two buildings, a specific estimate of the number of truck loading spaces typically calculated for development projects was not developed.

A more detailed approach was developed instead, to properly estimate the larger number of truck and service vehicle trips that would be generated by the proposed project compared to a standard development project (e.g., residential and/or commercial office and retail). The number of daily vehicle trips previously estimated, and presented in **Table 8,** were disaggregated by specific vehicle type. This information on vehicle type will be used as part of the transportation site circulation and safety hazards analysis, as well as for the air quality and noise analyses.

Because the ground floor retail space would not be served by internal truck and service vehicle loading facilities (i.e., loading/unloading for the ground floor retail uses would be accommodated at curb yellow loading zones that would be provided as part of the proposed project), the freight loading space demand for this use was calculated using the standard 2019 SF Guidelines methodology.

A preliminary assessment of passenger loading demand associated with the proposed PDR land uses was conducted by the department, and it is anticipated that the proposed project would generate minimal passenger loading activities. Therefore, it was determined that the proposed project would not cause a significant impact as it relates to passenger loading and no further quantification of passenger loading demand analysis was required.[10]

DAILY TRUCK TRIPS AND VEHICLE CLASSIFICATION

Table 10 provides a summary of the estimated vehicle type distribution for project employee and non-commuter (visitors, deliveries, etc.) trips by land use. For this analysis, it was assumed that all employees commuting to and from work by motor vehicle would travel in autos or similar size vehicles (i.e., they would not travel in large size vans or trucks). The non-commuter vehicle trips (i.e., all other motor vehicle trips not related to employee travel to and from work) were disaggregated into autos or small size pickups, vans and large pickups, single-unit trucks, and tractor trailer trucks, based on the following:

- For the Maker/Manufacturing and Parcel/Last Mile Delivery uses, the vehicle classification was based on vehicle data (i.e., number and type of vehicle) collected at

[10] The 2019 Transportation Impact Analysis Guidelines include a methodology for calculating passenger loading demand for office, retail, residential, and hotel land uses.

the OnTrac and Amazon sites as part of the data collection effort described previously within the Data Collection and Analysis section of this document.

- For the wholesale and storage uses, the disaggregation of commercial vehicle trips among the various vehicle types was based on data collected at the American Industrial Center site.
- For the retail uses, the disaggregation of vehicle trips among the various vehicle types (autos, vans, trucks, etc.) was based on previously collected field data in San Francisco.[11]

Table 10
Proposed Project
Daily Commuter and Non-Commuter Vehicle Trip Distribution by Vehicle Type and Land Use [a]

Land Use Type	Commuter Trips	Non-Commuter Trips by Vehicle Type				
	Autos/ Pickups	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	100%	67%	15%	16%	2%	100%
Parcel and Last Mile Delivery	100%	50%	33%	12%	5%	100%
Wholesale and Storage	100%	40%	10%	40%	10%	100%
General Retail	100%	97%	2%	1%	0%	100%
Café/Quick Service Restaurant [b]	100%	94%	4%	2%	0%	100%

Notes:
a. Based on commercial vehicle data collected at various sites as part of the data collection effort. See **Appendix B** and **Appendix E**.
b. Assumed similar to the general retail use.

Source: Adavant Consulting – 2021

As shown on **Table 10,** for all land uses, all of the commuter travel (i.e. to and from work) to and from the site would occur by auto or similar small size vehicles, such as pick-ups or minivans. The majority of non-commuter trips (i.e., visitor trips, pickups, deliveries, etc.) for all land uses would also occur by small size vehicles, with between 3 and 60 percent of those trips occurring by larger commercial vehicles, such as vans and trucks.

Table 11 presents the combined (i.e. work plus non-work) total number of vehicle trips generated on a daily basis by the proposed project, disaggregated by vehicle type. As shown in **Table 11**, the proposed project would generate a total of 6,726 daily vehicle trips, of which 1,640 (24 percent) would be by vans and trucks. Of these, approximately 55 percent would be vans, 34 percent would be single-unit trucks, and 11 percent would be tractor-

[11] *2001 Market Street Mixed-use Development Project*, Case No. 2008.0550E, Final Transportation Impact Study Report, Adavant Consulting; November 1, 2010.

trailer truck combinations. **Table 11** also summarizes the existing number of daily vehicle trips generated at the project site by vehicle type, based on field counts collected at the site in June 2018 (a count summary is presented in **Appendix D**). As a result, the proposed project would generate a total of 6,008 net new daily vehicle trips, of which 1,322 (22 percent) would be made by vans and trucks.

Table 11
Proposed Project
Total Daily Vehicle-trips by Land Use and Vehicle Type [a]

Land Use Type	Vehicle Trips by Vehicle Type				Total Vehicle Trips
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	
Maker and manufacturing	178	20	22	2	222
Parcel delivery and last mile delivery	3,354	802	292	120	4,568
Wholesale and storage	1,044	60	242	60	1,406
Retail/Café/Quick service restaurant	510	14	6	0	530
Total Vehicle Trips	**5,086**	**896**	**562**	**182**	**6,726**
Vehicle Type % – All Vehicles	*76%*	*13%*	*8%*	*3%*	*100%*
Vehicle Type % – Vans and Trucks Only		55%	34%	11%	100%
Existing Site [b]	400	154	150	14	718
Net New Vehicle Trips	**4,686**	**742**	**412**	**168**	**6,008**
Vehicle Type % – All Vehicles	*78%*	*12%*	*7%*	*3%*	*100%*

Notes:
a. Numbers may not sum to total due to rounding.
b. Based on field counts collected at the site in June 2018; calculations are presented in **Appendix D**; the single unit truck vehicle category includes 18 motorized cable cars.

Source: Adavant Consulting – 2021

RETAIL LOADING SPACE DEMAND

The 2019 SF Guidelines methodology for estimating commercial vehicle and freight loading spaces, in combination with the commercial vehicle trips presented in **Table 11**, was used to calculate the average and peak hour loading space demand for the 8,400 gsf of retail uses proposed by the project (assumed to include about 4,200 gsf general retail and 4,200 café/restaurant uses).

The 8,400 gsf of retail uses would generate approximately 16 delivery /service vehicles per day (see **page A-84** in **Appendix E**), of which approximately 10 vehicles would be vans or trucks, and six vehicles would be autos (i.e., 32 two-way delivery/service trips per day = 16 delivery/service vehicles). This corresponds to a demand for one freight loading space during the peak hour of loading activity, which generally occurs between 10 a.m. and 1 p.m.

VEHICLE MILES TRAVELED

This section presents the methodology and results of the calculations conducted to estimate the average daily vehicle miles traveled (VMT) per capita for the proposed project. A background discussion of the VMT analysis that is part of the department's CEQA analysis is presented first for informational purposes. This discussion is followed by the methodology used to estimate the average daily VMT per capita for the proposed retail and PDR uses, and the last section presents a comparison of the proposed project's VMT results to regional and local values.

BACKGROUND

For development projects in San Francisco, in order to demonstrate that a proposed project is consistent with *CEQA Guidelines section 15064.3*, the transportation analysis must show that the project would not cause substantial additional VMT or substantially induce automobile travel.[12] For land use development projects, the department uses VMT efficiency metrics (per capita or per employee) for thresholds of significance. The department uses the following quantitative threshold of significance to determine whether the project's land uses would generate substantial VMT:

- For residential projects, if it exceeds the regional daily household VMT per capita minus 15 percent.
- For office projects, if it exceeds the regional daily work-related VMT per employee minus 15 percent.[13]
- For retail projects, if it exceeds the regional daily retail-related VMT per retail employee[14] minus 15 percent.

[12] Assessment of induced automobile travel for projects is based on a review of whether the project's features may increase the physical roadway capacity in congested areas or add a new roadway to the network. Induced automobile travel is not discussed further in this memorandum.

[13] The department's map-based screening (TIM web site) identifies the work-related VMT rate as "VMT per employee", in reality (VMT Memo, p. L-4) the rate is calculated by dividing "the total work-related VMT by the applicable geographic area job population", i.e. employment, which results in a VMT per job. There is a subtle difference between employment (jobs) and workers (employees), since the model also calculates the number of daily workers at each TAZ, which is generally lower than jobs, and therefore results in a higher value for the VMT per worker. The distinction is important because the proposed methodology for this project, as described in the text, is based on the number of employees, referred to in this analysis as workers in order to differentiate from employment. For consistency purposes the term employee has been maintained when describing the department's established ratios and thresholds.

[14] Retail travel is not explicitly captured in the SF-CHAMP modeling process, rather, there is a generic "other" purpose which includes retail shopping, medical appointments, visiting friends or family, and all other non-work, non-school tours. Thus, the retail-related VMT metric captures all of the "other" purpose travel generated by Bay Area households. Although defined as VMT per retail employee in the 2019 SF Guidelines, the employee denominator includes retail, cultural, institutional, and educational, and medical employment, as well as school enrollment and number of households, to represent the size, or attraction, of a zone for this type of "other" purpose travel.

- For mixed-use projects, each land use is evaluated independently, per the thresholds of significance described above.

As recommended by the Office of Planning and Research and included in the San Francisco Planning Commission resolution that adopted the VMT metric and the thresholds of significance for transportation impact analysis in San Francisco[15], the department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed these quantitative thresholds of significance. The SFCTA uses a model to estimate VMT for residential, office, and retail in San Francisco and the region, as described above. The department uses that data and associated maps to determine whether a project site's location is below the VMT quantitative threshold of significance. If a project is located in an area that has a low VMT per capita, and it incorporates similar features to other developments in that area (i.e., density, mix of uses, transit accessibility), then the project can be presumed to not have a VMT impact.

As described above, the department's methodology used to calculate the VMT relies on the SFCTA's travel demand forecasting model (SF-CHAMP) as a tool to determine the total daily VMT values at each Transportation Analysis Zone (TAZ)[16] within San Francisco. Separate calculations of VMT are performed for residential, office, and retail uses, each one of which is then divided by the applicable geographic household population, office jobs, or retail employment to calculate the VMT per capita. A slightly different VMT per capita unit is used for the evaluation of the PDR uses of the proposed project; since the number of employees can be approximated from the size and type of the proposed PDR land uses, a VMT per worker ratio is used instead of the VMT per employee ratio presented in the 2019 SF Guidelines.[17]

Typically, PDR uses are part of larger mixed-use development projects, and the department considers PDR uses in mixed-use development as part of the office-type category of land uses. However, the 2019 SF Guidelines methodology states that a different methodology should be used with atypical project land uses that do not fit within the three major categories (residential, office, and retail). In those cases, the 2019 SF Guidelines indicate that a project-specific methodology should be used to calculate the average daily VMT using the most appropriate metric (e.g., per resident, employee, seat, size, job, etc.). In these

[15] San Francisco Planning Department, *Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A*, March 3, 2016.

[16] Transportation Analysis Zones (TAZs) are geographical areas used by planners as part of travel demand forecasting models for transportation analyses and other planning purposes. A TAZ can vary in size from a single city block in the downtown core, to multiple blocks in outer neighborhoods, or even larger zones in historically industrial areas such as the Hunters Point Shipyard area.

[17] The average daily work VMT per employee rate was derived from the same SF-CHAMP model runs used by the department for estimating work VMT per employment for years 2020 and 2050, as presented in the San Francisco Housing Element 2022 Update EIR (Case No. 2019-016230ENV); the SF-CHAMP model output data provided to the consultants by SFCTA in April and September 2021, and is summarized in **Appendix F**.

cases, the analysis should present the change in the average daily VMT per analysis metric as a result of implementation of the proposed project.

Because the proposed project would include almost exclusively PDR uses, with a size and characteristics that are substantially different from more typical PDR uses in new mixed-use developments in San Francisco, a project-specific calculation of the average daily VMT per capita was conducted for the proposed project.

Retail Uses

The proposed project includes approximately 8,400 gsf of retail uses. These include both general retail, as well as quick service restaurant space. Given that these are two of the subcategories of typical retail uses, the same methodology described in the 2019 SF Guidelines was used to estimate the average daily retail VMT per capita for the retail component of the proposed project. For the two TAZs that comprise the project site (TAZs 485 and 488), this results in a combined weighted average[18] of 9.9 average daily retail VMT per retail employment for existing conditions (year 2020), and 12.0 average daily retail VMT per retail employment for 2050 cumulative conditions; detailed calculations are included in **Appendix F.**

PDR Uses

As noted above, due to the size and characteristics of the proposed PDR uses included as part of the proposed project, a project-specific calculation of the average daily VMT per capita was conducted for this use. The calculation takes into account the type and intensity of the proposed land uses to estimate the VMT for project employees, visitors (including repairs and maintenance), and delivery and commercial vehicles. For transportation analysis purposes, VMT generated by project employees driving to or from work will fall within the "commuter" category, while VMT generated by visitors, pickups and deliveries (including services, repairs, maintenance, etc.) would fall under the "non-commuter" category.

[18] The average daily retail VMT per capita for the combination of zones 485 and 488 is a weighted average, which is calculated by multiplying the VMT per capita for each zone obtained from the SF-CHAMP model by the corresponding number size of retail, adding the two together, and then dividing it by the total size of retail. The calculation of the weighted average is shown in the section titled *SFCTA Model Rates* in **Appendix F**.

Because the non-commuter VMT[19] is typically a minimal portion of the total VMT generated by a given land use (e.g., a few daily vehicle trips, made by vehicles that make multiple short stops), the non-commuter portion of the total VMT is not generally included in the SF Guidelines methodology or analysis (i.e., the total VMT is assumed to be practically the same as the commuter VMT). However, the special characteristics of the proposed PDR uses, where a substantial component of the vehicle trips are generated by commercial and service vehicles for pickups and deliveries (more than 25 percent as shown in **Table 11**), a modified, more detailed approach that also accounts for the VMT attributable to those trips was developed. This modified approach, which accounts for all types of trips (i.e., commuter and non-commuter) represents a more appropriate and conservative calculation of the average daily VMT per worker for the project site. Thus, the number of daily non-commuter daily vehicle miles were also estimated for the proposed project, and included in the calculation of total daily VMT per capita for the proposed project.

In addition, because the project site was partially occupied by warehousing and private and public vehicle fleet storage uses at the time of the field data collection efforts, a credit was applied to the project daily VMT to account for the VMT generated by those onsite uses, resulting in a net new daily VMT per capita for the proposed PDR uses. The methodology for calculating the daily VMT per worker for existing plus project conditions is described below; additional information is presented in **Appendix F**, and a summary of the results is shown in **Table 12**.

Daily VMT per worker for the proposed PDR uses consists of two VMT components: the VMT associated with the commuter trips to and from the project site, and the non-commuter VMT, which is associated with all other trips not related to trips generated by workers driving to or from work (i.e., visitor trips, pickups and deliveries, etc.).

- For commuter trips, the daily work VMT was calculated by multiplying the number of PDR-generated vehicle trips originating or destined the four San Francisco superdistricts, the East Bay, North Bay, South Bay and out of region (see **Table 2**) by an average distance between the project site and the estimated center of gravity[20] for each of the eight zones.
- For estimating the non-commuter VMT, the number of new PDR-generated visitor and deliveries/pickup trips under each vehicle type category (see **Table 11**) was multiplied by the average distance traveled on a typical day by each type of vehicle.

[19] VMT generated by visitors and deliveries to the building, as opposed to commuter VMT which is generated by employees driving to and from the site.

[20] For calculation of distance, the center of gravity for an origin-destination location represents the imaginary point where the total population of each Bay Area county is theoretically concentrated. (see estimated locations and distances in **Appendix F**).

Table 12
Proposed Project
Daily Vehicle Trips and Daily VMT for PDR Uses

Place of Trip Origin or Destination and Vehicle Type	Daily Vehicle Trips						Daily Vehicle Miles of Travel [a]					
	Maker & Manu-facture	Parcel & Last-mile delivery	Whole-sale & Storage	Total Project PDR Uses	Existing Uses [b]	Total Net New	Maker & Manu-facture	Parcel & Last-mile delivery	Whole-sale & Storage	Total Project PDR Uses	Existing Uses	Total Net New
Commuter Trips												
SF Superdistrict 1	8	168	60	236	15	221	40	840	300	1,180	75	1,105
SF Superdistrict 2	8	218	84	310	21	289	48	1,308	504	1,860	126	1,734
SF Superdistrict 3	22	508	192	722	48	674	44	1,016	384	1,444	96	1,348
SF Superdistrict 4	6	168	62	236	15	221	42	1,176	434	1,652	108	1,544
East Bay	12	290	108	410	27	383	337	8,134	3,029	11,500	755	10,744
North Bay	6	126	48	180	12	168	166	3,496	1,332	4,994	332	4,662
Peninsula/South Bay	24	612	230	866	57	809	518	13,217	4,967	18,702	1,239	17,464
Outside of Bay Area	2	50	18	70	4	66	129	3,229	1,162	4,520	290	4,230
Total Commuter	88	2,140	802	3,030	200	2,830	1,324	32,415	12,112	45,852	3,021	42,832
Non-Commuter Trips [c]												
Automobiles	90	1,214	242	1,546	200	1,346	1,800	-9,105	4,840	-2,465	4,000	-6,465
Buses	0	0	0	0	18	-18	0	0	0	0	720	-720
Vans	20	802	60	882	154	728	600	-6,015	1,800	-3,615	4,610	-8,225
SU trucks	22	292	242	556	132	424	880	-2,190	9,680	8,370	5,293	3,077
Tractor-trailer trucks	2	120	60	182	14	168	220	900	6,600	7,720	1,503	6,217
Total Non-Commuter	134	2,428	604	3,166	518	2,648	3,500	-16,410	22,920	10,010	16,127	-6,117
Total Project PDR Uses	222	4,568	1,406	6,196	718	5,478	4,824	16,005	35,032	55,862	19,147	36,715

Notes:
a. The detailed daily VMT calculations are presented in **Appendix F.**
b. A summary of existing daily vehicle trip counts at the project site is included in **Appendix B.**
c. Comprised of visitor trips, service and maintenance trips, pickups and deliveries, etc.

Source: Adavant Consulting – 2021

- For the Maker/ Manufacturing and Wholesale/Storage uses, average travel distance statistics developed by the Federal Highway Administration (FHWA)[21] and the National Renewable Energy Laboratory (NREL)[22] for various categories of vehicles were applied to the trips by the appropriate vehicle type.
- For the Parcel/Last Mile Delivery use, the total average daily travel distance (i.e., the distance between goods suppliers and the last mile distribution center, as well as the distance between the distribution center and the final destination for the last mile delivery) was compared to the average daily travel distance for vehicles providing Parcel/Last Mile delivery services from a similar site outside of San Francisco for each vehicle type. This approach was used on the basis of the analysis conducted by the project sponsor that looked at the existing and expected demand for distribution centers in the San Francisco Bay Area, and documented projections of continued growth in last mile delivery facilities in the near future to address the substantially unmet demand for these distribution centers within the San Francisco service area.[23] As such, the proposed project would accommodate existing and projected growth in the e-commerce market, and would not induce new last mile delivery trips. Additionally, this approach accounts for key criteria in siting urban e-commerce distribution facilities, based on analysis provided by Langan Engineering.[24]

Thus, the change in vehicle miles traveled between locating the center outside of the city (e.g., South San Francisco, which was used in the analysis[25]) without the project and at the proposed project site was calculated. Trucks and tractor trailers making deliveries to the site would generally need to travel further to

[21] U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Series Publications 2012-2017, Annual Vehicle Distance Traveled by Highway Category and Vehicle Type. (see **Appendix F**)

[22] Fleet DNA Project Data (2019), National Renewable Energy Laboratory. Last accessed September 19, 2019: www.nrel.gov/fleetdna. (see **Appendix F**)

[23] *E-Commerce – Existing Demand and Future Trends in San Francisco and the Greater Bay Area,* technical memorandum from Prologis to the San Francisco Planning Department, April 14, 2020; updated June 30, 2020. This document is available for public review at the San Francisco Planning Department at 49 South Van Ness Avenue, Suite 1400, San Francisco

[24] *Urban E-Commerce Distribution Facility Selection Criteria*: technical memorandum from Daniel D. Disario (Langan Engineering) to Ken Sun (Prologis), February 26, 2021. This document is available for public review at the San Francisco Planning Department at 49 South Van Ness Avenue, Suite 1400, San Francisco.

[25] South San Francisco was used in the analysis because there is an existing facility that serves San Francisco, and because it was described in the Langan Engineering April 2020 technical memorandum (see previous footnote) that a facility could be located there based on zoning, proximity to delivery market, and availability of regional road network, among other factors. Per the Langan Engineering technical memorandum, the majority of last mile delivery trips occurring within San Francisco originate from outside the City, in South San Francisco, San Bruno, Hayward, or other locations. Selecting South San Francisco as the point of comparison is considered to be conservative because it is relatively closer to San Francisco than the other primary origination points.

make deliveries to the project site, resulting in an increase in VMT compared to a facility in South San Francisco, while deliveries from the site conducted by autos, vans and small trucks would have a shorter travel distance to the areas with greatest existing and projected e-commerce market growth and last mile delivery demand, and therefore would result in a reduction in VMT compared to a facility in South San Francisco. The net change in daily non-commuter VMT was calculated and added to the total daily commuter VMT calculated in the two steps above for the other two PDR uses.

- The VMT credit for existing land uses at the project site was estimated based on daily vehicle counts by vehicle type conducted from June 13 through June 15, 2018. (See **Table 11**; a count summary is presented in **Appendix D**) The same distribution and average distance for the various origins and destinations developed for the proposed PDR uses was applied to the total daily vehicle trips, to estimate the existing average daily VMT.

Using the VMT calculations described above and summarized in **Table 12**, and an estimate of the number of workers that would be associated with the various PDR uses, the average total daily VMT per worker was calculated. The average number of PDR workers that would be at the project site on a typical day (1,955 workers) was obtained from the project description. The resulting average daily VMT per capita for the proposed project PDR uses is 18.8 daily vehicle miles per worker.[26]

PROPOSED PROJECT AVERAGE DAILY VMT PER CAPITA

Table 13 provides a summary of the average daily VMT per capita thresholds established by the department for retail and office[27] uses for existing (year 2020) and 2050 cumulative conditions, as well as the corresponding VMT per capita estimated for the proposed project PDR uses, calculated specifically for this project.

[26] Obtained by dividing a total of 36,715 net new daily vehicle miles for the proposed PDR uses (see **Table 12**) by 1,955 PDR workers.

[27] The average daily VMT per capita results estimated by the SF-CHAMP model for the combined office uses in TAZs 485 and 488 are presented in the table for comparison to the VMT per capita project-specific estimates for the proposed PDR uses.

Table 13
Average Daily VMT per Capita
Existing (Year 2020) and 2050 Cumulative Conditions

Analysis Year and Land Use	Bay Area Regional Average		Project Site [a]
	Average Daily	Average Daily minus 15%	
Existing Conditions (2020)			
Retail [b]	14.9	12.7	9.9
PDR [c]	25.7	21.9	21.4
Proposed Project			
Retail [d]			NA
PDR [e]			18.8
2050 Cumulative Conditions			
Retail [b]	15.9	13.5	12.0
PDR [c]	23.9	20.3	18.8

Notes:

a. Average daily VMT per capita for the combination of TAZs 485 and 488 in which the project site is partially located. TAZ 485 is bounded by Bayshore Boulevard, Jerrold Avenue, Selby Street, and Oakdale Avenue, while TAZ 488 is bounded by Selby Street, Jerrold Avenue, Phelps Street and Oakdale Avenue. The average daily VMT per capita for the combination of zones 485 and 488 is a weighted average, which is calculated by multiplying the VMT per capita for each zone obtained from the SF-CHAMP model by the corresponding number workers or size of retail, adding the two together, and then dividing it by the total number of workers or size of retail..

b. Retail Use - Average daily retail-related VMT per employee, as calculated from the SF-CHAMP travel demand model output. The employee denominator includes retail, cultural, institutional, and educational, and medical employment, as well as school enrollment and number of households.

c. PDR Use – Average daily work-related VMT per employee calculated from the SF-CHAMP travel demand model output by dividing the work-related VMT for office uses by the total number of daily workers.

d. Given that the general retail and café/quick service restaurant uses of the proposed project are considered standard retail uses, the specific retail-related daily VMT per capita for the proposed project do not need to be calculated.

e. Average total daily VMT per employee for commuter and non-commuter trips to and from the project site.

Sources: SF-CHAMP model outputs prepared for the San Francisco Housing Element 2022 Update EIR (Case No. 2019-016230ENV), and provided by SFCTA to consultants in April and September 2021; Adavant Consulting – 2021

APPENDIX A
PROJECT INFORMATION

SAN FRANCISCO GATEWAY: A CENTER FOR PRODUCTION, DISTRIBUTION, AND REPAIR

USE TYPES		A MAKER + MANUFACTURING			B LABORATORY	C PARCEL DELIVERY		D WHOLESALE + STORAGE			E PRIVATE RETAIL VEHICLE STAGING + MAINTENANCE		F PRIVATE FLEET STORAGE, STAGING + MAINTENANCE	G PUBLIC FLEET STAGING + MAINTENANCE
OVERVIEW	description	A light industrial use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers, wholesalers, or public			A non-retail use centered around scientific research & innovation	Light industrial use typified by activities relating to the unloading, sorting, and reloading of merchandise for deliveries		A use typified by activities relating to providing goods or commodities for resale or business use, including both thestorage and sales areas necessary for these types of businesses.			Storage of vehicles to be sold/rented and light maintenance for private vehicles that are operated by a single entity		Storage and potential light maintenance for shuttles servicing specific institutions, businesses, and/or independent shuttle service businesses	Storage and maintenance for buses, trolleys, and/or shuttles for a public transportation agency
	probable tenant type	A1 PDR incubator craft, small assembly	A2 food + beverage	A3 advanced manufacturing large assembly	B1 scientific testing + development lab	C1 parcel hub	C2 last mile	D1 construction supplies wholesale	D2 food + beverage - wholesale & distribution	D3 freight forward + storage	E1 vehicle dealer	E2 vehicle rental agency	F1 private compay fleet	G1 publicfleet management
	business examples	*Biyr Clogs Rickshaw Bags*	*Recchiuti*	*PCH Lime Lab*	*Applied Materials*	*FedEx, On-Trick, UPS*	*Amazon Prime, Good Eggs*	*Russel Sigler*	*Chef's Warehouse*	*Geodis*	*Royal Motors, SF Toyota*	*Uhaul, Hertz*	*Google, Academy of Art University, Lyft, Bauer, UCSF*	*Muni Buses, SF Paratransit*
FACILITY	typical area (sf)	2,000-5,000 per maker within 20,000 incubitor	5,000 - 20,000		10,000 - 40,000	20,000 - 200,000	40,000 - 200,000	20,000 - 100,000			35,000 - 100,000	35,000 - 100000	30,000 - 100,000	400,000 - 1,200,000
	clear height (ft)	12' - 20'			12' - 20'	20' - 30'		24' - 30'			10' - 14'		10' - 20	15' - 20'
OPERATIONS	employee ratio	3 per 1000 sf			5 per 1,000 sf	1.5 per 1000 sf		0.7 per 1000 s	0.5 per 1000 sf	0.7 per 1000 sf	0.3 per 1000 sf		0.5 per 100 sf	0.7 per 1000 sf
	office ratio	15 - 25%			15 - 25%	10 - 15%		5 - 10%	10 - 25%	5 -10%	5 - 10%		5 - 10%	10-15%
	typical normal hours	6:00am - 6:00pm swing shift possible	4:00am - 4:00pm swing shift possible	8:00am - 6:00pm	8:00am - 6:00pm	4:00am - 4:00pm swing shift possible		6:00am- 4:00pm	12:00am -4:00 pm	6:00am - 6:00pm	7:00am - 7:00pm		5:00am - 10:00pm	5:00an - 12:00 midnight
	accessory retail	preferred		possible	no	no		no			no		no	preferred (food and drink)
	venting required	code min + equipment needs	code min + vertical venting + hood exhaust	code min + equipment needs	code min + equipment needs	code min		code min	code min + additional venting if processing	code min	code min + maintenance specific ventilation requirements		code min + maintenance specific ventilation requirements	code req'd ventilation will vary per use requirements
	HVAC required	preferred, not required	climate controlled + hood exhaust + refrigeration	preferred, not required	required throughout	required in office only		required in office only	climate controlled + hood exhaust + refrigeration	required in office only	required in office only		required in office only	required in office only
TRANSPORTATION	recieving vehicle	personal vehicle/semi truck			box truck or van/semi truck	personal vehicle/box truck or van/semi truck		semi truck			personal vehicle/box truck or van		personal vehicle/box tuck or van/bus	box truck or van/bus/articulated bus
	shipping vehicle	personal vehicle / semi truck	semi truck		box truck or van/semi truck	personal vehicle/box truck or van		box truck or van			-	-	-	-
	capacity	1 : 1,500			1:1,000	1 : 1,500		1 : 2,000	1 : 1,500	1 : 2,000	150 - 300 vehicles	60 - 300 vehicles	20 - 100 vehicles	200 - 400 vehicles
	maintenance req'd	-			-	-		-			light maintenance & employee support spaces required fuel & wash preferred		light maintenance & employee support spaces required fuel & wash preferred	full maintenance & employee support spaces required fuel & wash required
	loading req'd	drive-in doors / dock high beneficial			drive to doors / freight elevator	dock high, internal vehicle access		dock high roll up doors			-		-	-

San Francisco Gateway Project [June 2021]
Land Use Summary

LAND USE TYPE	PROPOSED PROJECT			
PDR Uses				
Maker and Manufacturing	35,000	gsf	6%	
Parcel Delivery/Last Mile [a]	364,715	gsf	60%	
Wholesale and Storage [a]	209,575	gsf	34%	
Total PDR uses	*609,290*	*gsf*	*100%*	*99%*
Retail Uses				
General Retail	4,200	gsf	50%	
Café/Quick Service Restaurant	4,200	gsf	50%	
Total retail uses	*8,400*	*gsf*	*100%*	*1%*
Total Active Development	**617,690**	**gsf**		
Other Areas				
Logistics Yard [b]	732,610	gsf		
Vehicle Circulation [c]	275,500	gsf		
Vertical Circulation [d]	26,600	gsf		
Accessory Parking	507,600	gsf		
Total Other Areas	*1,542,310*	*gsf*		
TOTAL PROJECT	**2,160,000**	**gsf**		

[a] Only includes area dedicated to goods handling within the overall land use space
[b] Truck staging, maneuvering, and loading/unloading area
[c] Vehicle ramps and ramp circulation
[d] Stairs and exit corridors

San Francisco Gateway Project [June 2021]
Building Configuration

BUILDING SPACE ALLOCATION	PROPOSED PROJECT			
Building 1				
PDR Uses				
Maker and Manufacturing	17,500	gsf	3%	
Parcel Delivery/Last Mile				
Goods handling [a]	182,358	gsf	27%	
Vehicle staging & yard [b]	255,454	gsf	38%	
Wholesale and Storage				
Goods handling [a]	104,788	gsf	16%	
Vehicle staging & yard [b]	110,851	gsf	17%	
Total PDR	670,950	gsf	100%	62%
Retail Uses				
General Retail	2,100	gsf	50%	
Café/Quick Service Restaurant	2,100	gsf	50%	
Total retail	4,200	gsf	100%	0%
Total PDR and Retail Uses	*675,150*	*gsf*		*63%*
Other Areas				
Vehicle Circulation	137,750	gsf	34%	
Vertical Circulation	13,300	gsf	3%	
Accessory Parking	253,800	gsf	63%	
Total Other Areas	*404,850*	*gsf*	*100%*	*37%*
Total Building 1	**1,080,000**	**gsf**		**100%**
Building 2				
PDR Uses				
Maker and Manufacturing	17,500	gsf	3%	
Parcel Delivery/Last Mile				
Goods handling [a]	182,358	gsf	27%	
Vehicle staging & yard [b]	255,454	gsf	38%	
Wholesale and Storage				
Goods handling [a]	104,788	gsf	16%	
Vehicle staging & yard [b]	110,851	gsf	17%	
Total PDR	670,950	gsf	100%	62%
Retail Uses				
General Retail	2,100	gsf	50%	
Café/Quick Service Restaurant	2,100	gsf	50%	
Total retail	4,200	gsf	100%	0%
Total PDR and Retail Uses	*675,150*	*gsf*		*63%*
Other Areas				
Vehicle Circulation	137,750	gsf	34%	
Vertical Circulation	13,300	gsf	3%	
Accessory Parking	253,800	gsf	63%	
Total Other Areas	*404,850*	*gsf*	*100%*	*37%*
Total Building 2	**1,080,000**	**gsf**		**100%**
Site Total				
PDR Uses				
Maker and Manufacturing	35,000	gsf	3%	
Parcel Delivery/Last Mile				
Goods handling [a]	364,715	gsf	27%	
Vehicle staging & yard [b]	510,908	gsf	38%	
Wholesale and Storage				
Goods handling [a]	209,575	gsf	16%	
Vehicle staging & yard [b]	221,702	gsf	17%	
Total PDR	1,341,900	gsf	100%	62%
Retail Uses				
General Retail	4,200	gsf	50%	
Café/Quick Service Restaurant	4,200	gsf	50%	
Total retail	8,400	gsf	100%	0%
Total PDR and Retail Uses	*1,350,300*	*gsf*		*63%*
Other Areas				
Vehicle Circulation	275,500	gsf	34%	
Vertical Circulation	26,600	gsf	3%	
Accessory Parking	507,600	gsf	63%	
Total Other Areas	809,700	gsf	*100%*	*37%*
TOTAL SITE	**2,160,000**	**gsf**		**100%**

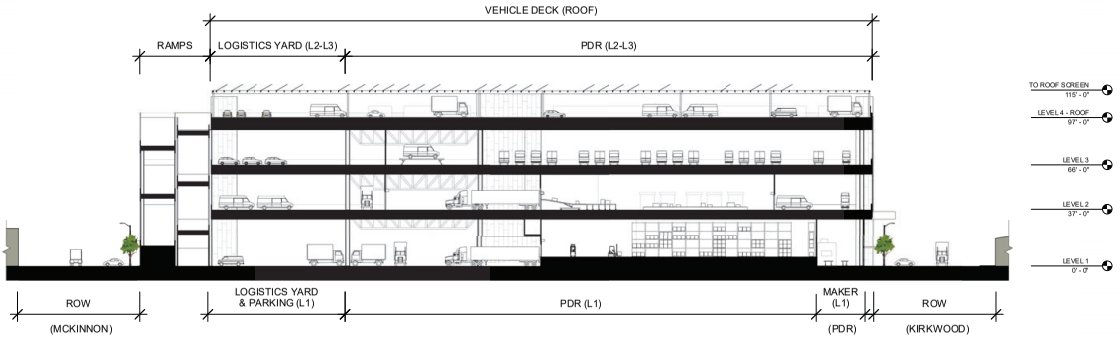
[a] Area dedicated to goods handling within the overall land use space
[b] Truck staging, maneuvering, and loading/unloading area
[c] Vehicle ramps and ramp circulation
[d] Stairs and exit corridors

PO-1
Revised 10/08/19

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124
12/12/17

AXONOMETRIC
PROJECT OVERVIEW

Jackson Liles ARCHITECTURE



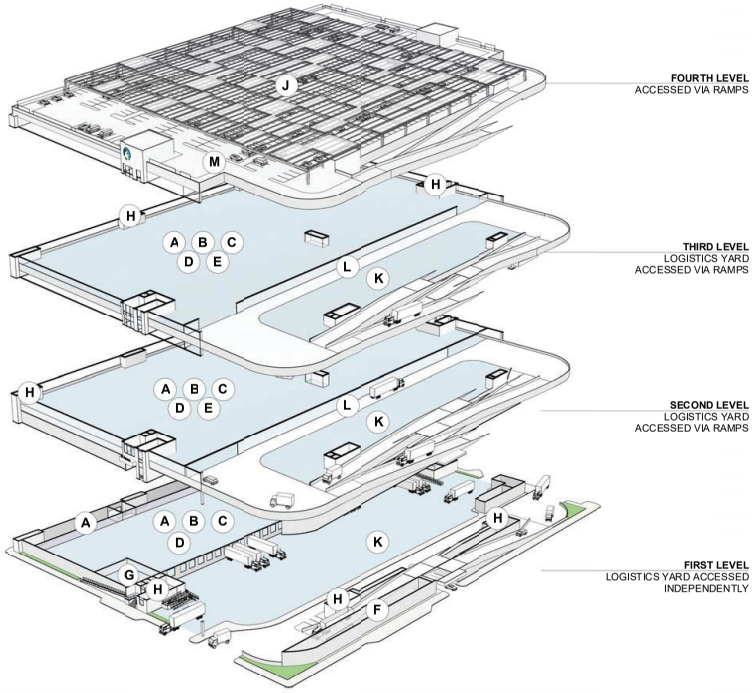
Jackson Liles ARCHITECTURE

CONCEPTUAL BUILDING SECTION
PROJECT OVERVIEW

PO-2 | SAN FRANCISCO GATEWAY
1" = 50'-0"
10/08/19
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

LEGEND

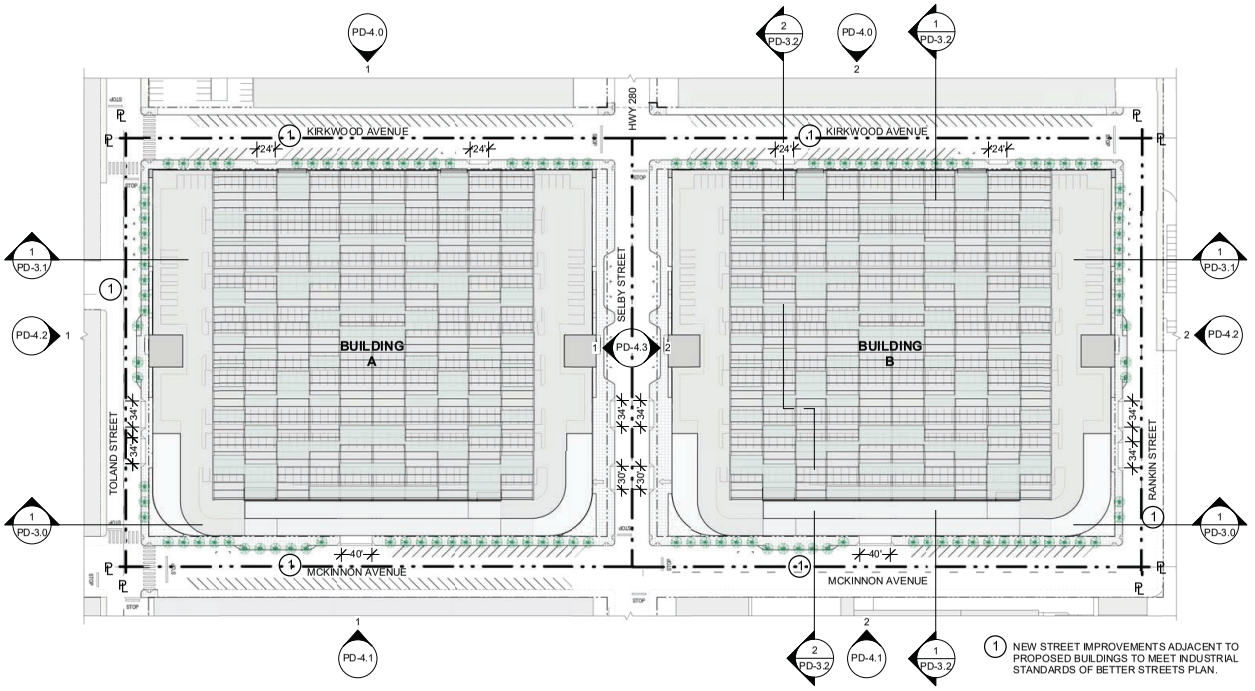
POTENTIAL TENANT TYPES	
A	LIGHT MANUFACTURING + MAKER
B	PARCEL DELIVERY
C	WHOLESALE + STORAGE
D	FLEET
E	LABORATORY
F	RETAIL
BUILDING COMPONENTS	
G	ACCESSORY OFFICE
H	CIRCULATION CORE
J	SOLAR ARRAY + ROOF SCREEN
K	LOGISTICS YARD
L	COMMON VEHICLE CIRCULATION
M	VEHICLE DECK



Jackson Liles ARCHITECTURE

USE DIAGRAM
PROJECT OVERVIEW

PO-4 | SAN FRANCISCO GATEWAY
Revised 10/08/19
07/02/2018
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124



Jackson Liles ARCHITECTURE

SITE PLAN
PROJECT DRAWINGS

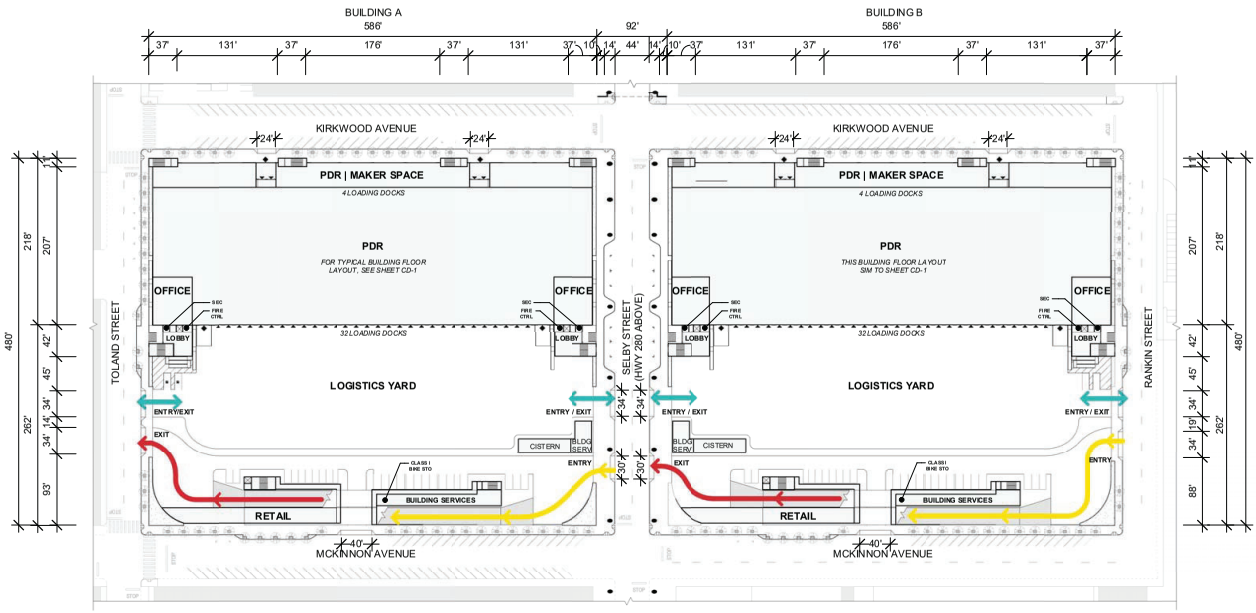
RN

PD-2.0
Revised 10/08/19
1" = 100'-0"
12/12/17

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

A-11

D - 38



Jackson Liles ARCHITECTURE

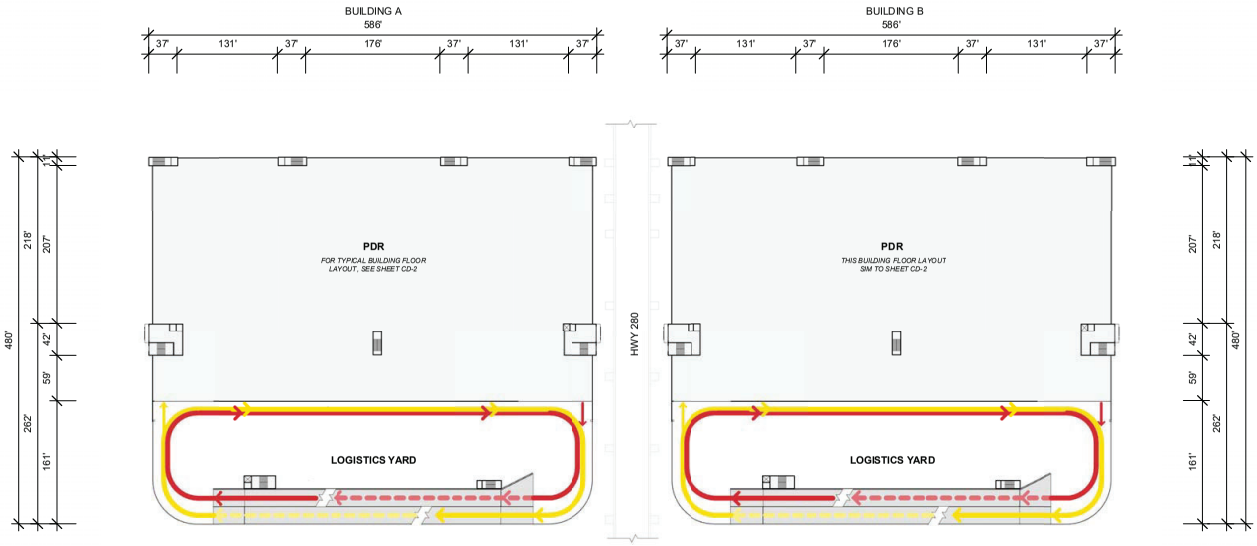
FLOOR PLAN - LEVEL 1
PROJECT DRAWINGS

RN

PD-2.1
Revised 10/08/19
1" = 100'-0"
12/12/17

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

A-12



LEGEND

- DOCK DOOR
- COMMON LOADING DOOR
- DRIVE-IN DOOR
- GRADE LEVEL ROLL-UP DOOR
- LARGE VEHICLE RAMP TRAFFIC DIRECTION
- LARGE VEHICLE RAMP TRAFFIC FROM BELOW
- LEVEL ONE VEHICLE ACCESS
- RAMP
- ENCLOSED AREA

Jackson Liles ARCHITECTURE

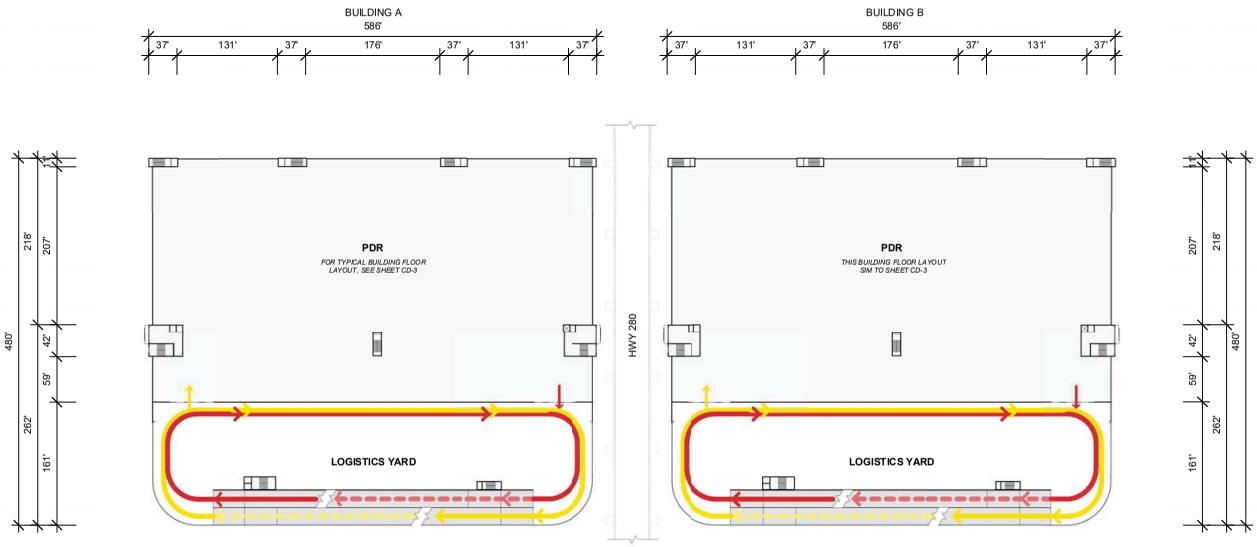
FLOOR PLAN - LEVEL 2
PROJECT DRAWINGS

RN

PD-2.2
Revised 10/08/19
1" = 100'-0"
12/12/17

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

A-13



LEGEND

- DOCK DOOR
- COMMON LOADING DOOR
- DRIVE-IN DOOR
- GRADE LEVEL ROLL-UP DOOR
- LARGE VEHICLE RAMP TRAFFIC DIRECTION
- LARGE VEHICLE RAMP TRAFFIC FROM BELOW
- LEVEL ONE VEHICLE ACCESS
- RAMP
- ENCLOSED AREA

Jackson Liles ARCHITECTURE

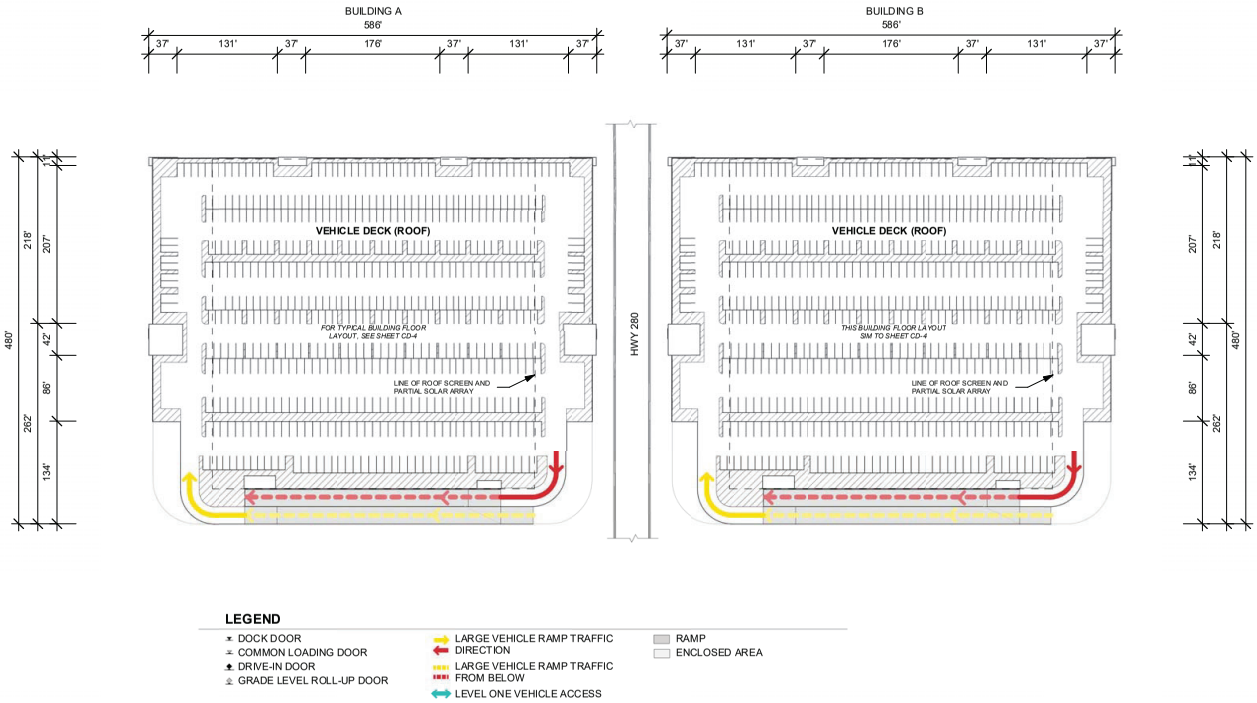
FLOOR PLAN - LEVEL 3
PROJECT DRAWINGS

RN

PD-2.3
Revised 10/08/19
1" = 100'-0"
12/12/17

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

A-14



Jackson Liles ARCHITECTURE

FLOOR PLAN - ROOF PLAN
PROJECT DRAWINGS

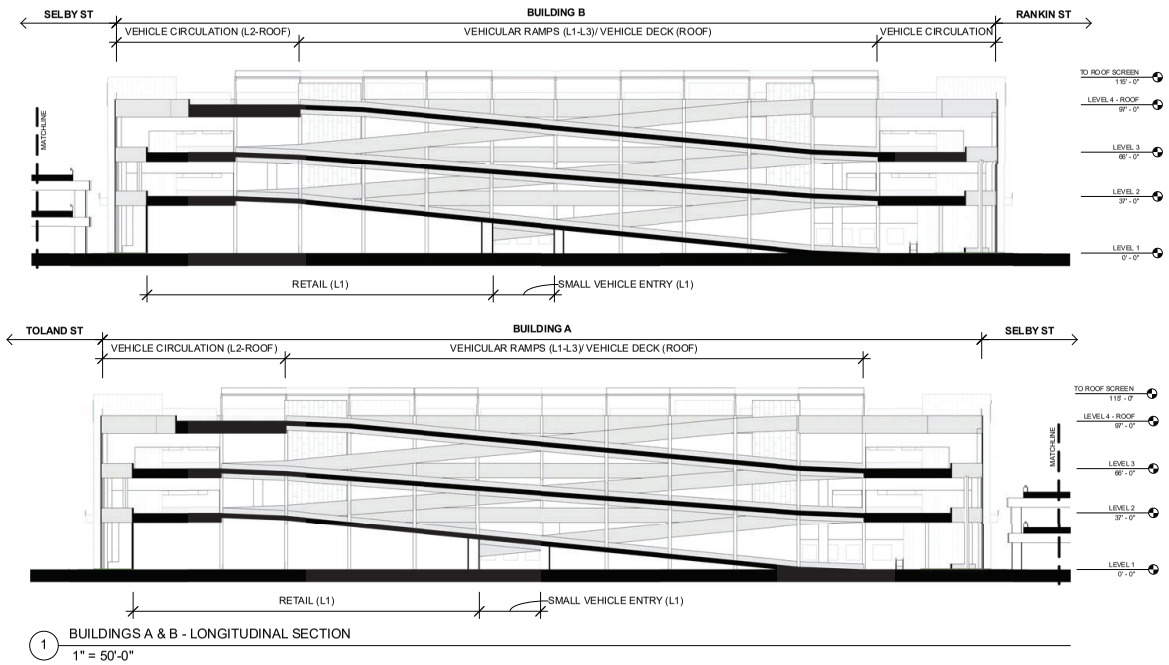
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PD-2.4
Revised 10/08/19
1" = 100'-0"
11/01/18

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

A-15

D - 40



1 BUILDINGS A & B - LONGITUDINAL SECTION
1" = 50'-0"

Jackson Liles ARCHITECTURE

SECTIONS - LONGITUDINAL
PROJECT DRAWINGS

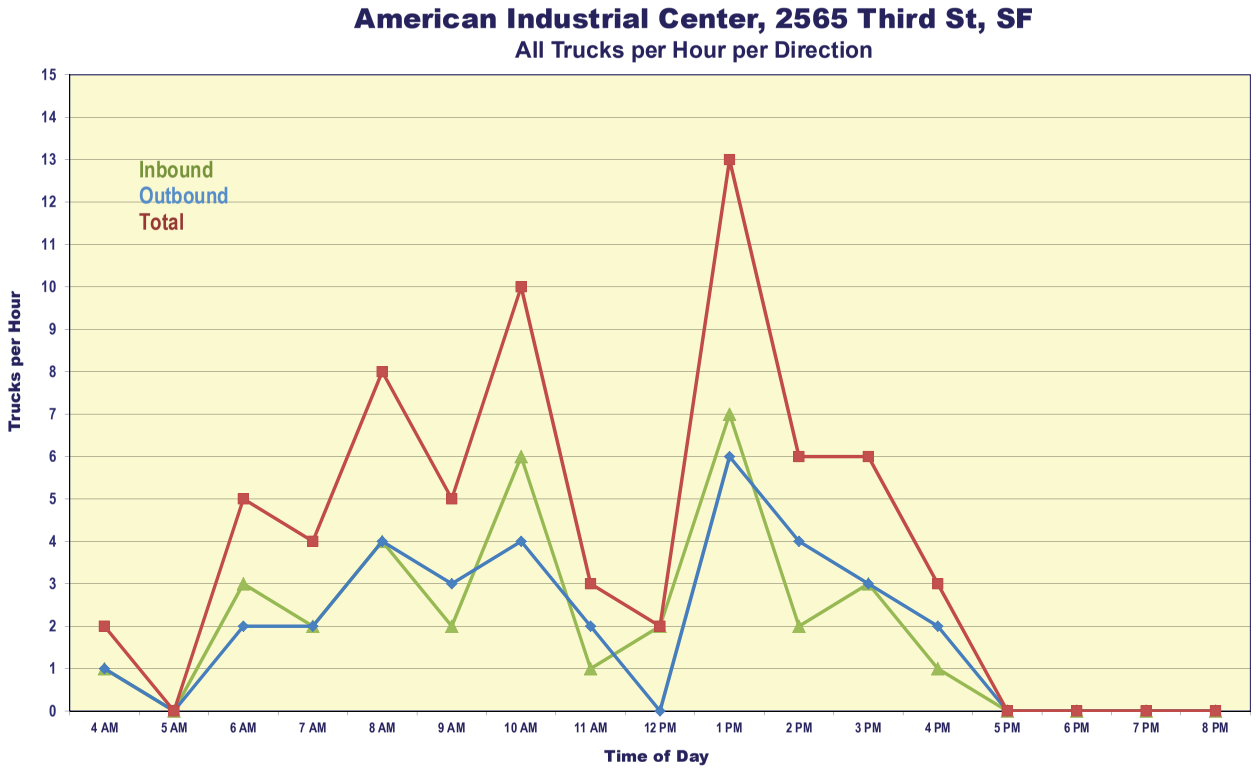
PD-3.0
Revised 10/08/19
1" = 50'-0"
12/12/17

SAN FRANCISCO GATEWAY
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

A-16

APPENDIX B
DATA COLLECTION SUMMARIES

American Industrial Center, 2565 Third St, SF
Total Persons per Hour per Direction
Inbound
Outbound
Total
Persons per Hour
0
10
20
30
40
50
60
70
80
90
100
110
120
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
Time of Day



Adavant Consulting

American Industrial Center
2565 Third Street, San Francisco
Pedestrian Entrance Counts

	AIC Building Entrances														
	2565 Third St.			2585 Third St.			615 22nd St.			Illinois St Dock			All Entrances		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
04/19/18 Thursday															
Total daily volume	302	151	151	23	6	17	291	147	144	528	268	260	1,144	572	572
Entrance %	*26%*			*2%*			*25%*			*46%*			*100%*		
Peak hour volume time		1:00 PM			11:45 AM			10:00 AM			8:00 AM			1:00 PM	
Maximum hourly volume	49	26	23	4	1	3	26	11	15	79	54	25	117	59	58
% of daily volume	16%			17%			9%			15%			10%		
AM Peak Hour (7-9 AM)		7:30 AM			7:45 AM			7:30 AM			8:00 AM			8:00 AM	
AM peak hour volume	18	15	3	3	2	1	11	8	3	79	54	25	109	74	35
Inbound/Outbound %		83%	17%		67%	33%		73%	27%		68%	32%		68%	32%
% of daily volume	6%			13%			4%			15%			10%		
Entrance %	*16%*			*3%*			*10%*			*71%*			*100%*		
PM Peak Hour (4-6 PM)		4:30 PM			4:30 PM			4:00 PM			4:30 PM			4:30 PM	
PM peak hour volume	29	7	22	3	0	3	20	3	17	40	10	30	92	20	72
Inbound/Outbound %		24%	76%		0%	100%		15%	85%		25%	75%		22%	78%
% of daily volume	10%			13%			7%			8%			8%		
Entrance %	*32%*			*3%*			*22%*			*43%*			*100%*		

American Industrial Center
2565 Third Street, San Francisco
Dock Activity

Daily

	Cars	Vans	Trucks	Total	% trucks
dock 1	12	19	21	52	40%
dock 2	9	5	2	16	13%
Third st	15	5	11	31	35%
total	36	29	34	99	34%
		46%	54%		

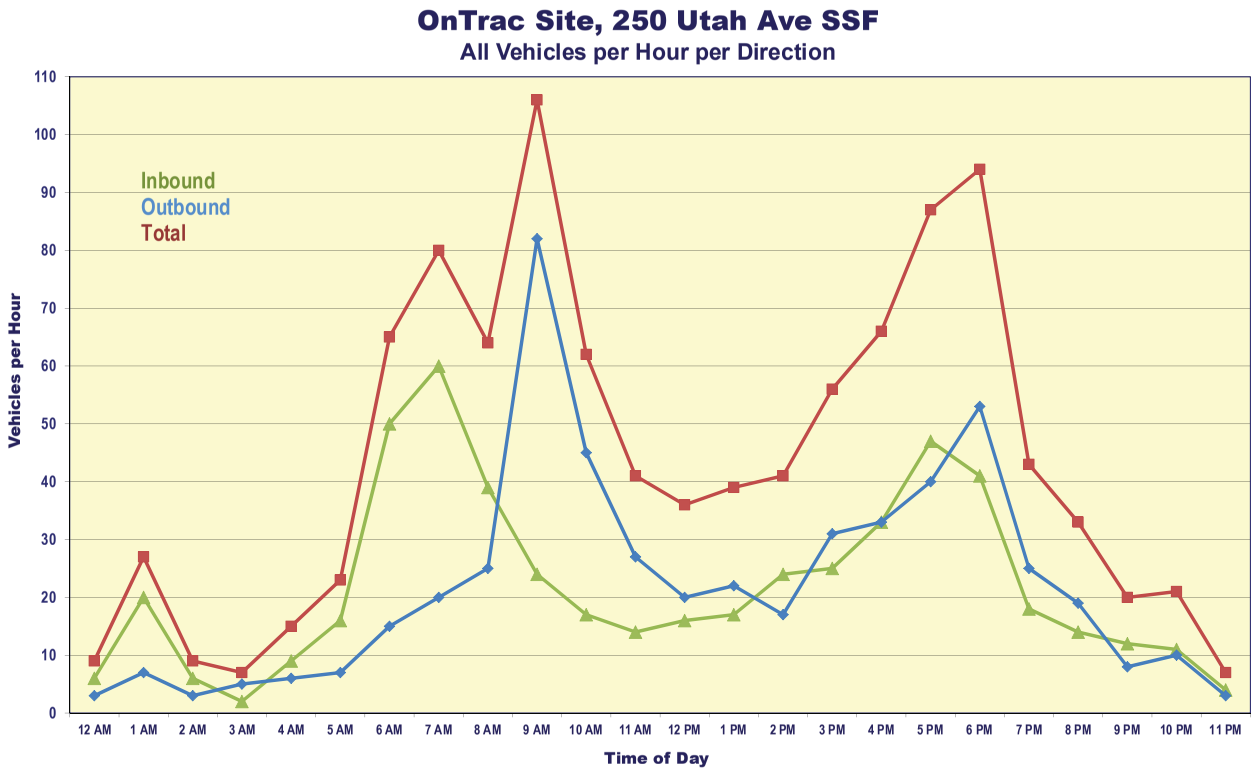
AM Peak Hour

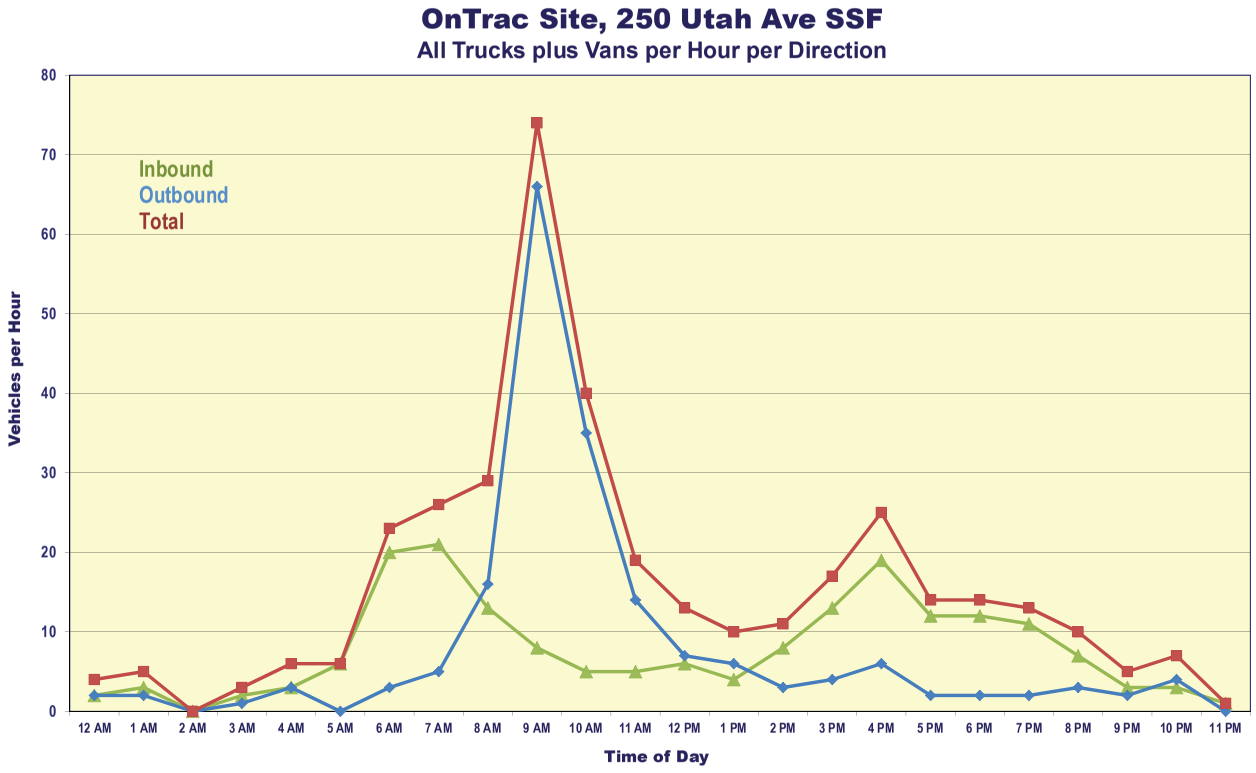
	Cars	Vans	Trucks	Total	% trucks
dock 1	4	3	8	15	53%
dock 2	6	2		8	0%
Third st	3	1	0	4	0%
total	13	6	8	27	30%
		43%	57%	27%	

PM Peak Hour

	Cars	Vans	Trucks	Total	% trucks
dock 1	1		1	2	50%
dock 2				0	
Third st	1	0	1	2	50%
total	2	0	2	4	50%
		0%	100%	4%	

ONTRAC PARCEL DISTRIBUTION CENTER


OnTrac Site, 250 Utah Ave SSF
All Vehicles per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
0
10
20
30
40
50
60
70
80
90
100
110
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM


OnTrac Site, 250 Utah Ave SSF
All Trucks plus Vans per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
0
10
20
30
40
50
60
70
80
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM

Utah Airfreight Location
OnTrac and Amazon Sites
Driveway Counts

	Total Driveways - OnTrac														
	Automobiles			Vans			Trucks			Tractor Trailers			All vehicles		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Two-Day Average															
Total daily volume	640	321	320	174	82	93	135	70	65	22	13	9	970	485	485
Vehicle type %	*66%*			*18%*			*14%*			*2%*			*100%*		
Max. hourly volume time		5:30 PM			8:45 AM			9:15 AM			3:45 AM			5:45 PM	
Maximum hourly volume	94	46	48	42	6	36	35	3	32	6	3	3	108	50	58
% of daily volume	15%			24%			26%			28%			11%		
AM Peak Hour (7-9 AM)		7:00 AM			8:00 AM			8:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	54	39	15	16	6	10	12	6	6	3	2	1	80	60	20
% of daily volume	8%			9%			9%			14%			8%		
Inbound/Outbound %		72%	28%		38%	63%		50%	50%		67%	33%		75%	25%
Vehicle type %	*64%*			*19%*			*14%*			*4%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:00 PM			4:00 PM			4:00 PM			5:00 PM	
PM peak hour volume	73	35	38	16	11	5	9	8	1	0	0	0	87	47	40
% of daily volume	11%			9%			7%			0%			9%		
Inbound/Outbound %		48%	52%		69%	31%		89%	11%		0%	0%		54%	46%
Vehicle type %	*74%*			*16%*			*9%*			*0%*			*100%*		
04/17/18 Tuesday															
Total daily volume	551	274	277	173	82	91	142	75	67	24	16	8	890	447	443
Vehicle type %	*62%*			*19%*			*16%*			*3%*			*100%*		
Peak hour volume time		6:45 AM			9:00 AM			9:15 AM			12:45 AM			9:15 AM	
Maximum hourly volume	57	36	21	47	5	42	37	4	33	4	2	2	118	27	91
% of daily volume	10%			27%			26%			17%			13%		
AM Peak Hour (7-9 AM)		7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	47	31	16	15	14	1	8	7	1	4	3	1	74	55	19
% of daily volume	9%			9%			6%			17%			8%		
Inbound/Outbound %		66%	34%		93%	7%		88%	13%		75%	25%		74%	26%
Vehicle type %	*64%*			*20%*			*11%*			*5%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:00 PM			4:15 PM			4:00 PM			4:30 PM	
PM peak hour volume	46	16	30	19	13	6	11	10	1	0	0	0	65	28	37
% of daily volume	8%			11%			8%			0%			7%		
Inbound/Outbound %		35%	65%		68%	32%		91%	9%		0%	0%		43%	57%
Vehicle type %	*61%*			*25%*			*14%*			*0%*			*100%*		
04/18/18 Wednesday															
Total daily volume	729	367	362	175	81	94	127	65	62	19	10	9	1,050	523	527
Vehicle type %	*69%*			*17%*			*12%*			*2%*			*100%*		
Peak hour volume time		5:30 PM			8:45 AM			9:00 AM			3:45 AM			5:30 PM	
Maximum hourly volume	143	78	65	38	5	33	31	1	30	6	3	3	154	88	66
% of daily volume	20%			22%			24%			32%			15%		
AM Peak Hour (7-9 AM)		7:00 AM			8:00 AM			8:00 AM			7:00 AM			8:00 AM	
AM peak hour volume	56	45	11	25	7	18	15	6	9	0	0	0	79	43	36
% of daily volume	8%			14%			12%			0%			8%		
Inbound/Outbound %		80%	20%		28%	72%		40%	60%		0%	0%		54%	46%
Vehicle type %	*58%*			*26%*			*16%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:00 PM			4:00 PM			4:00 PM			5:00 PM	
PM peak hour volume	99	54	45	11	9	2	8	7	1	0	0	0	112	66	46
% of daily volume	14%			6%			6%			0%			11%		
Inbound/Outbound %		55%	45%		82%	18%		88%	13%		0%	0%		59%	41%
Vehicle type %	*84%*			*9%*			*7%*			*0%*			*100%*		

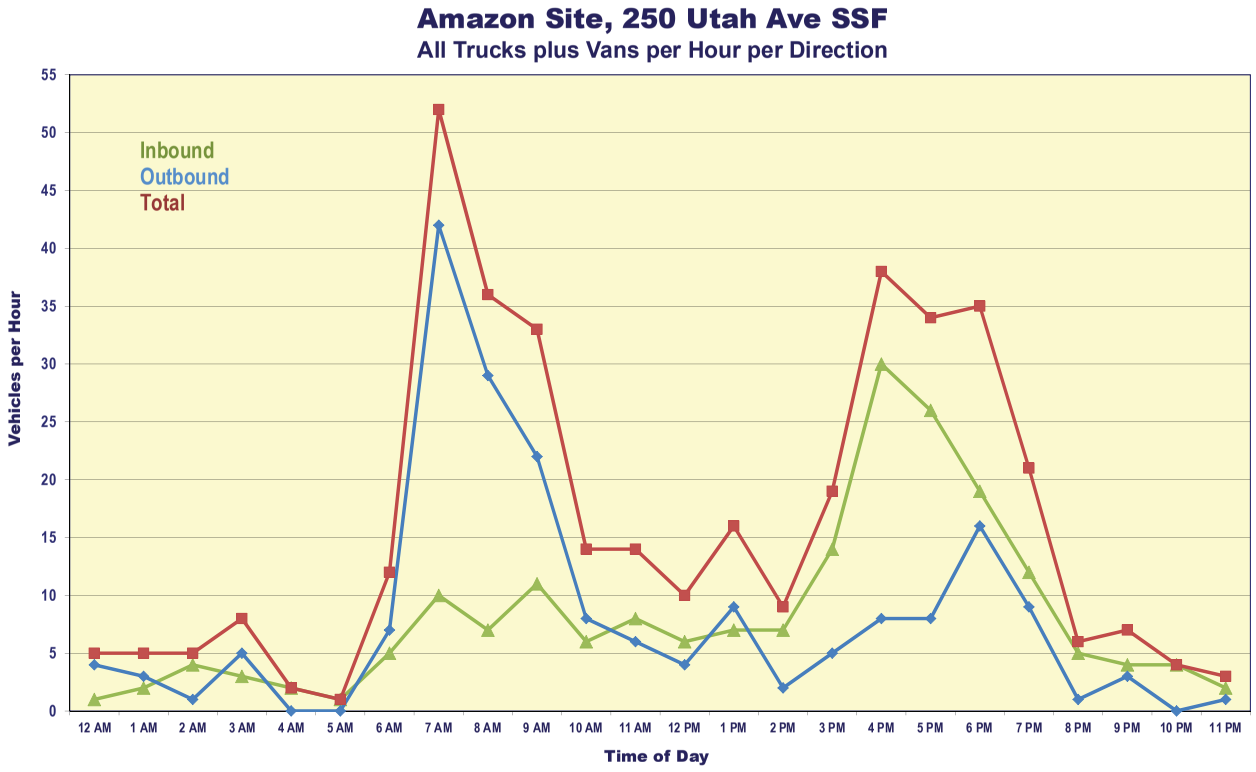
Utah Airfreight Location
OnTrac Site
Employee Counts

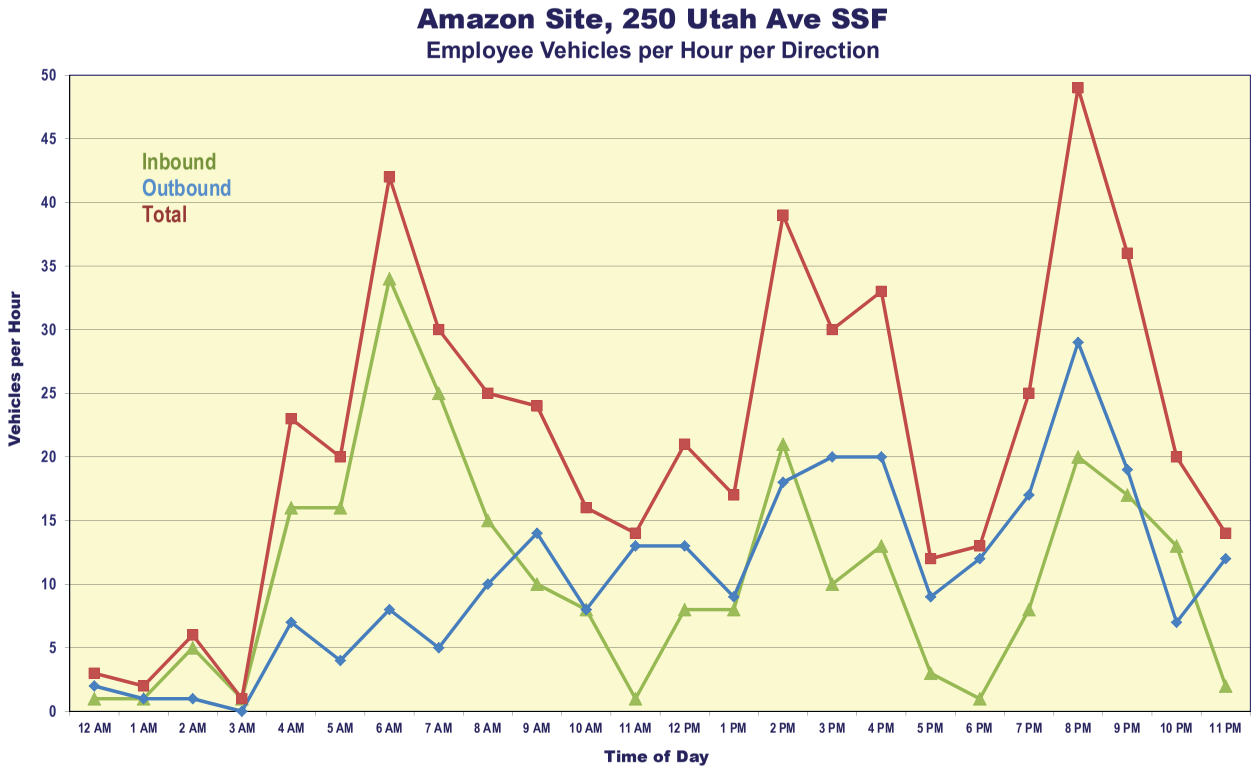
	OnTrac Employees [4/17 & 4/18 2018]								
	OnTrac (East Door)			OnTrac (West Door)			Total OnTrac		
	Total	In	Out	Total	In	Out	Total	In	Out
Two-Day Average									
Total daily employees	162	94	68	1,104	557	547	1,266	651	615
Entrance door %	*13%*			*87%*			*100%*		
Max. hourly volume time		5:45 AM			2:00 AM			2:00 AM	
Maximum hourly volume	17	11	6	116	58	58	120	69	64
% of daily volume	10%			11%			9%		
AM Peak Hour (7-9 AM)		7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	15	12	3	89	45	44	104	57	47
Inbound/Outbound %		80%	20%		51%	49%		55%	45%
% of daily volume	9%			8%			8%		
Entrance door %	*14%*			*86%*			*100%*		
PM Peak Hour (4-6 PM)		4:00 PM			4:15 PM			4:00 PM	
PM peak hour volume	10	4	6	60	27	33	69	31	39
Inbound/Outbound %		40%	60%		45%	55%		45%	57%
% of daily volume	6%			5%			5%		
Entrance door %	*14%*			*86%*			*100%*		
04/17/18 Tuesday									
Total daily employees	129	76	53	1,078	548	530	1,207	624	583
Entrance door %	*11%*			*89%*			*100%*		
Max. hourly volume time		1:00 AM			2:00 AM			2:00 AM	
Maximum hourly volume	*16*	*9*	7	*126*	*63*	63	*128*	*65*	63
% of daily volume	12%			12%			11%		
AM Peak Hour (7-9 AM)		7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	*5*	*5*	0	*91*	*43*	48	*96*	*48*	48
Inbound/Outbound %		100%	0%		47%	53%		50%	50%
% of daily volume	4%			8%			8%		
Entrance door %	*5%*			*95%*			*100%*		
PM Peak Hour (4-6 PM)		4:00 PM			4:15 PM			4:00 PM	
PM peak hour volume	*5*	*3*	2	*59*	*28*	31	*63*	*31*	32
Inbound/Outbound %		60%	40%		47%	53%		49%	51%
% of daily volume	4%			5%			5%		
Entrance door %	*8%*			*92%*			*100%*		
04/18/18 Wednesday									
Total daily employees	195	112	83	1,129	565	564	1,324	677	647
Entrance door %	*15%*			*85%*			*100%*		
Max. hourly volume time		6:15 AM			2:00 AM			6:30 AM	
Maximum hourly volume	23	*14*	9	105	*52*	53	125	*72*	53
% of daily volume	12%			9%			9%		
AM Peak Hour (7-9 AM)		7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	*23*	*18*	5	*87*	*47*	40	*110*	*65*	45
Inbound/Outbound %		78%	22%		54%	46%		59%	41%
% of daily volume	12%			8%			8%		
Entrance door %	*21%*			*79%*			*100%*		
PM Peak Hour (4-6 PM)		4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume	*13*	*4*	9	*59*	*23*	36	*72*	*27*	45
Inbound/Outbound %		31%	69%		39%	61%		38%	63%
% of daily volume	7%			5%			5%		
Entrance door %	*18%*			*82%*			*100%*		

Utah Airfreight Location
OnTrac Site
Ramp Counts

	Total Both Ramps											
	Automobiles			Vans			Trucks			All vehicles		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Two-Day Average												
Total daily volume	62	32	31	175	84	91	121	59	62	357	174	183
Vehicle type %	*17%*			*49%*			*34%*			*100%*		
Max. hourly volume time		8:45 AM			9:00 AM			9:15 AM			8:45 AM	
Maximum hourly volume	11	7	4	41	5	36	34	4	30	81	18	63
% of daily volume	18%			23%			28%			23%		
AM Peak Hour (7-9 AM)		8:00 AM			8:00 AM			7:45 AM			8:00 AM	
AM peak hour volume	5	4	1	17	7	10	14	10	4	36	18	18
% of daily volume	8%			10%			12%			10%		
Vehicle type %	*14%*			*47%*			*39%*			*100%*		
PM Peak Hour (4-6 PM)		4:30 PM			4:00 PM			4:15 PM			4:15 PM	
PM peak hour volume	7	3	4	14	10	4	9	7	2	27	17	10
% of daily volume	11%			8%			7%			8%		
Vehicle type %	*23%*			*47%*			*30%*			*100%*		
04/17/18 Tuesday												
Total daily volume	69	35	34	169	82	87	131	63	68	369	180	189
Vehicle type %	*19%*			*46%*			*36%*			*100%*		
Peak hour volume time		6:45 PM			9:00 AM			9:15 AM			9:15 AM	
Maximum hourly volume	*11*	*1*	10	*47*	*5*	42	*38*	*6*	32	*95*	*18*	77
% of daily volume	16%			28%			29%			26%		
AM Peak Hour (7-9 AM)		7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	*3*	*2*	1	*15*	*14*	1	*8*	*7*	1	*26*	*23*	3
% of daily volume	4%			9%			6%			7%		
Vehicle type %	*12%*			*58%*			*31%*			*100%*		
PM Peak Hour (4-6 PM)		4:30 PM			4:15 PM			4:15 PM			4:15 PM	
PM peak hour volume	*10*	*4*	6	*15*	*10*	5	*12*	*8*	4	*33*	*21*	12
% of daily volume	14%			9%			9%			9%		
Vehicle type %	*27%*			*41%*			*32%*			*100%*		
04/18/18 Wednesday												
Total daily volume	55	28	27	180	86	94	110	54	56	345	168	177
Vehicle type %	*16%*			*52%*			*32%*			*100%*		
Peak hour volume time		8:45 AM			8:30 AM			9:00 AM			8:45 AM	
Maximum hourly volume	8	*5*	3	37	*8*	29	30	*2*	28	72	*13*	59
% of daily volume	15%			21%			27%			21%		
AM Peak Hour (7-9 AM)		8:00 AM			8:00 AM			7:45 AM			8:00 AM	
AM peak hour volume	*5*	*4*	1	*28*	*9*	19	*21*	*13*	8	*51*	*20*	31
% of daily volume	9%			16%			19%			15%		
Vehicle type %	*9%*			*52%*			*39%*			*100%*		
PM Peak Hour (4-6 PM)		4:15 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume	*2*	*1*	1	*12*	*9*	3	*7*	*7*	0	*20*	*17*	3
% of daily volume	4%			7%			6%			6%		
Vehicle type %	*10%*			*57%*			*33%*			*100%*		

Amazon Site, 250 Utah Ave SSF
All Vehicles per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM


Amazon Site, 250 Utah Ave SSF
All Trucks plus Vans per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
0
5
10
15
20
25
30
35
40
45
50
55
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM


Amazon Site, 250 Utah Ave SSF
Employee Vehicles per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
0
5
10
15
20
25
30
35
40
45
50
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM

Utah Airfreight Location
OnTrac and Amazon Sites
Driveway Counts

	Total Driveways - Amazon														
	Automobiles			Vans			Trucks			Tractor Trailers			All vehicles		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Two-Day Average															
Total daily volume	1,034	516	519	264	133	132	45	23	22	40	22	18	1,382	693	690
Vehicle type %	*75%*			*19%*			*3%*			*3%*			*100%*		
Max. hourly volume time		5:30 PM			6:45 AM			9:00 AM			3:00 AM			5:30 PM	
Maximum hourly volume	143	57	86	48	9	39	11	6	5	7	3	4	180	83	97
% of daily volume	14%			18%			25%			18%			13%		
AM Peak Hour (7-9 AM)		7:00 AM			7:15 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	31	25	6	46	9	37	7	2	5	0	0	0	83	35	48
% of daily volume	3%			17%			16%			0%			6%		
Inbound/Outbound %		81%	19%		20%	80%		29%	71%		0%	0%		42%	58%
Vehicle type %	*37%*			*55%*			*8%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:15 PM			4:15 PM			4:00 PM			5:00 PM	
PM peak hour volume	118	55	63	37	29	8	2	1	1	2	1	1	152	81	71
% of daily volume	11%			14%			4%			5%			11%		
Inbound/Outbound %		47%	53%		78%	22%		50%	50%		50%	50%		53%	47%
Vehicle type %	*74%*			*23%*			*1%*			*1%*			*100%*		
04/17/18 Tuesday															
Total daily volume	1,080	539	541	244	122	122	53	28	25	48	28	20	1,425	717	708
Vehicle type %	*76%*			*17%*			*4%*			*3%*			*100%*		
Peak hour volume time		5:15 PM			7:15 AM			9:00 AM			9:00 PM			5:15 PM	
Maximum hourly volume	151	68	83	44	2	42	15	7	8	8	3	5	175	88	87
% of daily volume	14%			18%			28%			17%			12%		
AM Peak Hour (7-9 AM)		7:45 AM			7:15 AM			7:45 AM			7:00 AM			7:30 AM	
AM peak hour volume	33	23	10	44	2	42	3	1	2	0	0	0	71	31	40
% of daily volume	3%			18%			6%			0%			5%		
Inbound/Outbound %		70%	30%		5%	95%		33%	67%		0%	0%		44%	56%
Vehicle type %	*41%*			*55%*			*4%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:30 PM			4:15 PM			4:00 PM			4:45 PM	
PM peak hour volume	134	62	72	36	27	9	2	1	1	2	1	1	160	86	74
% of daily volume	12%			15%			4%			4%			11%		
Inbound/Outbound %		46%	54%		75%	25%		50%	50%		50%	50%		54%	46%
Vehicle type %	*77%*			*21%*			*1%*			*1%*			*100%*		
04/18/18 Wednesday															
Total daily volume	988	492	496	284	143	141	36	18	18	31	15	16	1,339	668	671
Vehicle type %	*74%*			*21%*			*3%*			*2%*			*100%*		
Peak hour volume time		5:30 PM			6:45 AM			7:00 AM			12:45 AM			5:30 PM	
Maximum hourly volume	138	55	83	54	16	38	11	3	8	7	2	5	187	89	98
% of daily volume	14%			19%			31%			23%			14%		
AM Peak Hour (7-9 AM)		7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	29	25	4	52	14	38	11	3	8	0	0	0	92	42	50
% of daily volume	3%			18%			31%			0%			7%		
Inbound/Outbound %		86%	14%		27%	73%		27%	73%		0%	0%		46%	54%
Vehicle type %	*32%*			*57%*			*12%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:15 PM			5:00 PM			4:15 PM			5:00 PM	
PM peak hour volume	101	47	54	37	33	4	2	2	0	1	0	1	141	79	62
% of daily volume	10%			13%			6%			3%			11%		
Inbound/Outbound %		47%	53%		89%	11%		100%	0%		0%	100%		56%	44%
Vehicle type %	*72%*			*26%*			*1%*			*1%*			*100%*		

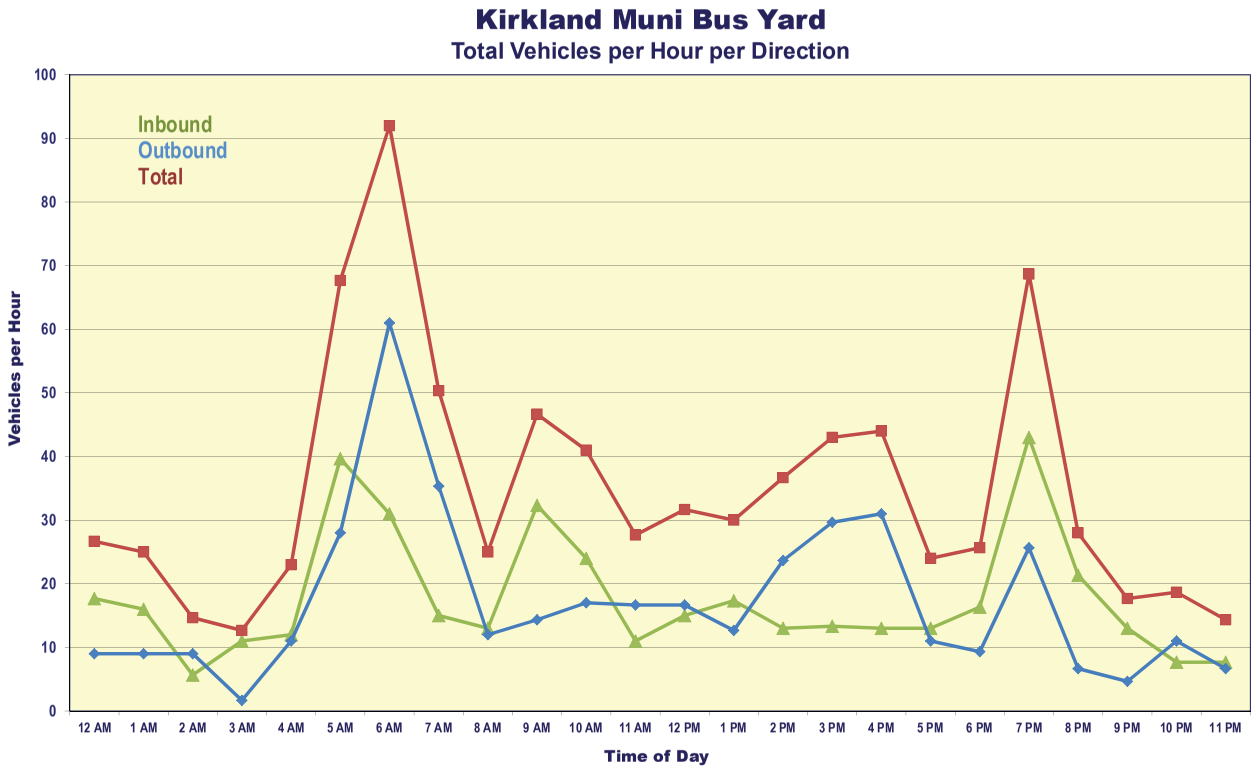
Utah Airfreight Location
Amazon Site
Employee Counts

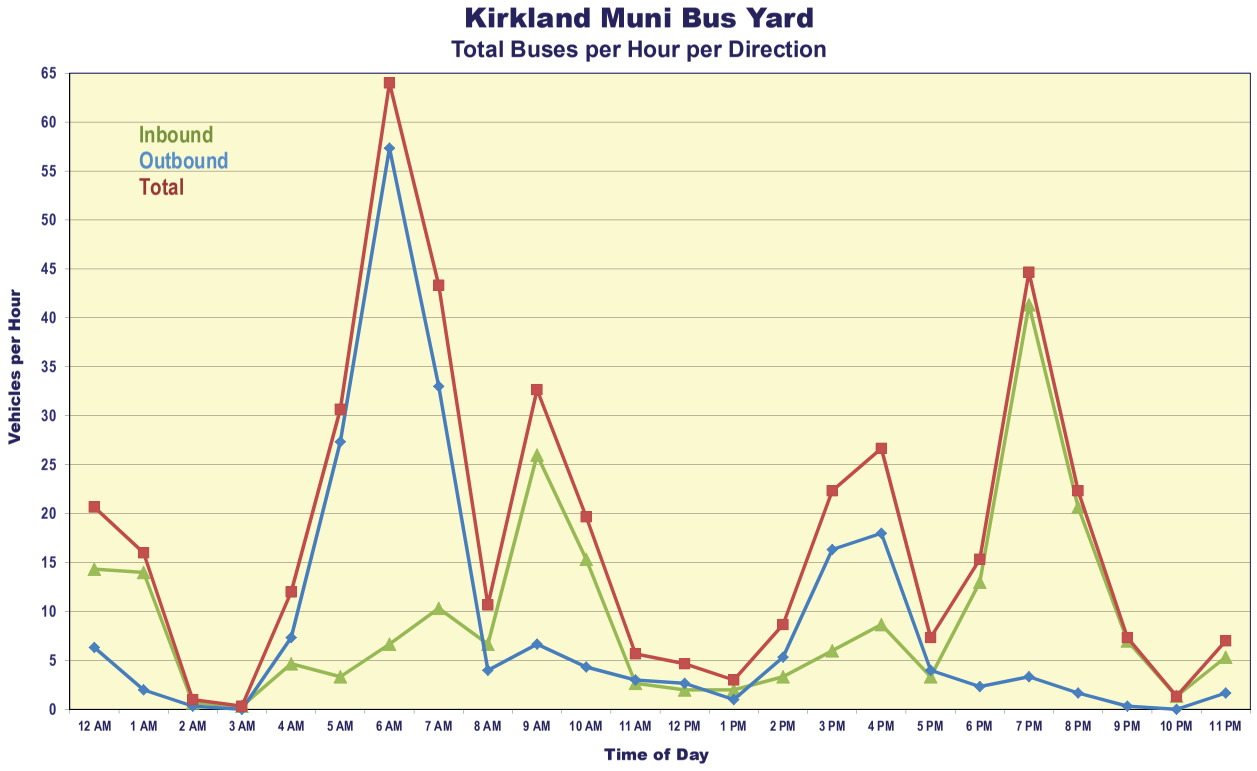
	Amazon Employees [4/25 & 4/26 2018]		
	Total	In	Out
Two-Day Average			
Total daily employees	951	490	462
Entrance door %			
Max. hourly volume time		2:00 AM	
Maximum hourly volume	92	47	45
% of daily volume	10%		
AM Peak Hour (7-9 AM)		7:00 AM	
AM peak hour volume	86	43	43
Inbound/Outbound %		50%	50%
% of daily volume	9%		
Entrance door %			
PM Peak Hour (4-6 PM)		4:30 PM	
PM peak hour volume	56	27	29
Inbound/Outbound %		48%	52%
% of daily volume	6%		
Entrance door %			
04/17/18 Tuesday			
Total daily employees	1,010	526	484
Entrance door %			
Max. hourly volume time		2:00 AM	
Maximum hourly volume	*93*	*54*	39
% of daily volume	9%		
AM Peak Hour (7-9 AM)		7:00 AM	
AM peak hour volume	*90*	*42*	48
Inbound/Outbound %		47%	53%
% of daily volume	9%		
Entrance door %			
PM Peak Hour (4-6 PM)		4:30 PM	
PM peak hour volume	*56*	*26*	30
Inbound/Outbound %		46%	54%
% of daily volume	6%		
Entrance door %			
04/18/18 Wednesday			
Total daily employees	892	453	439
Entrance door %			
Max. hourly volume time		2:00 AM	
Maximum hourly volume	91	*40*	51
% of daily volume	10%		
AM Peak Hour (7-9 AM)		7:00 AM	
AM peak hour volume	*81*	*44*	37
Inbound/Outbound %		54%	46%
% of daily volume	9%		
Entrance door %			
PM Peak Hour (4-6 PM)		4:30 PM	
PM peak hour volume	*55*	*27*	28
Inbound/Outbound %		49%	51%
% of daily volume	6%		
Entrance door %			

Utah Airfreight Location
Amazon Site
Warehouse Gate Counts

	Amazon Warehouse Gates											
	Automobiles			Vans			Trucks			All vehicles		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Two-Day Average												
Total daily volume	529	263	266	284	143	141	0	0	0	812	406	407
Vehicle type %	*65%*			*35%*			*0%*			*100%*		
Max. hourly volume time		5:30 PM			8:15 AM			12:00 AM			5:30 PM	
Maximum hourly volume	138	55	83	50	21	29	0	0	0	177	71	106
% of daily volume	26%			18%			0%			22%		
AM Peak Hour (7-9 AM)		7:45 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	1	0	1	46	20	26	0	0	0	46	20	26
% of daily volume	0%			16%			0%			6%		
Vehicle type %	*2%*			*98%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:15 PM			4:00 PM			5:00 PM	
PM peak hour volume	106	52	54	45	24	21	0	0	0	149	73	76
% of daily volume	20%			16%			0%			18%		
Vehicle type %	*70%*			*30%*			*0%*			*100%*		
04/25/18 Wednesday												
Total daily volume	537	277	260	275	139	136	0	0	0	812	416	396
Vehicle type %	*66%*			*34%*			*0%*			*100%*		
Peak hour volume time		5:30 PM			8:15 AM			12:00 AM			5:30 PM	
Maximum hourly volume	*142*	*61*	81	*52*	*22*	30	*0*	*0*	0	*171*	*71*	100
% of daily volume	26%			19%			0%			21%		
AM Peak Hour (7-9 AM)		7:00 AM			7:15 AM			7:00 AM			7:15 AM	
AM peak hour volume	*0*	*0*	0	*46*	*19*	27	*0*	*0*	0	*46*	*19*	27
% of daily volume	0%			17%			0%			6%		
Vehicle type %	*0%*			*100%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:15 PM			4:00 PM			5:00 PM	
PM peak hour volume	*121*	*68*	53	*43*	*23*	20	*0*	*0*	0	*163*	*85*	78
% of daily volume	23%			16%			0%			20%		
Vehicle type %	*74%*			*26%*			*0%*			*100%*		
04/26/18 Thursday												
Total daily volume	520	248	272	292	147	145	0	0	0	812	395	417
Vehicle type %	*64%*			*36%*			*0%*			*100%*		
Peak hour volume time		5:30 PM			7:00 AM			12:00 AM			5:30 PM	
Maximum hourly volume	133	*48*	85	50	*20*	30	0	*0*	0	181	*70*	111
% of daily volume	26%			17%			0%			22%		
AM Peak Hour (7-9 AM)		7:45 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	*1*	*0*	1	*50*	*20*	30	*0*	*0*	0	*50*	*20*	30
% of daily volume	0%			17%			0%			6%		
Vehicle type %	*2%*			*98%*			*0%*			*100%*		
PM Peak Hour (4-6 PM)		5:00 PM			4:15 PM			4:00 PM			5:00 PM	
PM peak hour volume	*90*	*35*	55	*46*	*25*	21	*0*	*0*	0	*133*	*59*	74
% of daily volume	17%			16%			0%			16%		
Vehicle type %	*66%*			*34%*			*0%*			*100%*		

SF MUNI – KIRKLAND YARD


Kirkland Muni Bus Yard
Total Vehicles per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
0
10
20
30
40
50
60
70
80
90
100
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM


Kirkland Muni Bus Yard
Total Buses per Hour per Direction
Inbound
Outbound
Total
Vehicles per Hour
Time of Day
0
5
10
15
20
25
30
35
40
45
50
55
60
65
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM

Kirkland Muni Yard
All Entrances

Date	People			All Vehicles			Autos			Muni buses			Full size vans			Full size pick-ups			Single unit trucks			Tractor trailers		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Three-day Average																								
Total daily volume	582	327	255	835	422	413	376	188	188	427	219	208	11	6	6	2	1	1	16	8	8	2	1	1
Vehicle type %				100%			45%			51%			1%			0%			2%			0%		
Peak hour volume time		10:15 AM			5:45 AM			5:15 AM			6:15 AM			3:15 AM			1:30 PM			8:00 AM			11:45 AM	
Maximum hourly volume	*64*	*33*	31	*94*	*44*	50	*46*	*45*	1	*74*	*10*	63	*3*	*1*	2	*1*	*0*	0	*5*	*2*	2	*1*	*1*	0
% of daily volume	11%			11%			12%			17%			29%			33%			29%			50%		
AM Peak Hour (7-9 AM)		8:30 AM			7:00 AM			8:30 AM			7:00 AM			8:45 AM			7:00 AM			8:00 AM			7:00 AM	
AM peak hour volume	*26*	*12*	14	*50*	*15*	35	*13*	*6*	7	*43*	*10*	33	*2*	*1*	1	*0*	*0*	0	*5*	*2*	2	*0*	*0*	0
% of daily volume	5%			6%			3%			10%			18%			0%			29%			0%		
Inbound/Outbound %		46%	54%		30%	70%		45%	55%		24%	76%		50%	50%		0%	0%		50%	50%		0%	0%
Vehicle type %				100%			20%			69%			3%			0%			7%			0%		
PM Peak Hour (4-6 PM)		4:00 PM			4:00 PM			4:30 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume	*36*	*20*	17	*44*	*13*	31	*19*	*6*	13	*27*	*9*	18	*0*	*0*	0	*0*	*0*	0	*1*	*0*	0	*0*	*0*	0
% of daily volume	6%			5%			5%			6%			0%			0%			4%			0%		
Inbound/Outbound %		54%	46%		30%	70%		32%	68%		33%	68%		0%	0%		0%	0%		50%	50%		0%	0%
Vehicle type %				100%			41%			58%			0%			0%			1%			0%		
06/06/18 Wednesday																								
Total daily volume	560	306	254	845	426	419	366	181	185	448	230	218	9	4	5	2	1	1	18	9	9	2	1	1
Vehicle type %				100%			43%			53%			1%			0%			2%			0%		
Peak hour volume time		10:15 AM			5:45 AM			5:15 AM			6:15 AM			8:45 AM			1:30 PM			8:00 AM			1:30 PM	
Maximum hourly volume	*71*	*30*	41	*87*	*40*	47	*52*	*50*	2	*72*	*10*	62	*5*	*2*	3	*2*	*1*	1	*5*	*3*	2	*1*	*1*	0
% of daily volume	13%			10%			14%			16%			56%			100%			28%			50%		
AM Peak Hour (7-9 AM)		8:45 AM			8:45 AM			8:30 AM			7:00 AM			8:45 AM			7:00 AM			8:00 AM			7:00 AM	
AM peak hour volume	*26*	*13*	13	*49*	*32*	17	*10*	*4*	6	*38*	*7*	31	*5*	*2*	3	*0*	*0*	0	*5*	*3*	2	*0*	*0*	0
% of daily volume	5%			6%			3%			8%			56%			0%			28%			0%		
Inbound/Outbound %		50%	50%		65%	35%		40%	60%		18%	82%		40%	60%		0%	0%		60%	40%		0%	0%
Vehicle type %				100%			17%			66%			9%			0%			9%			0%		
PM Peak Hour (4-6 PM)		4:00 PM			4:30 PM			4:45 PM			4:30 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume	*30*	*15*	15	*52*	*21*	31	*22*	*9*	13	*31*	*14*	17	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume	5%			6%			6%			7%			0%			0%			0%			0%		
Inbound/Outbound %		50%	50%		40%	60%		41%	59%		45%	55%		0%	0%		0%	0%		0%	0%		0%	0%
Vehicle type %				100%			42%			58%			0%			0%			0%			0%		

Kirkland Muni Yard
All Entrances

Date	People			All Vehicles			Autos			Muni buses			Full size vans			Full size pick-ups			Single unit trucks			Tractor trailers		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
06/07/18 Thursday																								
Total daily volume	633	362	271	820	419	401	366	184	182	420	217	203	14	8	6	0	0	0	18	9	9	2	1	1
Vehicle type %				100%			45%			51%			2%			0%			2%			0%		
Peak hour volume time		10:00 AM			5:45 AM			5:30 AM			6:15 AM			3:15 AM			12:00 AM			8:00 AM			12:30 PM	
Maximum hourly volume	*70*	*36*	34	*104*	*49*	55	*47*	*47*	0	*79*	*12*	67	*6*	*2*	4	*0*	*0*	0	*5*	*2*	3	*2*	*1*	1
% of daily volume	11%			13%			13%			19%			43%			0%			28%			100%		
AM Peak Hour (7-9 AM)		8:15 AM			7:00 AM			8:30 AM			7:00 AM			7:00 AM			7:00 AM			8:00 AM			7:00 AM	
AM peak hour volume	*32*	*14*	18	*48*	*15*	33	*15*	*8*	7	*41*	*10*	31	*0*	*0*	0	*0*	*0*	0	*5*	*2*	3	*0*	*0*	0
% of daily volume	5%			6%			4%			10%			0%			0%			28%			0%		
Inbound/Outbound %		44%	56%		31%	69%		53%	47%		24%	76%		0%	0%		0%	0%		40%	60%		0%	0%
Vehicle type %				100%			25%			67%			0%			0%			8%			0%		
PM Peak Hour (4-6 PM)		4:00 PM			4:00 PM			4:30 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume	*48*	*24*	24	*48*	*18*	30	*21*	*7*	14	*29*	*10*	19	*0*	*0*	0	*0*	*0*	0	*2*	*1*	1	*0*	*0*	0
% of daily volume	8%			6%			6%			7%			0%			0%			11%			0%		
Inbound/Outbound %		50%	50%		38%	63%		33%	67%		34%	66%		0%	0%		0%	0%		50%	50%		0%	0%
Vehicle type %				100%			40%			56%			0%			0%			4%			0%		
06/08/18 Friday																								
Total daily volume	552	312	240	839	421	418	396	198	198	414	210	204	11	5	6	4	1	3	12	6	6	2	1	1
Vehicle type %				100%			47%			49%			1%			0%			1%			0%		
Peak hour volume time		10:45 AM			6:15 AM			5:30 AM			6:15 AM			11:45 AM			5:30 AM			8:00 AM			11:45 AM	
Maximum hourly volume	*56*	*29*	27	*95*	*28*	67	*47*	*47*	0	*70*	*9*	61	*4*	*2*	2	*1*	*0*	1	*4*	*2*	2	*2*	*1*	1
% of daily volume	10%			11%			12%			17%			36%			25%			33%			100%		
AM Peak Hour (7-9 AM)		8:00 AM			7:00 AM			8:30 AM			7:00 AM			8:45 AM			7:00 AM			8:00 AM			7:00 AM	
AM peak hour volume	*32*	*18*	14	*58*	*19*	39	*13*	*5*	8	*51*	*14*	37	*1*	*1*	0	*0*	*0*	0	*4*	*2*	2	*0*	*0*	0
% of daily volume	6%			7%			3%			12%			9%			0%			33%			0%		
Inbound/Outbound %		56%	44%		33%	67%		38%	62%		27%	73%		100%	0%		0%	0%		50%	50%		0%	0%
Vehicle type %				100%			19%			74%			1%			0%			6%			0%		
PM Peak Hour (4-6 PM)		4:00 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume	*31*	*20*	11	*40*	*6*	34	*17*	*2*	15	*23*	*4*	19	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume	6%			5%			4%			6%			0%			0%			0%			0%		
Inbound/Outbound %		65%	35%		15%	85%		12%	88%		17%	83%		0%	0%		0%	0%		0%	0%		0%	0%
Vehicle type %				100%			43%			58%			0%			0%			0%			0%		

Adavant Consulting

Pier 50
Bauer Transportation Summary

Date	People			All Vehicles			Autos			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers			Bauer Vans			Bauer Buses		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Three-day Average																											
Total daily volume	74	42	31	257	129	128	65	32	32	1	0	0	1	0	0	1	0	0	0	0	0	18	9	9	172	87	86
Vehicle type %				100%			25%			0%			0%			0%			0%			7%			67%		
Peak hour volume time		12:00 PM			5:45 AM			5:15 PM			5:15 PM			12:30 PM			12:30 PM			12:00 AM			1:30 PM			5:45 AM	
Maximum hourly volume	*9*	*5*	4	*27*	*5*	22	*8*	*2*	6	*1*	*0*	0	*1*	*0*	0	*1*	*0*	0	*0*	*0*	0	*4*	*1*	2	*24*	*4*	20
% of daily volume	12%			11%			12%			100%			100%			100%			0%			21%			14%		
AM Peak Hour (7-9 AM)		7:15 AM			7:00 AM			7:30 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			8:30 AM			7:00 AM	
AM peak hour volume	*6*	*5*	1	*14*	7	8	*5*	*4*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	2	2	0	*10*	*4*	6
% of daily volume	9%			6%			8%			0%			0%			0%			0%			9%			6%		
Inbound/Outbound %		84%	16%		47%	53%		75%	25%		0%	0%		0%	0%		0%	0%		0%	0%		100%	0%		43%	57%
Vehicle type %				100%			33%			0%			0%			0%			0%			10%			61%		
PM Peak Hour (4-6 PM)		5:00 PM			5:15 PM			5:15 PM			5:15 PM			4:00 PM			4:00 PM			4:00 PM			5:30 PM			5:45 PM	
PM peak hour volume	*6*	*2*	5	*18*	*11*	7	*8*	*2*	6	*1*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*1*	*1*	0	*11*	*11*	0
% of daily volume	9%			7%			12%			100%			0%			0%			0%			8%			6%		
Inbound/Outbound %		26%	74%		62%	38%		26%	74%		50%	50%		0%	0%		0%	0%		0%	0%		100%	0%		97%	3%
Vehicle type %				100%			37%			3%			0%			0%			0%			6%			53%		
06/20/18 Wednesday																											
Total daily volume	79	43	36	269	135	134	55	27	28	0	0	0	2	1	1	2	1	1	0	0	0	23	12	11	187	94	93
Vehicle type %				100%			20%			0%			1%			1%			0%			9%			70%		
Peak hour volume time		3:00 PM			5:45 AM			3:00 PM			12:00 AM			12:30 PM			12:30 PM			12:00 AM			1:15 PM			5:45 AM	
Maximum hourly volume	*14*	*9*	5	*31*	*6*	25	*9*	*3*	6	*0*	*0*	0	*2*	*1*	1	*2*	*1*	1	*0*	*0*	0	*6*	*2*	4	*28*	*6*	22
% of daily volume	18%			12%			16%			0%			100%			100%			0%			26%			15%		
AM Peak Hour (7-9 AM)		7:15 AM			7:30 AM			8:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			8:30 AM			7:00 AM	
AM peak hour volume	*6*	*5*	1	*15*	*11*	4	*7*	*6*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*3*	*3*	0	*12*	*4*	8
% of daily volume	8%			6%			13%			0%			0%			0%			0%			13%			6%		
Inbound/Outbound %		83%	17%		73%	27%		86%	14%		0%	0%		0%	0%		0%	0%		0%	0%		100%	0%		33%	67%
Vehicle type %				100%			37%			0%			0%			0%			0%			16%			63%		
PM Peak Hour (4-6 PM)		5:00 PM			5:00 PM			4:30 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			5:15 PM			5:30 PM	
PM peak hour volume	*6*	*1*	5	*14*	7	7	*5*	*2*	3	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*1*	*1*	0	*11*	*10*	1
% of daily volume	8%			5%			9%			0%			0%			0%			0%			4%			6%		
Inbound/Outbound %		17%	83%		50%	50%		40%	60%		0%	0%		0%	0%		0%	0%		0%	0%		100%	0%		91%	9%
Vehicle type %				100%			29%			0%			0%			0%			0%			6%			65%		

Pier 50
Bauer Transportation Summary

Date	People			All Vehicles			Autos			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers			Bauer Vans			Bauer Buses		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
06/21/18 Thursday																											
Total daily volume	67	41	26	270	139	131	71	39	32	0	0	0	0	0	0	0	0	0	0	0	0	17	9	8	182	91	91
Vehicle type %				100%			26%			0%			0%			0%			0%			6%			67%		
Peak hour volume time		10:15 AM			7:00 PM			5:15 PM			12:00 AM			12:00 AM			12:00 AM			12:00 AM			1:30 PM			5:45 AM	
Maximum hourly volume	*10*	*6*	4	*26*	*23*	3	*11*	*2*	9	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*3*	*2*	1	*20*	*3*	17
% of daily volume	15%			10%			15%			0%			0%			0%			0%			18%			11%		
AM Peak Hour (7-9 AM)		7:15 AM			7:00 AM			7:30 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume	*6*	*6*	0	*17*	*6*	11	*7*	*5*	2	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*2*	*0*	2	*10*	*3*	7
% of daily volume	9%			6%			10%			0%			0%			0%			0%			12%			5%		
Inbound/Outbound %		100%	0%		35%	65%		71%	29%		0%	0%		0%	0%		0%	0%		0%	0%		0%	100%		30%	70%
Vehicle type %				100%			37%			0%			0%			0%			0%			11%			53%		
PM Peak Hour (4-6 PM)		5:15 PM			5:15 PM			5:15 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM			5:15 PM			5:45 PM	
PM peak hour volume	*9*	*2*	7	*23*	*14*	9	*11*	*2*	9	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*1*	*1*	0	*12*	*12*	0
% of daily volume	13%			9%			15%			0%			0%			0%			0%			6%			7%		
Inbound/Outbound %		0%	0%		0%	0%		0%	0%		0%	0%		0%	0%		0%	0%		0%	0%		0%	0%		0%	0%
Vehicle type %				100%			46%			0%			0%			0%			0%			4%			50%		
06/22/18 Friday																											
Total daily volume	75	43	32	231	113	118	68	31	37	2	1	1	0	0	0	0	0	0	0	0	0	13	6	7	148	75	73
Vehicle type %				100%			29%			1%			0%			0%			0%			6%			64%		
Peak hour volume time		11:45 AM			5:30 AM			5:15 PM			5:15 PM			12:00 AM			12:00 AM			12:00 AM			9:30 AM			5:30 AM	
Maximum hourly volume	*12*	*4*	8	*26*	*4*	22	*10*	*4*	6	*2*	*1*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*2*	*1*	1	*25*	*4*	21
% of daily volume	16%			11%			15%			100%			0%			0%			0%			15%			17%		
AM Peak Hour (7-9 AM)		7:15 AM			8:15 AM			7:15 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			8:15 AM	
AM peak hour volume	*7*	*5*	2	*15*	*10*	5	*5*	*4*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*1*	*0*	1	*11*	*6*	5
% of daily volume	9%			6%			7%			0%			0%			0%			0%			8%			7%		
Inbound/Outbound %		71%	29%		67%	33%		80%	20%		0%	0%		0%	0%		0%	0%		0%	0%		0%	100%		55%	45%
Vehicle type %				100%			31%			0%			0%			0%			0%			6%			69%		
PM Peak Hour (4-6 PM)		4:15 PM			5:45 PM			5:15 PM			5:15 PM			4:00 PM			4:00 PM			4:00 PM			5:30 PM			5:45 PM	
PM peak hour volume	*7*	*3*	4	*21*	*16*	5	*10*	*4*	6	*2*	*1*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*2*	2	0	*10*	*10*	0
% of daily volume	9%			9%			15%			100%			0%			0%			0%			15%			7%		
Inbound/Outbound %		43%	57%		76%	24%		40%	60%		50%	50%		0%	0%		0%	0%		0%	0%		100%	0%		100%	0%
Vehicle type %				100%			42%			8%			0%			0%			0%			8%			42%		

Project Site
Hornblower Summary

Date	Start	End	People			All Vehicles			Autos			Motor Cable Car			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers		
			Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Three-day Average																										
Total daily volume			50	23	27	65	31	34	38	17	21	15	8	8	0	0	0	6	3	3	6	3	3	0	0	0
Vehicle type %						100%			58%			24%			0%			9%			9%			0%		
Peak hour volume time				12:30 PM			7:30 PM			7:30 PM			11:30 AM			12:00 AM			2:45 PM			6:00 AM			12:00 AM
Maximum hourly volume			*6*	*3*	2	*8*	*2*	6	*5*	*0*	5	*3*	*1*	2	*0*	*0*	0	*2*	*2*	0	*2*	*1*	1	*0*	*0*	0
% of daily volume			11%			12%			13%			17%			0%			33%			29%			0%		
AM Peak Hour (7-9 AM)				8:45 AM			8:30 AM			8:45 AM			7:45 AM			7:00 AM			8:30 AM			7:00 AM			7:00 AM
AM peak hour volume			*3*	*3*	0	*5*	*3*	2	*3*	*3*	0	*1*	*0*	1	*0*	*0*	0	*1*	*0*	0	*1*	*1*	0	*0*	*0*	0
% of daily volume			7%			7%			9%			9%			0%			11%			12%			0%		
Vehicle type %									59%			24%			0%			12%			12%			0%		
PM Peak Hour (4-6 PM)				4:00 PM			5:45 PM			5:30 PM			5:45 PM			4:00 PM			5:30 PM			4:00 PM			4:00 PM
PM peak hour volume			*3*	*2*	2	*5*	*2*	3	*2*	*0*	2	*2*	*2*	0	*0*	*0*	0	*0*	*0*	0	*1*	*0*	0	*0*	*0*	0
% of daily volume			7%			7%			6%			13%			0%			6%			12%			0%		
Vehicle type %									47%			40%			0%			7%			13%			0%		
06/13/18	**Wednesday**																									
Total daily volume			55	27	28	73	37	36	36	19	17	20	10	10	0	0	0	9	4	5	8	4	4	0	0	0
Vehicle type %						100%			49%			27%			0%			12%			11%			0%		
Peak hour volume time				12:00 PM			7:30 PM			7:30 PM			7:15 PM			12:00 AM			2:45 PM			9:15 AM			12:00 AM
Maximum hourly volume			*7*	*6*	1	*13*	*7*	6	*5*	*0*	5	*8*	*7*	1	*0*	*0*	0	*4*	*3*	1	*3*	*1*	2	*0*	*0*	0
% of daily volume			13%			18%			14%			40%			0%			44%			38%			0%		
AM Peak Hour (7-9 AM)				8:30 AM			8:30 AM			8:30 AM			8:00 AM			7:00 AM			8:15 AM			7:00 AM			7:00 AM
AM peak hour volume			*4*	*4*	0	*8*	*4*	4	*4*	*4*	0	*3*	*0*	3	*0*	*0*	0	*1*	*0*	1	*1*	*1*	0	*0*	*0*	0
% of daily volume			7%			11%			11%			15%			0%			11%			13%			0%		
Vehicle type %									44%			33%			0%			11%			11%			0%		
PM Peak Hour (4-6 PM)				4:00 PM			5:30 PM			5:30 PM			5:30 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM
PM peak hour volume			*4*	*2*	2	*4*	*2*	2	*3*	*1*	2	*1*	*1*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			7%			5%			8%			5%			0%			0%			0%			0%		
Vehicle type %									75%			25%			0%			0%			0%			0%		

Project Site
Hornblower Summary

Date	Start	End	People			All Vehicles			Autos			Motor Cable Car			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers		
			Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
06/14/18	**Thursday**																									
Total daily volume			42	18	24	62	28	34	39	16	23	14	7	7	0	0	0	7	4	3	2	1	1	0	0	0
Vehicle type %						100%			63%			23%			0%			11%			3%			0%		
Peak hour volume time				8:00 PM			10:45 AM			1:30 PM			10:45 AM			12:00 AM			9:00 AM			6:15 AM			12:00 AM
Maximum hourly volume			*6*	*0*	6	*8*	*4*	4	*5*	*2*	3	*4*	*2*	2	*0*	*0*	0	*2*	*1*	1	*1*	*1*	0	*0*	*0*	0
% of daily volume			14%			13%			13%			29%			0%			29%			50%			0%		
AM Peak Hour (7-9 AM)				7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			8:30 AM			7:00 AM			7:00 AM
AM peak hour volume			*4*	*3*	1	*4*	*3*	1	*2*	*2*	0	*1*	*0*	1	*0*	*0*	0	*1*	*1*	0	*1*	*1*	0	*0*	*0*	0
% of daily volume			10%			6%			5%			7%			0%			14%			50%			0%		
Vehicle type %									50%			25%			0%			25%			25%			0%		
PM Peak Hour (4-6 PM)				4:00 PM			5:45 PM			4:00 PM			5:45 PM			4:00 PM			4:00 PM			4:00 PM			4:00 PM
PM peak hour volume			*2*	*1*	1	*5*	*2*	3	*2*	*1*	1	*3*	*2*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			5%			8%			5%			21%			0%			0%			0%			0%		
Vehicle type %									40%			60%			0%			0%			0%			0%		
06/15/18	**Friday**																									
Total daily volume			52	23	29	59	27	32	38	16	22	12	6	6	0	0	0	2	1	1	7	4	3	0	0	0
Vehicle type %						100%			64%			20%			0%			3%			12%			0%		
Peak hour volume time				11:00 AM			11:30 AM			7:30 PM			11:30 AM			12:00 AM			2:00 PM			5:15 AM			12:00 AM
Maximum hourly volume			*6*	*4*	2	*7*	*3*	4	*5*	*0*	5	*4*	*1*	3	*0*	*0*	0	*1*	*1*	0	*4*	*3*	1	*0*	*0*	0
% of daily volume			12%			12%			13%			33%			0%			50%			57%			0%		
AM Peak Hour (7-9 AM)				7:00 AM			8:30 AM			8:45 AM			7:45 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM
AM peak hour volume			*3*	*3*	0	*4*	*2*	2	*4*	*3*	1	*1*	*0*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			6%			7%			11%			8%			0%			0%			0%			0%		
Vehicle type %									80%			20%			0%			0%			0%			0%		
PM Peak Hour (4-6 PM)				4:00 PM			4:00 PM			4:00 PM			5:15 PM			4:00 PM			5:30 PM			4:00 PM			4:00 PM
PM peak hour volume			*4*	*2*	2	*7*	*5*	2	*3*	*2*	1	*3*	*3*	0	*0*	*0*	0	*1*	*0*	1	*2*	*1*	1	*0*	*0*	0
% of daily volume			8%			12%			8%			25%			0%			50%			29%			0%		
Vehicle type %									38%			38%			0%			13%			25%			0%		

Adavant Consulting

Tuesday
6/5/2018

	West Driveway (#1)			East Driveway (#2)									Total North Side		
	Autos			Autos			Chariot Vans			2-axle trucks			All Vehicles		
Time Period	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
4:00 AM - 5:00 AM	5	0	5	2	0	2	0	2	2	0	0	0	7	2	9
4:15 AM - 5:15 AM	19	0	19	4	0	4	0	12	12	0	0	0	23	12	35
4:30 AM - 5:30 AM	28	0	28	5	1	6	0	21	21	0	0	0	33	22	55
4:45 AM - 5:45 AM	35	0	35	4	1	5	1	30	31	0	0	0	40	31	71
5:00 AM - 6:00 AM	44	0	44	4	1	5	1	44	45	0	0	0	49	45	94
5:15 AM - 6:15 AM	44	1	45	2	2	4	2	49	51	0	0	0	48	52	100
5:30 AM - 6:30 AM	45	1	46	2	1	3	2	54	56	0	0	0	49	56	105
5:45 AM - 6:45 AM	43	1	44	4	2	6	1	72	73	1	0	1	49	75	124
6:00 AM - 7:00 AM	34	1	35	3	3	6	2	80	82	1	0	1	40	84	124
6:15 AM - 7:15 AM	23	0	23	6	2	8	2	75	77	1	1	2	32	78	110
6:30 AM - 7:30 AM	16	1	17	5	3	8	5	67	72	1	1	2	27	72	99
6:45 AM - 7:45 AM	11	3	14	5	2	7	8	42	50	0	1	1	24	48	72
7:00 AM - 8:00 AM	11	5	16	6	1	7	8	20	28	1	1	2	26	27	53
7:15 AM - 8:15 AM	8	6	14	3	2	5	11	12	23	1	0	1	23	20	43
7:30 AM - 8:30 AM	6	5	11	5	2	7	11	5	16	1	0	1	23	12	35
7:45 AM - 8:45 AM	6	6	12	6	3	9	11	4	15	1	0	1	24	13	37
8:00 AM - 9:00 AM	2	5	7	5	3	8	10	3	13	1	0	1	18	11	29
8:15 AM - 9:15 AM	2	4	6	7	3	10	11	2	13	1	1	2	21	10	31
8:30 AM - 9:30 AM	1	6	7	6	3	9	22	2	24	1	1	2	30	12	42

Tuesday
4/10/2018

		West Driveway (#1)			East Driveway (#2)									Total North Side		
		Autos			Autos			Chariot Vans			2-axle trucks			All Vehicles		
Time	Period	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
4:00 PM	- 5:00 PM	5	2	7	0	4	4	2	36	38	0	0	0	7	42	49
4:15 PM	- 5:15 PM	5	4	9	2	1	3	2	29	31	0	0	0	9	34	43
4:30 PM	- 5:30 PM	1	5	6	2	1	3	4	25	29	0	0	0	7	31	38
4:45 PM	- 5:45 PM	0	7	7	2	3	5	7	14	21	0	0	0	9	24	33
5:00 PM	- 6:00 PM	0	8	8	2	4	6	7	5	12	0	0	0	9	17	26

Project Site
Royal Motors Summary

Date	Start	End	People			All Vehicles			Autos			Motor Cable Car			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers		
			Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Three-day Average																										
Total daily volume			118	61	57	89	44	45	79	39	39	0	0	0	3	1	2	4	2	2	0	0	0	3	2	2
Vehicle type %						100%			89%			0%			3%			5%			0%			4%		
Peak hour volume time				9:45 AM			11:15 AM			11:15 AM			12:00 AM			4:45 PM			11:45 AM			12:00 AM			12:00 PM	
Maximum hourly volume			*20*	*13*	8	*16*	*7*	9	*15*	*6*	9	*0*	*0*	0	*1*	*0*	1	*2*	*0*	1	*0*	*0*	0	*1*	*0*	0
% of daily volume			17%			18%			19%			0%			38%			42%			0%			20%		
AM Peak Hour (7-9 AM)				8:45 AM			8:45 AM			8:45 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume			*6*	*4*	3	*5*	*3*	2	*5*	*3*	2	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			5%			6%			6%			0%			13%			0%			0%			0%		
Vehicle type %									93%			0%			7%			0%			0%			0%		
PM Peak Hour (4-6 PM)				5:30 PM			4:15 PM			4:15 PM			4:00 PM			4:45 PM			4:00 PM			4:00 PM			5:30 PM	
PM peak hour volume			*10*	*4*	6	*9*	*4*	5	*9*	*4*	5	*0*	*0*	0	*1*	*0*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			8%			10%			11%			0%			38%			0%			0%			10%		
Vehicle type %									87%			0%			10%			0%			0%			3%		
06/13/18	**Wednesday**																									
Total daily volume			114	58	56	89	49	40	75	42	33	0	0	0	6	3	3	4	2	2	0	0	0	4	2	2
Vehicle type %						100%			84%			0%			7%			4%			0%			4%		
Peak hour volume time				11:15 AM			10:45 AM			10:45 AM			12:00 AM			9:00 AM			11:45 AM			12:00 AM			1:30 PM	
Maximum hourly volume			*19*	*11*	8	*25*	*15*	10	*23*	*14*	9	*0*	*0*	0	*2*	*1*	1	*3*	*1*	2	*0*	*0*	0	*2*	*1*	1
% of daily volume			17%			28%			31%			0%			33%			75%			0%			50%		
AM Peak Hour (7-9 AM)				8:45 AM			8:45 AM			8:45 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume			*9*	*5*	4	*5*	*3*	2	*4*	*2*	2	*0*	*0*	0	*1*	*1*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			8%			6%			5%			0%			17%			0%			0%			0%		
Vehicle type %									80%			0%			20%			0%			0%			0%		
PM Peak Hour (4-6 PM)				5:30 PM			4:00 PM			4:00 PM			4:00 PM			4:45 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume			*10*	*4*	6	*9*	*4*	5	*9*	*4*	5	*0*	*0*	0	*1*	*0*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			9%			10%			12%			0%			17%			0%			0%			0%		
Vehicle type %									90%			0%			10%			0%			0%			0%		

Project Site
Royal Motors Summary

Date	Start	End	People			All Vehicles			Autos			Motor Cable Car			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers		
			Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
06/14/18	**Thursday**																									
Total daily volume			120	62	58	87	40	47	78	36	42	0	0	0	1	0	1	6	3	3	0	0	0	2	1	1
Vehicle type %						100%			90%			0%			1%			7%			0%			2%		
Peak hour volume time				9:45 AM			12:45 PM			12:45 PM			12:00 AM			4:45 PM			10:00 AM			12:00 AM			5:30 PM	
Maximum hourly volume			*24*	*15*	9	*21*	*11*	10	*21*	*11*	10	*0*	*0*	0	*1*	*0*	1	*4*	*2*	2	*0*	*0*	0	*1*	*1*	0
% of daily volume			20%			24%			27%			0%			100%			67%			0%			50%		
AM Peak Hour (7-9 AM)				8:30 AM			8:15 AM			8:15 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume			*5*	*3*	2	*4*	*2*	2	*4*	*2*	2	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			4%			5%			5%			0%			0%			0%			0%			0%		
Vehicle type %									100%			0%			0%			0%			0%			0%		
PM Peak Hour (4-6 PM)				5:30 PM			4:15 PM			4:15 PM			4:00 PM			4:45 PM			4:00 PM			4:00 PM			5:30 PM	
PM peak hour volume			*10*	*4*	6	*11*	*5*	6	*11*	*5*	6	*0*	*0*	0	*1*	*0*	1	*0*	*0*	0	*0*	*0*	0	*1*	*1*	0
% of daily volume			8%			13%			14%			0%			100%			0%			0%			50%		
Vehicle type %									85%			0%			8%			0%			0%			8%		
06/15/18	**Friday**																									
Total daily volume			120	62	58	90	43	47	83	40	43	0	0	0	1	0	1	2	1	1	0	0	0	4	2	2
Vehicle type %						100%			92%			0%			1%			2%			0%			4%		
Peak hour volume time				9:45 AM			12:15 PM			1:00 PM			12:00 AM			4:45 PM			4:15 AM			12:00 AM			12:00 PM	
Maximum hourly volume			*24*	*15*	9	*16*	*5*	11	*15*	*7*	8	*0*	*0*	0	*1*	*0*	1	*1*	*1*	0	*0*	*0*	0	*2*	*1*	1
% of daily volume			20%			18%			18%			0%			100%			50%			0%			50%		
AM Peak Hour (7-9 AM)				8:30 AM			8:45 AM			8:45 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM			7:00 AM	
AM peak hour volume			*5*	*3*	2	*6*	*5*	1	*6*	*5*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			4%			7%			7%			0%			0%			0%			0%			0%		
Vehicle type %									100%			0%			0%			0%			0%			0%		
PM Peak Hour (4-6 PM)				5:30 PM			5:15 PM			4:00 PM			4:00 PM			4:45 PM			4:00 PM			4:00 PM			4:00 PM	
PM peak hour volume			*10*	*4*	6	*8*	*5*	3	*7*	*3*	4	*0*	*0*	0	*1*	*0*	1	*0*	*0*	0	*0*	*0*	0	*0*	*0*	0
% of daily volume			8%			9%			8%			0%			100%			0%			0%			0%		
Vehicle type %									88%			0%			13%			0%			0%			0%		

APPENDIX C
TRIP GENERATION COMPARISON

Adavant Consulting

Trip Generation Summary	OnTrac Site 112,400 gsf Two-day Average	OnTrac Site 112,400 gsf 04/17/18 Tuesday	OnTrac Site 112,400 gsf 04/18/18 Wednesday	Distribution (SF Guidelines 1992)	Parcel Hub (ITE Study 2016)	Amazon Site 75,600 gsf Two-day Average	Amazon Site 75,600 gsf 04/25/18 Wednesday	Amazon Site 75,600 gsf 04/26/18 Thursday	Fulfillment Center (ITE 10th, LU #155)	Fulfillment Center (ITE Study 2016)	American Ind. Center 200,000 gsf (2 floors) 04/19/18 Trucks	American Ind. Center 200,000 gsf (2 floors) 04/19/18 Thursday Pedestrians	Manufact./ Industrial (SF Guidelines 2001)	PDR (Office) (SF Guidelines 2001)
Daily vehicle trips	970	890	1,050			1,382	1,425	1,339						
Daily vehicle trips per 1000 gsf	8.63	7.92	9.34		10.64	18.28	18.85	17.71	8.18	8.18				
Daily auto trips (employees)	578	482	674			506	543	468						
% of total vehicles	60%	54%	64%			37%	38%	35%						
Daily empl. auto trips per 1000 gsf	5.14	4.29	6.00			6.69	7.18	6.19						
Daily auto trips (deliveries)	62	69	55			529	537	520			72			
% of total vehicles	6%	8%	5%			38%	38%	39%						
Daily deliv. auto trips per 1000 gsf	0.55	0.61	0.49			6.99	7.10	6.88			0.36			
Daily van trips	174	173	175			264	244	284			58			
% of total vehicles	18%	19%	17%			19%	17%	21%						
Daily van trips per 1000 gsf	1.55	1.54	1.56			3.49	3.23	3.76			0.29			
Daily truck trips	156	166	146			84	101	67			68			
% of total vehicles	16%	19%	14%			6%	7%	5%		9%				
Daily truck trips per 1000 gsf	1.39	1.48	1.30		4.01	1.11	1.34	0.89		0.72	0.34			
AM peak hour %	8%	8%	8%			6%	5%	7%	7%	10%		10%		
AM peak hour veh trips / 1000 gsf	0.71	0.66	0.70		0.82	1.10	0.94	1.22	0.59	0.82		0.55		
% of auto employee trips in AM peak hour	58%	59%	53%			36%	41%	30%						
AM peak hour auto empl trips / 1000 gsf	0.41	0.39	0.37			0.39	0.39	0.37						
% of auto delivery trips in AM peak hour	6%	4%	5%			1%	0%	1%						
AM peak hour auto deliv trips / 1000 gsf	0.04	0.03	0.04			0.01	0.00	0.01			0.13			
% of van trips in AM peak hour	19%	20%	26%			55%	55%	57%						
AM peak hour van trips / 1000 gsf	0.13	0.13	0.18			0.60	0.52	0.69			0.06			
% of truck trips in AM peak hour	18%	16%	16%		52%	8%	4%	12%		3%				
AM peak hour truck trips / 1000 gsf	0.13	0.11	0.11		0.42	0.09	0.04	0.15		0.02	0.08			
PM peak hour %	9%	7%	11%	3%		11%	11%	11%	17%	10%		8%	12%	9%
PM peak hour veh trips / 1000 gsf	0.77	0.58	1.00	0.33	0.85	2.01	2.12	1.87	1.37	0.85		0.46	0.98	1.54
% of auto employee trips in AM peak hour	67%	47%	82%			8%	7%	8%						
AM peak hour auto empl trips / 1000 gsf	0.52	0.27	0.82			0.15	0.16	0.15						
% of auto delivery trips in PM peak hour	7%	13%	2%			67%	70%	64%						
PM peak hour auto deliv trips / 1000 gsf	0.06	0.08	0.02			1.34	1.47	1.19			0.02			
% of van trips in PM peak hour	16%	25%	9%			23%	21%	26%						
PM peak hour van trips / 1000 gsf	0.13	0.14	0.09			0.47	0.44	0.49			0.00			
% of truck trips in PM peak hour	9%	14%	7%		28%	3%	2%	2%		4%				
PM peak hour truck trips / 1000 gsf	0.07	0.08	0.07		0.24	0.05	0.05	0.04		0.04	0.02			

Adavant Consulting

Trip Generation Summary

	SF Muni Kirkland Division				Bauer Transportation at Pier 50			
	113,400 gsf site		13,200 gsf bldg.		68,777 gsf Shed C [excludes open area			
	Capacity: 135 40-foot motor coaches				4,370 gsf office outside Shed C]			
	300 operators			50 maintenance				
	Three-day Average	06/06/18 Wednesday	06/07/18 Thursday	06/08/18 Friday	Three-day Average	06/20/18 Wednesday	06/21/18 Thursday	06/22/18 Friday
Daily vehicle trips	835	845	820	839	257	269	270	231
Daily vehicle trips per 1000 gsf	7.36	7.45	7.23	7.40	3.73	3.91	3.93	3.36
Daily bus trips	427	448	420	414	190	210	199	161
% of total vehicles	51%	53%	51%	49%	74%	78%	74%	70%
Daily bus trips per 1000 gsf	3.77	3.95	3.70	3.65	2.76	3.05	2.89	2.34
Daily bus trips per bus space	3.17	3.32	3.11	3.07				
Daily auto trips	376	366	366	396	65	55	71	68
% of total vehicles	45%	43%	45%	47%	25%	20%	26%	29%
Daily auto trips per 1000 gsf	3.32	3.23	3.23	3.49	0.57	0.49	0.63	0.60
Daily full size vans/pickups vehicle trips	13	11	14	15	1	2	0	2
% of total vehicles	2%	1%	2%	2%	1%	1%	0%	1%
Daily full size vans/pickups trips per 1000 gsf	0.12	0.10	0.12	0.13	0.01	0.02	0.00	0.02
Daily truck trips	18	20	20	14	1	2	0	0
% of total vehicles	2%	2%	2%	2%	0%	1%	0%	0%
Daily truck trips per 1000 gsf	0.16	0.18	0.18	0.12	0.01	0.03	0.00	0.00
AM peak hour vehicle trips	50	49	48	58	14	15	17	15
AM peak hour %	6%	6%	6%	7%	6%	6%	6%	6%
AM peak hour veh trips / 1000 gsf	0.44	0.43	0.42	0.51	0.21	0.22	0.25	0.22
AM peak hour bus trips	34	33	32	43	9	9	11	10
% of bus trips during AM peak hour	69%	66%	67%	74%	67%	63%	63%	69%
AM peak hour bus trips / 1000 gsf	0.31	0.28	0.28	0.38	0.14	0.14	0.16	0.15
AM peak hour bus trips / bus space	0.26	0.24	0.24	0.32				
AM peak hour auto trips	10	8	12	11	5	6	6	5
% of auto trips during AM peak hour	20%	17%	25%	19%	33%	37%	37%	31%
AM peak hour auto trips per 1000 gsf	0.09	0.07	0.10	0.10	0.07	0.08	0.09	0.07
AM peak hour vans/pickups trips	2	4	0	1	0	0	0	0
% of full size vans/pickups trips during AM peak ho	3%	9%	0%	1%	0%	0%	0%	0%
AM peak hour vans/pickups trips per 1000 gsf	0.01	0.04	0.00	0.01	0.00	0.00	0.00	0.00
AM peak hour truck trips	4	4	4	3	0	0	0	0
% of truck trips during AM peak hour	7%	9%	8%	6%	0%	0%	0%	0%
AM peak hour truck trips / 1000 gsf	0.03	0.04	0.03	0.03	0.00	0.00	0.00	0.00
PM peak hour vehicle trips	44	52	48	40	18	14	23	21
PM peak hour %	5%	6%	6%	5%	7%	5%	9%	9%
PM peak hour veh trips / 1000 gsf	0.39	0.46	0.42	0.35	0.27	0.20	0.33	0.31
PM peak hour bus trips	25	30	27	23	10	10	12	10
% of bus trips during PM peak hour	58%	58%	56%	58%	60%	71%	54%	50%
PM peak hour bus trips / 1000 gsf	0.22	0.27	0.24	0.20	0.16	0.14	0.18	0.15
PM peak hour bus trips / bus space	0.19	0.23	0.20	0.17				
PM peak hour auto trips	18	22	19	17	7	4	11	9
% of auto trips during PM peak hour	41%	42%	40%	43%	37%	29%	46%	42%
PM peak hour auto trips per 1000 gsf	0.16	0.19	0.17	0.15	0.10	0.06	0.15	0.13
PM peak hour vans/pickups trips	0	0	0	0	1	0	0	2
% of full size vans/pickups trips during PM peak ho	0%	0%	0%	0%	3%	0%	0%	8%
PM peak hour vans/pickups trips per 1000 gsf	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03
PM peak hour truck trips	1	0	2	0	0	0	0	0
% of truck trips during PM peak hour	1%	0%	4%	0%	0%	0%	0%	0%
PM peak hour truck trips / 1000 gsf	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00

Adavant Consulting

Trip Generation Summary
Project Site

	Entire Site 448,000 gsf				Royal Motors 141,600 gsf				Hornblower 36,000 gsf			
	Three-day Average	06/13/18 Wednesday	06/14/18 Thursday	06/15/18 Friday	Three-day Average	06/13/18 Wednesday	06/14/18 Thursday	06/15/18 Friday	Three-day Average	06/13/18 Wednesday	06/14/18 Thursday	06/15/18 Friday
Daily vehicle trips	717	757	667	726	89	89	87	90	65	73	62	59
Daily vehicle trips per 1000 gsf	1.60	1.69	1.49	1.62	0.63	0.63	0.61	0.64	1.80	2.03	1.72	1.64
Daily motorized cable cars	17	25	15	11	0	0	0	0	15	20	14	12
% of total vehicles	2%	3%	2%	2%	0%	0%	0%	0%	24%	27%	23%	20%
Daily cable car trips per 1000 gsf	0.04	0.06	0.03	0.02	0.00	0.00	0.00	0.00	0.43	0.56	0.39	0.33
Daily full size vans and pickups	154	169	140	152	7	10	7	3	6	9	7	2
% of total vehicles	21%	22%	21%	21%	8%	11%	8%	3%	9%	12%	11%	3%
Daily full size vans and pickups per 1000 gsf	0.34	0.38	0.31	0.34	0.05	0.07	0.05	0.02	0.17	0.25	0.19	0.06
Daily truck trips	146	152	147	139	3	4	2	4	6	8	2	7
% of total vehicles	20%	20%	22%	19%	4%	4%	2%	4%	9%	11%	3%	12%
Daily truck trips per 1000 gsf	0.33	0.34	0.33	0.31	0.02	0.03	0.01	0.03	0.16	0.22	0.06	0.19
AM peak hour %	12%	12%	14%	12%	6%	6%	5%	7%	7%	11%	6%	7%
AM peak hour veh trips / 1000 gsf	0.20	0.21	0.21	0.19	0.04	0.04	0.03	0.04	0.13	0.22	0.11	0.11
% of daily cable car trips during AM peak hour	8%	12%	7%	9%	0%	0%	0%	0%	9%	15%	7%	8%
AM peak hour cable car trips / 1000 gsf	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.03	0.03
% of daily vans/pickups trips during AM peak hour	36%	34%	39%	36%	13%	17%	0%	0%	11%	11%	14%	0%
AM peak hr full size vans&pickup trips / 1000 gsf	0.12	0.13	0.12	0.12	0.01	0.01	0.00	0.00	0.02	0.03	0.03	0.00
% of daily truck trips during AM peak hour	23%	25%	37%	15%	0%	0%	0%	0%	12%	13%	50%	0%
AM peak hour truck trips / 1000 gsf	0.08	0.09	0.12	0.05	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.00
PM peak hour %	6%	6%	6%	5%	10%	10%	13%	9%	7%	5%	8%	12%
PM peak hour veh trips / 1000 gsf	0.10	0.11	0.10	0.09	0.06	0.06	0.08	0.06	0.13	0.11	0.14	0.19
% of daily cable car trips during PM peak hour	12%	4%	20%	27%	0%	0%	0%	0%	13%	5%	21%	25%
PM peak hour cable car trips / 1000 gsf	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.06	0.03	0.08	0.08
% of daily vans/pickups trips during PM peak hour	11%	14%	16%	7%	38%	17%	100%	100%	6%	0%	0%	50%
PM peak hr full size vans&pickup trips / 1000 gsf	0.04	0.05	0.05	0.02	0.02	0.01	0.05	0.02	0.01	0.00	0.00	0.03
% of daily truck trips during PM peak hour	9%	5%	14%	16%	10%	0%	50%	0%	12%	0%	0%	29%
PM peak hour truck trips / 1000 gsf	0.03	0.02	0.04	0.05	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.06

Note: Truck counts do not include vans

APPENDIX D
TRAVEL DEMAND CALCULATIONS

Project Site
Total Warehouse Summary

Date	People Walking			All Vehicles			Autos			Motor Cable Car			Full size vans & trucks			Full size pick-ups			Full size vans			Single unit trucks			Tractor trailers		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Three-day Average																											
Total daily volume	38	19	19	717	357	360	400	199	201	17	8	9	300	150	150	62	31	31	91	46	45	132	66	67	14	7	7
Vehicle type %				100%			56%			2%			42%			9%			13%			18%			2%		
Peak hour volume time		7:30 AM			7:15 AM			7:15 AM			7:00 PM			7:00 AM			6:45 AM			6:45 AM			7:30 AM			3:00 PM	
Maximum hourly volun	*5*	*3*	1	*88*	*55*	33	*43*	*34*	9	*3*	*2*	1	*46*	*22*	24	*12*	*6*	7	*15*	*10*	5	*21*	*9*	12	*2*	*1*	1
% of daily volume	12%			12%			11%			18%			15%			20%			16%			16%			17%		
AM Peak Hour (7-9 AM)		7:30 AM			7:15 AM			7:15 AM			7:45 AM			7:00 AM			7:00 AM			7:00 AM			7:30 AM			7:00 AM	
AM peak hour volume	*5*	*3*	1	*88*	*55*	33	*43*	*34*	9	*1*	*0*	1	*46*	*22*	24	*12*	*5*	7	*15*	*9*	6	*21*	*9*	12	*1*	*0*	1
% of daily volume	12%			12%			11%			8%			15%			20%			16%			16%			7%		
Vehicle type %							47%			1%			51%			14%			16%			24%			1%		
PM Peak Hour (4-6 PM)		4:45 PM			4:15 PM			4:15 PM			5:45 PM			4:00 PM			4:15 PM			4:45 PM			4:00 PM			5:30 PM	
PM peak hour volume	*3*	*1*	3	*44*	*20*	24	*31*	*11*	19	*2*	*2*	0	*13*	*8*	4	*4*	*2*	2	*5*	*3*	2	*6*	*4*	2	*1*	*0*	0
% of daily volume	9%			6%			8%			12%			4%			6%			5%			5%			5%		
Vehicle type %							68%			4%			28%			8%			11%			13%			1%		

Vehicle Types	Daily		AM Peak Hour				PM Peak Hour			
			In	Out	Total		In	Out	Total	
Automobiles	400	56%	25	15	40	46%	12	15	28	64%
Motor Cable Car	18	3%	1	-	1	1%	1	1	2	4%
Vans	154	21%	16	10	26	29%	4	4	8	18%
SU truck	132	18%	13	8	21	23%	3	3	6	13%
Tractor-trailers	14	2%	-	-	-	1%	-	1	1	1%
Total vehicle trips	**718**	**100%**	**55**	**33**	**88**	**100%**	**20**	**24**	**44**	**100%**
Percent of daily					**12%**				**6%**	
Total person trips *	**756**				**93**				**47**	
Percent of daily					**12%**				**6%**	

* People walking plus vehicle trips, assuming an average occupancy of one person per vehicle.

San Francisco Gateway Project [June 2021] *

CALCULATION OF WORK/NON-WORK PERCENTAGES AND TRIP GENERATION RATES FOR THE WEEKDAY AM PEAK HOUR

Institute of Transportation Engineers, Trip Generation Report, 10th Edition (2017)

			Weekday	AM Peak Hour				PM Peak Hour				AM to PM
Land Use	Number	Vehicle trips	Daily Rate	% of daily	Rate	% In	% Out	% of daily	Rate	% In	% Out	Rate Factor
Manufacturing	140	per 1000 gsf	3.93	15.8%	0.62	77%	23%	17.0%	0.67	31%	69%	0.93
R&D Center	760	per 1000 gsf	11.26	3.7%	0.42	75%	25%	4.4%	0.49	15%	85%	0.86
Shopping Center	820	per 1000 gsf	37.75	2.5%	0.94	62%	38%	10.1%	3.81	48%	52%	0.25
Quality Restaurant	931	per 1000 gsf	83.84	0.9%	0.73	N.A.		9.3%	7.80	67%	33%	0.09
High-Turnover Sit-Down	932	per 1000 gsf	112.18	8.9%	9.94	55%	45%	8.7%	9.77	62%	38%	1.02

San Diego Association of Governments (2002)

		Weekday Daily Rate				AM Peak Hour				PM Peak Hour				AM to PM
Land Use	Vehicle trips	Daily Rate	Primary	Diverted	Pass-by	% of daily	Rate	% In	% Out	% of daily	Rate	% In	% Out	Rate Factor
Manufacturing/Assembly	per 1000 gsf	4.0	92%	5%	3%	19.0%	0.76	90%	10%	20.0%	0.80	20%	80%	0.95
Science, Research & Development	per 1000 gsf	8.0	92%	5%	3%	16.0%	1.28	90%	10%	14.0%	1.12	10%	90%	1.14
Neighborhood Shopping Center	per 1000 gsf	120.0	47%	31%	22%	4.0%	4.80	60%	40%	10.0%	12.00	50%	50%	0.40
Quality Restaurant	per 1000 gsf	100.0	51%	37%	12%	1.0%	1.00	60%	40%	8.0%	8.00	70%	30%	0.13
Fast Food (without drive thru)	per 1000 gsf	700.0	51%	37%	12%	5.0%	35.0	60%	40%	7.0%	49.0	50%	50%	0.71

		SF GUIDELINES (where applicable)						ESTIMATED FROM ITE			Daily Total	Daily Work
		Weekday	Average gsf	Daily	PM Peak Hour			AM Peak Hour			Trips per	Trips per
Land Use	Person trips	Daily Rate	per employee	Work %	Work %	% of daily	Rate	Work %	% of daily	Rate	Employee	Employee
Manufacturing/Industrial	per 1000 gsf	7.9	570	40%	50%	12.4%	0.98	25% [c]	11.5%	0.91	4.5	1.80
Parcel Delivery	per 1000 gsf	14.7	660 [d]	50%	25%	10.0%	1.47	45%	7.0%	1.03	9.7	4.85
Wholesale and Storage	per 1000 gsf	12.0	950 [a]	40%	50%	3.5%	0.42	67%	7.0%	0.84	11.4	4.56
R&D	per 1000 gsf	8.0 [b]	400 [b]	96%	99%	16.0% [b]	1.28	99%	13.7%	1.10	3.2	3.07
Retail	per 1000 gsf	150.0	350	13%	13%	9.0%	13.5	85%	2.2%	3.33	53	7.00
Quick Service Restaurant	per 1000 gsf	600.0	350	13%	13%	13.5%	81.0	13%	13.7%	82.4	210	28.01
Public Fleet Management	per 1000 gsf	12.5	400 [e]	68%	55%	5.0%	0.63	33%	5.0%	0.63	5.0	3.40
Private Fleet Management	per 1000 gsf	4.5	1,200 [d]	40%	25%	7.0%	0.32	40%	6.0%	0.27	5.4	2.16

[a] Table 23, p. 91; 15th Progress Reports on Trip Ends Generation Research Counts, Caltrans 1983
[b] Table C.6, Volume IV, Mission Bay FSEIR (1998)
[c] American Industrial Center (San Francisco) survey (April 2018)
[d] Jackson Liles Architecture, personal communication July 16, 2018.
[e] Jackson Liles Architecture (7/16/2018) and survey of SF Muni Kirkland yard (June 2018)
Data Input for Travel Demand Model

San Francisco Gateway Project [June 2021]
Trip Generation Rate Summary

	Weekday	AM Peak Hour [a]		PM Peak Hour	
Land Use	Daily Rate	% of Daily	Rate	% of Daily	Rate
Manufacturing/Industrial [b]	7.9 per 1000 gsf	11.5%	0.91 per 1000 gsf	12.4%	0.98 per 1000 gsf
Parcel Delivery	14.7 per 1000 gsf	7.0%	1.03 per 1000 gsf	10.0%	1.47 per 1000 gsf
Wholesale and Storage	12.0 per 1000 gsf	7.0%	0.84 per 1000 gsf	3.5%	0.42 per 1000 gsf
R&D [c]	8.0 per 1000 gsf	13.7%	1.10 per 1000 gsf	16.0%	1.28 per 1000 gsf
Retail	150.0 per 1000 gsf	2.2%	3.33 per 1000 gsf	9.0%	13.5 per 1000 gsf
Quick Service Restaurant	600.0 per 1000 gsf	13.7%	82.4 per 1000 gsf	13.5%	81.0 per 1000 gsf
Public Fleet Management	12.5 per 1000 gsf	5.0%	0.63 per 1000 gsf	5.0%	0.63 per 1000 gsf
Private Fleet Management	4.5 per 1000 gsf	6.0%	0.27 per 1000 gsf	7.0%	0.32 per 1000 gsf

[a] Based on ITE AM to PM peak hour ratio
[b] AIC survey
[c] Mission Bay FSEIR

Proposed Project	9,666	15.6 per 1000 gsf	741	1.20 per 1000 gsf	842	1.36 per 1000 gsf
617,690 gsf				7.7%		8.7%

Vehicle Trip Generation Rate Summary
Proposed Project

	Size	Weekday		AM Peak Hour		PM Peak Hour	
Land Use	(gsf)	Vehicles	Rate	Vehicles	Rate	Vehicles	Rate
Manufacturing/Industrial	35,000	222	6.34	25	0.71	27	0.77
Parcel Delivery	364,715	4,568	12.52	322	0.88	471	1.29
Wholesale and Storage	209,575	1,406	6.71	117	0.56	53	0.25
R&D	-	0	0.00	0	0.00	0	0.00
Retail	4,200	158	37.62	4	0.95	14	3.33
Quick Service Restaurant	4,200	372	88.57	51	12.14	50	11.90
Public Fleet Management	-	0	0.00	0	0.00	0	0.00
Private Fleet Management	-	0	0.00	0	0.00	0	0.00
Total	**617,690**	**6,726**	**10.89**	**519**	**0.84**	**615**	**1.00**

San Francisco Superdistrict Boundaries



The boundaries of the four San Francisco Superdistricts are based on the travel analysis zones established by the Metropolitan Transportation Commission (MTC). The four Superdistricts shown in this figure are aggregations of the MTC's 1454 Regional Travel Analysis Zones (May 2002) that encompasses the nine-county San Francisco Bay Area. MTC's 1454-zone system fits within the year 2000 U.S. Census tracts.

PROPOSED PROJECT

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Daily Person Trips

Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	250	4,838	2,270	0	280	652	0	0	8,290	86%
Transit	28	524	244	0	40	112	0	0	948	10%
Walk/Other	0	0	0	0	128	300	0	0	428	4%
Total	**278**	**5,362**	**2,514**	**0**	**448**	**1,064**	**0**	**0**	**9,666**	**100%**
Vehicle Trips	222	4,568	1,406	0	158	372	0	0	6,726	
Avg. veh occup.	*1.13*	*1.06*	*1.61*	*0.00*	*1.77*	*1.75*	*0.00*	*0.00*	*1.23*	

Daily Person Work Trips

Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	100	2,410	904	0	46	184	0	0	3,644	86%
Transit	12	272	102	0	16	68	0	0	470	11%
Walk/Other	0	0	0	0	22	84	0	0	106	3%
Total	**112**	**2,682**	**1,006**	**0**	**84**	**336**	**0**	**0**	**4,220**	**100%**
Vehicle Trips	88	2,140	804	0	26	106	0	0	3,164	
Avg. veh occup.	*1.14*	*1.13*	*1.12*	*0.00*	*1.77*	*1.74*	*0.00*	*0.00*	*1.15*	

Daily Person Visitor Trips

Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	150	2,428	1,366	0	234	468	0	0	4,646	85%
Transit	16	252	142	0	22	46	0	0	478	9%
Walk/Other	0	0	0	0	108	214	0	0	322	6%
Total	**166**	**2,680**	**1,508**	**0**	**364**	**728**	**0**	**0**	**5,446**	**100%**
Vehicle Trips	134	2,428	602	0	132	266	0	0	3,562	
Avg. veh occup.	*1.12*	*1.00*	*2.27*	*0.00*	*1.77*	*1.76*	*0.00*	*0.00*	*1.30*	

AM Peak Hour Person Trips

Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		Percent of Daily
Auto	29	339	159	0	7	89	0	0	623	84%	7.5%
Transit	3	37	17	0	2	15	0	0	74	10%	7.8%
Walk/Other	0	0	0	0	3	41	0	0	44	6%	10.3%
Total	**32**	**376**	**176**	**0**	**12**	**145**	**0**	**0**	**741**	**100%**	**7.7%**
Vehicle Trips	25	322	117	0	4	51	0	0	519		7.7%
Avg. veh occup.	*1.16*	*1.05*	*1.36*	*0.00*	*1.75*	*1.75*	*0.00*	*0.00*	*1.20*		

PM Peak Hour Person Trips

Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		Percent of Daily
Auto	31	485	79	0	25	88	0	0	708	84%	8.5%
Transit	3	51	9	0	4	15	0	0	82	10%	8.6%
Walk/Other	0	0	0	0	12	40	0	0	52	6%	12.1%
Total	**34**	**536**	**88**	**0**	**41**	**143**	**0**	**0**	**842**	**100%**	**8.7%**
Vehicle Trips	27	471	53	0	14	50	0	0	615		9.1%
Avg. veh occup.	*1.15*	*1.03*	*1.49*	*0.00*	*1.79*	*1.76*	*0.00*	*0.00*	*1.15*		

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Daily Person Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	32	570	280	0	74	200	0	0	1,156	12.0%
Superdistrict 2	34	660	318	0	50	118	0	0	1,180	12.2%
Superdistrict 3	100	1,820	904	0	184	440	0	0	3,448	35.7%
Superdistrict 4	20	400	184	0	62	124	0	0	790	8.2%
East Bay	32	624	280	0	18	36	0	0	990	10.2%
North Bay	8	178	72	0	4	14	0	0	276	2.9%
South Bay	44	962	406	0	56	132	0	0	1,600	16.6%
Out of Region	8	148	70	0	0	0	0	0	226	2.3%
Total	**278**	**5,362**	**2,514**	**0**	**448**	**1,064**	**0**	**0**	**9,666**	**100.0%**

Daily Auto Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	28	500	248	0	20	62	0	0	858	10.3%
Superdistrict 2	32	596	288	0	22	58	0	0	996	12.0%
Superdistrict 3	88	1,628	808	0	110	252	0	0	2,886	34.8%
Superdistrict 4	18	360	168	0	58	116	0	0	720	8.7%
East Bay	26	532	238	0	14	28	0	0	838	10.1%
North Bay	8	168	68	0	4	14	0	0	262	3.2%
South Bay	42	926	392	0	52	122	0	0	1,534	18.5%
Out of Region	8	128	60	0	0	0	0	0	196	2.4%
Total	**250**	**4,838**	**2,270**	**0**	**280**	**652**	**0**	**0**	**8,290**	**100.0%**

Daily Transit Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	4	70	34	0	8	28	0	0	144	15.2%
Superdistrict 2	4	66	28	0	2	6	0	0	106	11.2%
Superdistrict 3	10	194	96	0	18	56	0	0	374	39.5%
Superdistrict 4	2	38	16	0	4	6	0	0	66	7.0%
East Bay	6	92	42	0	4	8	0	0	152	16.0%
North Bay	0	8	4	0	0	0	0	0	12	1.3%
South Bay	2	36	14	0	4	8	0	0	64	6.8%
Out of Region	0	20	10	0	0	0	0	0	30	3.2%
Total	**28**	**524**	**244**	**0**	**40**	**112**	**0**	**0**	**948**	**100.0%**

Daily Vehicle Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	24	480	150	0	10	36	0	0	700	10.4%
Superdistrict 2	28	568	182	0	12	32	0	0	822	12.2%
Superdistrict 3	78	1,562	434	0	62	144	0	0	2,280	33.9%
Superdistrict 4	16	340	102	0	34	66	0	0	558	8.3%
East Bay	24	494	152	0	8	16	0	0	694	10.3%
North Bay	8	152	56	0	2	8	0	0	226	3.4%
South Bay	38	850	288	0	30	70	0	0	1,276	19.0%
Out of Region	6	122	42	0	0	0	0	0	170	2.5%
Total	**222**	**4,568**	**1,406**	**0**	**158**	**372**	**0**	**0**	**6,726**	**100.0%**

Adavant Consulting

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

AM Peak Hour Person-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	4	41	17	0	3	27	0	0	92	12.4%
Superdistrict 2	4	47	21	0	1	16	0	0	89	12.0%
Superdistrict 3	13	131	54	0	6	60	0	0	264	35.6%
Superdistrict 4	2	28	13	0	0	17	0	0	60	8.1%
East Bay	3	43	22	0	0	5	0	0	73	9.9%
North Bay	1	12	7	0	0	2	0	0	22	3.0%
South Bay	4	64	37	0	2	18	0	0	125	16.9%
Out of Region	1	10	5	0	0	0	0	0	16	2.2%
Total	**32**	**376**	**176**	**0**	**12**	**145**	**0**	**0**	**741**	**100.0%**

AM Peak Hour Auto-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	3	36	15	0	1	8	0	0	63	10.1%
Superdistrict 2	4	42	18	0	1	8	0	0	73	11.7%
Superdistrict 3	11	118	49	0	3	34	0	0	215	34.5%
Superdistrict 4	2	25	12	0	0	16	0	0	55	8.8%
East Bay	3	36	19	0	0	4	0	0	62	10.0%
North Bay	1	11	7	0	0	2	0	0	21	3.4%
South Bay	4	62	35	0	2	17	0	0	120	19.3%
Out of Region	1	9	4	0	0	0	0	0	14	2.2%
Total	**29**	**339**	**159**	**0**	**7**	**89**	**0**	**0**	**623**	**100.0%**

AM Peak Hour Transit-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	1	5	2	0	1	4	0	0	13	17.6%
Superdistrict 2	0	5	2	0	0	1	0	0	8	10.8%
Superdistrict 3	2	14	7	0	1	7	0	0	31	41.9%
Superdistrict 4	0	3	1	0	0	1	0	0	5	6.8%
East Bay	0	6	3	0	0	1	0	0	10	13.5%
North Bay	0	1	0	0	0	0	0	0	1	1.4%
South Bay	0	2	1	0	0	1	0	0	4	5.4%
Out of Region	0	1	1	0	0	0	0	0	2	2.7%
Total	**3**	**37**	**17**	**0**	**2**	**15**	**0**	**0**	**74**	**100.0%**

AM Peak Hour Vehicle-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	35	11	0	0	5	0	0	53	10.2%
Superdistrict 2	3	41	13	0	1	4	0	0	62	11.9%
Superdistrict 3	10	113	32	0	2	20	0	0	177	34.1%
Superdistrict 4	2	24	9	0	0	9	0	0	44	8.5%
East Bay	2	34	14	0	0	2	0	0	52	10.0%
North Bay	1	10	6	0	0	1	0	0	18	3.5%
South Bay	4	56	29	0	1	10	0	0	100	19.3%
Out of Region	1	9	3	0	0	0	0	0	13	2.5%
Total	**25**	**322**	**117**	**0**	**4**	**51**	**0**	**0**	**519**	**100.0%**

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
PM Peak Hour Person-Trips										
Superdistrict 1	4	63	9	0	7	27	0	0	110	13.1%
Superdistrict 2	4	71	11	0	5	16	0	0	107	12.7%
Superdistrict 3	11	208	30	0	16	58	0	0	323	38.4%
Superdistrict 4	3	39	7	0	6	17	0	0	72	8.6%
East Bay	4	55	10	0	2	5	0	0	76	9.0%
North Bay	1	12	3	0	0	2	0	0	18	2.1%
South Bay	6	72	16	0	5	18	0	0	117	13.9%
Out of Region	1	16	2	0	0	0	0	0	19	2.3%
Total	**34**	**536**	**88**	**0**	**41**	**143**	**0**	**0**	**842**	**100.0%**
PM Peak Hour Auto-Trips										
Superdistrict 1	3	56	8	0	2	8	0	0	77	10.9%
Superdistrict 2	4	65	10	0	2	8	0	0	89	12.6%
Superdistrict 3	10	187	27	0	10	34	0	0	268	37.9%
Superdistrict 4	2	35	6	0	5	16	0	0	64	9.0%
East Bay	3	47	9	0	1	4	0	0	64	9.0%
North Bay	2	11	2	0	0	2	0	0	17	2.4%
South Bay	6	70	15	0	5	16	0	0	112	15.8%
Out of Region	1	14	2	0	0	0	0	0	17	2.4%
Total	**31**	**485**	**79**	**0**	**25**	**88**	**0**	**0**	**708**	**100.0%**
PM Peak Hour Transit-Trips										
Superdistrict 1	1	7	1	0	2	4	0	0	15	18.3%
Superdistrict 2	0	7	1	0	0	1	0	0	9	11.0%
Superdistrict 3	1	22	3	0	2	7	0	0	35	42.7%
Superdistrict 4	0	3	1	0	0	1	0	0	5	6.1%
East Bay	1	8	2	0	0	1	0	0	12	14.6%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	2	1	0	0	1	0	0	4	4.9%
Out of Region	0	2	0	0	0	0	0	0	2	2.4%
Total	**3**	**51**	**9**	**0**	**4**	**15**	**0**	**0**	**82**	**100.0%**
PM Peak Hour Vehicle-Trips										
Superdistrict 1	3	56	5	0	1	5	0	0	70	11.4%
Superdistrict 2	3	63	6	0	1	4	0	0	77	12.5%
Superdistrict 3	9	183	16	0	5	19	0	0	232	37.7%
Superdistrict 4	2	34	4	0	3	9	0	0	52	8.5%
East Bay	3	45	6	0	1	3	0	0	58	9.4%
North Bay	1	10	2	0	0	1	0	0	14	2.3%
South Bay	5	66	12	0	3	9	0	0	95	15.4%
Out of Region	1	14	2	0	0	0	0	0	17	2.8%
Total	**27**	**471**	**53**	**0**	**14**	**50**	**0**	**0**	**615**	**100.0%**

Adavant Consulting

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Auto Trips	Daily Inbound	Daily Outbound	Daily Total	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
Superdistrict 1	429	429	858	45	18	63	35	42	77
Superdistrict 2	498	498	996	52	21	73	40	49	89
Superdistrict 3	1,443	1,443	2,886	145	70	215	129	139	268
Superdistrict 4	360	360	720	38	17	55	30	34	64
East Bay	419	419	838	49	13	62	24	40	64
North Bay	131	131	262	19	2	21	4	13	17
South Bay	767	767	1,534	101	19	120	34	78	112
Out of Region	98	98	196	10	4	14	7	10	17
Total	**4,145**	**4,145**	**8,290**	**459**	**164**	**623**	**303**	**405**	**708**

Transit Trips	Daily Inbound	Daily Outbound	Daily Total	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
Superdistrict 1	72	72	144	11	2	13	5	10	15
Superdistrict 2	53	53	106	6	2	8	3	6	9
Superdistrict 3	187	187	374	23	8	31	15	20	35
Superdistrict 4	33	33	66	4	1	5	2	3	5
East Bay	76	76	152	8	2	10	5	7	12
North Bay	6	6	12	1	0	1	0	0	0
South Bay	32	32	64	4	0	4	1	3	4
Out of Region	15	15	30	2	0	2	1	1	2
Total	**474**	**474**	**948**	**59**	**15**	**74**	**32**	**50**	**82**

Walk/Other Trips	Daily Inbound	Daily Outbound	Daily Total	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
Superdistrict 1	77	77	154	11	5	16	7	11	18
Superdistrict 2	39	39	78	5	3	8	4	5	9
Superdistrict 3	94	94	188	12	6	18	9	11	20
Superdistrict 4	2	2	4	0	0	0	1	2	3
East Bay	0	0	0	0	1	1	0	0	0
North Bay	1	1	2	0	0	0	1	0	1
South Bay	1	1	2	0	1	1	0	1	1
Out of Region	0	0	0	0	0	0	0	0	0
Total	**214**	**214**	**428**	**28**	**16**	**44**	**22**	**30**	**52**

Total Person Trips	Daily Inbound	Daily Outbound	Daily Total	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
Superdistrict 1	578	578	1,156	67	25	92	47	63	110
Superdistrict 2	590	590	1,180	63	26	89	47	60	107
Superdistrict 3	1,724	1,724	3,448	180	84	264	153	170	323
Superdistrict 4	395	395	790	42	18	60	33	39	72
East Bay	495	495	990	57	16	73	29	47	76
North Bay	138	138	276	20	2	22	5	13	18
South Bay	800	800	1,600	105	20	125	35	82	117
Out of Region	113	113	226	12	4	16	8	11	19
Total	**4,833**	**4,833**	**9,666**	**546**	**195**	**741**	**357**	**485**	**842**

Vehicle Trips	Daily Inbound	Daily Outbound	Daily Total	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
Superdistrict 1	350	350	700	37	16	53	32	38	70
Superdistrict 2	411	411	822	44	18	62	36	41	77
Superdistrict 3	1,140	1,140	2,280	120	57	177	114	118	232
Superdistrict 4	279	279	558	31	13	44	24	28	52
East Bay	347	347	694	42	10	52	21	37	58
North Bay	113	113	226	16	2	18	3	11	14
South Bay	638	638	1,276	86	14	100	28	67	95
Out of Region	85	85	170	9	4	13	8	9	17
Total	**3,363**	**3,363**	**6,726**	**385**	**134**	**519**	**266**	**349**	**615**

San Francisco Gateway Project [June 2021]

LAND USE: MANUFACTURING (WORK TRIPS)

Proposed Size:		35,000 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		7.9 trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		277 person-trips	Total Person-trips:		32		34
Work Trips [2]:	40%	111 person-trips	Work Person-trips:	25% [5]	8	50% [2]	17

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	83.6%	1.13	8	7	1	0	1	1
SF Superdistrict 1	Transit	16.4%		2		0		0	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	0	1	1
	Auto	86.8%	1.13	10	9	1	1	2	1
SF Superdistrict 2	Transit	13.2%		2		0		0	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		12	9	1	1	2	1
	Auto	89.7%	1.13	24	21	2	2	4	3
SF Superdistrict 3	Transit	10.3%		3		0		0	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		26	21	2	2	4	3
	Auto	89.2%	1.13	8	7	1	0	1	1
SF Superdistrict 4	Transit	10.8%		1		0		0	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	0	1	1
	Auto	85.1%	1.13	13	12	1	1	2	2
East Bay	Transit	14.9%		2		0		0	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		16	12	1	1	2	2
	Auto	94.7%	1.13	6	5	0	0	1	1
North Bay	Transit	5.3%		0		0		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	5	0	0	1	1
	Auto	95.6%	1.13	28	25	2	2	4	4
South Bay	Transit	4.4%		1		0		0	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		30	25	2	2	5	4
	Auto	82.3%	1.13	2	2	0	0	0	0
Out of Region	Transit	17.7%		0		0		0	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	0	0	0	0
	Auto	**89.9%**	**1.13**	**99**	**88**	**7**	**6**	**15**	**14**
All Origins	**Transit**	**10.1%**		**11**		**1**		**2**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**111**	**88**	**8**	**6**	**17**	**14**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-6 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-6 Work Trips to SD3 (All)

San Francisco Gateway Project [June 2021]

LAND USE: MANUFACTURING (NON-WORK TRIPS)

Proposed Size:		35,000 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		7.9 trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		277 person-trips	Total Person-trips:		32		34
Non-Work Trips [2]:	60%	166 person-trips	Non-Work Person-trips:	75% [5]	24	50% [2]	17

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	90.4%	1.13	19	17	3	2	2	2
SF Superdistrict 1	Transit	9.6%		2		0		0	
13.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		22	17	3	2	2	2
	Auto	92.7%	1.13	22	19	3	3	2	2
SF Superdistrict 2	Transit	7.3%		2		0		0	
14.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		23	19	3	3	2	2
	Auto	89.2%	1.13	65	58	9	8	7	6
SF Superdistrict 3	Transit	10.8%		8		1		1	
44.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		73	58	10	8	8	6
	Auto	91.8%	1.13	11	9	2	1	1	1
SF Superdistrict 4	Transit	8.2%		1		0		0	
7.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		12	9	2	1	1	1
	Auto	85.1%	1.13	13	11	2	2	1	1
East Bay	Transit	14.9%		2		0		0	
9.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	11	2	2	2	1
	Auto	100.0%	1.13	2	1	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
	Auto	98.2%	1.13	15	13	2	2	2	1
South Bay	Transit	1.8%		0		0		0	
9.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	13	2	2	2	1
	Auto	89.5%	1.13	4	4	1	1	0	0
Out of Region	Transit	10.6%		1		0		0	
3.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		5	4	1	1	1	0
	Auto	**90.6%**	**1.13**	**150**	**133**	**22**	**19**	**16**	**14**
All Origins	**Transit**	**9.4%**		**16**		**2**		**2**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**166**	**133**	**24**	**19**	**17**	**14**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway Project [June 2021]

LAND USE: PARCEL DELIVERY (WORK TRIPS)

Proposed Size:		364,715 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7 trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		5,361 person-trips	Total Person-trips:		375		536
Work Trips [1]:	50%	2,681 person-trips	Work Person-trips:	45% [1]	169	25% [1]	134

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	83.6%	1.13	186	165	12	10	9	8
SF Superdistrict 1	Transit	16.4%		36		2		2	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		222	165	14	10	11	8
	Auto	86.8%	1.13	247	219	16	14	12	11
SF Superdistrict 2	Transit	13.2%		38		2		2	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		284	219	18	14	14	11
	Auto	89.7%	1.13	575	510	36	32	29	26
SF Superdistrict 3	Transit	10.3%		66		4		3	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		641	510	40	32	32	26
	Auto	89.2%	1.13	189	168	12	11	9	8
SF Superdistrict 4	Transit	10.8%		23		1		1	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		212	168	13	11	11	8
	Auto	85.1%	1.13	326	290	21	18	16	14
East Bay	Transit	14.9%		57		4		3	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		383	290	24	18	19	14
	Auto	94.7%	1.13	142	126	9	8	7	6
North Bay	Transit	5.3%		8		1		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		150	126	9	8	8	6
	Auto	95.6%	1.13	689	612	43	39	34	31
South Bay	Transit	4.4%		32		2		2	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		721	612	45	39	36	31
	Auto	82.3%	1.13	55	49	3	3	3	2
Out of Region	Transit	17.7%		12		1		1	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		67	49	4	3	3	2
	Auto	**89.9%**	**1.13**	**2,409**	**2,140**	**152**	**135**	**120**	**107**
All Origins	**Transit**	**10.1%**		**272**		**17**		**14**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**2,681**	**2,140**	**169**	**135**	**134**	**107**

Notes:
[1] Surveys of OnTrac and Amazon

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-6 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-6 Work Trips to SD3 (All)

San Francisco Gateway Project [June 2021]

LAND USE: PARCEL DELIVERY (NON-WORK TRIPS)

Proposed Size:		364,715 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7 trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		5,361 person-trips	Total Person-trips:		375		536
Non-Work Trips [1]:	50%	2,681 person-trips	Non-Work Person-trips:	55% [1]	206	75% [1]	402

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	90.4%	1.00	315	315	24	24	47	47
SF Superdistrict 1	Transit	9.6%		33		3		5	
13.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		348	315	27	24	52	47
	Auto	92.7%	1.00	348	348	27	27	52	52
SF Superdistrict 2	Transit	7.3%		27		2		4	
14.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		375	348	29	27	56	52
	Auto	89.2%	1.00	1,052	1,052	81	81	158	158
SF Superdistrict 3	Transit	10.8%		127		10		19	
44.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		1,179	1,052	91	81	177	158
	Auto	91.8%	1.00	172	172	13	13	26	26
SF Superdistrict 4	Transit	8.2%		15		1		2	
7.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		188	172	14	13	28	26
	Auto	85.1%	1.00	205	205	16	16	31	31
East Bay	Transit	14.9%		36		3		5	
9.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		241	205	19	16	36	31
	Auto	100.0%	1.00	27	27	2	2	4	4
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		27	27	2	2	4	4
	Auto	98.2%	1.00	237	237	18	18	36	36
South Bay	Transit	1.8%		4		0		1	
9.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		241	237	19	18	36	36
	Auto	89.5%	1.00	72	72	6	6	11	11
Out of Region	Transit	10.6%		9		1		1	
3.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		81	72	6	6	12	11
	Auto	**90.6%**	**1.00**	**2,428**	**2,428**	**187**	**187**	**364**	**364**
All Origins	**Transit**	**9.4%**		**252**		**19**		**38**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**2,681**	**2,428**	**206**	**187**	**402**	**364**

Notes:
[1] Surveys of OnTrac and Amazon

[3] Assumes one person per vehicle (van, truck, etc.).

[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway Project [June 2021]

LAND USE: WHOLESALE/STORAGE (WORK TRIPS)

Proposed Size:		209,575 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		12.0 trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	0.8	3.5% [1]	0.4
Total Person Trips:		2,515 person-trips	Total Person-trips:		176		88
Work Trips [2]:	40%	1,006 person-trips	Work Person-trips:	67% [5]	118	50% [2]	44

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	83.6%	1.13	70	62	8	7	3	3
SF Superdistrict 1	Transit	16.4%		14		2		1	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		83	62	10	7	4	3
	Auto	86.8%	1.13	93	82	11	10	4	4
SF Superdistrict 2	Transit	13.2%		14		2		1	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		107	82	13	10	5	4
	Auto	89.7%	1.13	216	192	25	22	9	8
SF Superdistrict 3	Transit	10.3%		25		3		1	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		240	192	28	22	11	8
	Auto	89.2%	1.13	71	63	8	7	3	3
SF Superdistrict 4	Transit	10.8%		9		1		0	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		79	63	9	7	3	3
	Auto	85.1%	1.13	122	109	14	13	5	5
East Bay	Transit	14.9%		21		3		1	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		144	109	17	13	6	5
	Auto	94.7%	1.13	53	47	6	6	2	2
North Bay	Transit	5.3%		3		0		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		56	47	7	6	2	2
	Auto	95.6%	1.13	259	230	30	27	11	10
South Bay	Transit	4.4%		12		1		1	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		271	230	32	27	12	10
	Auto	82.3%	1.13	21	18	2	2	1	1
Out of Region	Transit	17.7%		4		1		0	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		25	18	3	2	1	1
	Auto	**89.9%**	**1.13**	**904**	**803**	**106**	**94**	**40**	**35**
All Origins	**Transit**	**10.1%**		**102**		**12**		**4**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,006**	**803**	**118**	**94**	**44**	**35**

Notes:
[1] SF Wholesale Produce Market Expansion TIS (2011)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% o
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway Project [June 2021]

LAND USE: WHOLESALE/STORAGE (NON-WORK TRIPS)

Proposed Size:		209,575 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		12.0 trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	0.8	3.5% [1]	0.4
Total Person Trips:		2,515 person-trips	Total Person-trips:		176		88
Non-Work Trips [2]:	60%	1,509 person-trips	Non-Work Person-trips:	33% [5]	58	50% [2]	44

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	90.4%	2.03	177	87	7	3	5	3
SF Superdistrict 1	Transit	9.6%		19		1		1	
13.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		196	87	8	3	6	3
	Auto	92.7%	1.97	196	99	8	4	6	3
SF Superdistrict 2	Transit	7.3%		15		1		0	
14.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		211	99	8	4	6	3
	Auto	89.2%	2.43	592	244	23	9	17	7
SF Superdistrict 3	Transit	10.8%		72		3		2	
44.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		664	244	26	9	19	7
	Auto	91.8%	2.51	97	39	4	1	3	1
SF Superdistrict 4	Transit	8.2%		9		0		0	
7.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		106	39	4	1	3	1
	Auto	85.1%	2.59	116	45	4	2	3	1
East Bay	Transit	14.9%		20		1		1	
9.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		136	45	5	2	4	1
	Auto	100.0%	2.11	15	7	1	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	7	1	0	0	0
	Auto	98.2%	2.28	133	58	5	2	4	2
South Bay	Transit	1.8%		2		0		0	
9.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		136	58	5	2	4	2
	Auto	89.5%	1.68	41	24	2	1	1	1
Out of Region	Transit	10.6%		5		0		0	
3.0%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		45	24	2	1	1	1
	Auto	**90.6%**	**2.26**	**1,367**	**603**	**53**	**23**	**40**	**18**
All Origins	**Transit**	**9.4%**		**142**		**5**		**4**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,509**	**603**	**58**	**23**	**44**	**18**

Notes:
[1] SF Wholesale Produce Market Expansion TIS (2011)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] SF Wholesale Produce Market Expansion - SF Guidelines, Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway Project [June 2021]

LAND USE: GENERAL RETAIL (WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		150.0 trips/1000 sq.ft.	Person-trip Gen Rate:	2.2% [4]	3.3	9.0% [1]	13.5
Total Person Trips:		630 person-trips	Total Person-trips:		14		57
Work Trips [2]:	13%	84 person-trips	Work Person-trips:	85% [5]	12	13% [2]	7

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	41.9%	1.76	11	6	2	1	1	1
SF Superdistrict 1	Transit	22.9%		6		1		1	
31.7%	Walk	33.9%		9		1		1	
	Other	1.3%		0		0		0	
	All Modes	100.0%		27	6	4	1	2	1
	Auto	71.6%	1.76	6	3	1	0	1	0
SF Superdistrict 2	Transit	1.9%		0		0		0	
9.7%	Walk	22.1%		2		0		0	
	Other	4.4%		0		0		0	
	All Modes	100.0%		8	3	1	0	1	0
	Auto	46.5%	1.76	16	9	2	1	1	1
SF Superdistrict 3	Transit	26.8%		9		1		1	
41.9%	Walk	25.7%		9		1		1	
	Other	1.0%		0		0		0	
	All Modes	100.0%		35	9	5	1	3	1
	Auto	93.0%	1.76	1	1	0	0	0	0
SF Superdistrict 4	Transit	0.0%		0		0		0	
1.2%	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	100.0%	1.76	1	1	0	0	0	0
East Bay	Transit	0.0%		0		0		0	
1.1%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	100.0%	1.76	1	1	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	89.4%	1.76	10	5	1	1	1	0
South Bay	Transit	10.6%		1		0		0	
12.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		11	5	2	1	1	0
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**55.0%**	**1.76**	**46**	**26**	**7**	**4**	**4**	**2**
All Origins	**Transit**	**20.0%**		**17**		**2**		**1**	
100.0%	**Walk**	**23.7%**		**20**		**3**		**2**	
	Other	**1.3%**		**1**		**0**		**0**	
	All Modes	**100.0%**		**84**	**26**	**12**	**4**	**7**	**2**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".

San Francisco Gateway Project [June 2021]

LAND USE: GENERAL RETAIL (NON-WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY	Linked trip factor:	33% [7]			AM PEAK HOUR		PM PEAK HOUR	
Person-trip rate w/ linked factor [1]:		100.0 trips/1000 sq.ft.	Person-trip Gen Rate:	2.2% [4]	2.2	9.0% [1]	9.0
Total Person Trips:		420 person-trips	Total Person-trips:		9		38
Non-Work Trips [2]:	87%	364 person-trips	Non-Work Person-trips:	15% [5]	1	87% [2]	33

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
	Auto	18.2%	1.76	9	5	0	0	1	0
SF Superdistrict 1	Transit	4.7%		2		0		0	
12.8%	Walk	74.6%		35		0		3	
	Other	2.5%		1		0		0	
	All Modes	100.0%		47	5	0	0	4	0
	Auto	39.8%	1.76	17	10	0	0	2	1
SF Superdistrict 1	Transit	5.1%		2		0		0	
11.6%	Walk	52.4%		22		0		2	
	Other	2.7%		1		0		0	
	All Modes	100.0%		42	10	0	0	4	1
	Auto	62.2%	1.76	93	53	0	0	8	5
SF Superdistrict 1	Transit	6.0%		9		0		1	
41.2%	Walk	31.0%		46		0		4	
	Other	0.8%		1		0		0	
	All Modes	100.0%		150	53	1	0	14	5
	Auto	94.6%	1.76	57	32	0	0	5	3
SF Superdistrict 1	Transit	4.7%		3		0		0	
16.5%	Walk	0.0%		0		0		0	
	Other	0.7%		0		0		0	
	All Modes	100.0%		60	32	0	0	5	3
	Auto	72.8%	1.76	12	7	0	0	1	1
East Bay	Transit	27.2%		5		0		0	
4.6%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		17	7	0	0	2	1
	Auto	100.0%	1.76	4	2	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		4	2	0	0	0	0
	Auto	95.3%	1.76	42	24	0	0	4	2
South Bay	Transit	4.7%		2		0		0	
12.2%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		45	24	0	0	4	2
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**64.2%**	**1.76**	**234**	**133**	**1**	**1**	**21**	**12**
All Origins	**Transit**	**6.3%**		**23**		**0**		**2**	
100.0%	**Walk**	**28.4%**		**103**		**0**		**9**	
	Other	**1.1%**		**4**		**0**		**0**	
	All Modes	**100.0%**		**364**	**133**	**1**	**1**	**33**	**12**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Assumes that 1/3 of the retail customers are already in the area.

San Francisco Gateway Project [June 2021]

LAND USE: QUICK SERVICE RESTAURANT (WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		600.0 trips/1000 sq.ft.		Person-trip Gen Rate:	13.7% [4]	82.4	13.5% [7]	81.0
Total Person Trips:		2,520 person-trips		Total Person-trips:		346		340
Work Trips [2]:	13%	336 person-trips		Work Person-trips:	13% [5]	45	13% [2]	44

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 31.7%	Auto	41.9%	1.76	45	25	6	3	6	3
	Transit	22.9%		24		3		3	
	Walk	33.9%		36		5		5	
	Other	1.3%		1		0		0	
	All Modes	100.0%		107	25	14	3	14	3
SF Superdistrict 2 9.7%	Auto	71.6%	1.76	23	13	3	2	3	2
	Transit	1.9%		1		0		0	
	Walk	22.1%		7		1		1	
	Other	4.4%		1		0		0	
	All Modes	100.0%		33	13	4	2	4	2
SF Superdistrict 3 41.9%	Auto	46.5%	1.76	65	37	9	5	9	5
	Transit	26.8%		38		5		5	
	Walk	25.7%		36		5		5	
	Other	1.0%		1		0		0	
	All Modes	100.0%		141	37	19	5	18	5
SF Superdistrict 4 1.2%	Auto	93.0%	1.76	4	2	1	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		4	2	1	0	1	0
East Bay 1.1%	Auto	100.0%	1.76	4	2	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		4	2	0	0	0	0
North Bay 1.7%	Auto	100.0%	1.76	6	3	1	0	1	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		6	3	1	0	1	0
South Bay 12.7%	Auto	89.4%	1.76	38	22	5	3	5	3
	Transit	10.6%		5		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		43	22	6	3	6	3
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**55.0%**	**1.76**	**185**	**105**	**25**	**14**	**24**	**14**
	Transit	**20.0%**		**67**		**9**		**9**	
	Walk	**23.7%**		**80**		**11**		**10**	
	Other	**1.3%**		**5**		**1**		**1**	
	All Modes	**100.0%**		**336**	**105**	**45**	**14**	**44**	**14**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data

SF Gateway Trip Gen v209- Updated Rates New Land Use New VMT.xlsx

San Francisco Gateway Project [June 2021]

LAND USE: QUICK SERVICE RESTAURANT (NON-WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY	Linked trip factor:	67% [8]			AM PEAK HOUR		PM PEAK HOUR	
Person-trip rate w/ linked factor [1]:		200.0 trips/1000 sq.ft.		Person-trip Gen Rate:	13.7% [4]	27.5	13.5% [7]	27.0
Total Person Trips:		840 person-trips		Total Person-trips:		115		113
Non-Work Trips [2]:	87%	728 person-trips		Non-Work Person-trips:	87% [5]	100	87% [2]	99

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 12.8%	Auto	18.2%	1.76	17	10	2	1	2	1
	Transit	4.7%		4		1		1	
	Walk	74.6%		70		10		9	
	Other	2.5%		2		0		0	
	All Modes	100.0%		93	10	13	1	13	1
SF Superdistrict 2 11.6%	Auto	39.8%	1.76	34	19	5	3	5	3
	Transit	5.1%		4		1		1	
	Walk	52.4%		44		6		6	
	Other	2.7%		2		0		0	
	All Modes	100.0%		84	19	12	3	11	3
SF Superdistrict 3 41.2%	Auto	62.2%	1.76	186	106	26	15	25	14
	Transit	6.0%		18		2		2	
	Walk	31.0%		93		13		13	
	Other	0.8%		2		0		0	
	All Modes	100.0%		300	106	41	15	41	14
SF Superdistrict 4 16.5%	Auto	94.6%	1.76	114	65	16	9	15	9
	Transit	4.7%		6		1		1	
	Walk	0.0%		0		0		0	
	Other	0.7%		1		0		0	
	All Modes	100.0%		120	65	17	9	16	9
East Bay 4.6%	Auto	72.8%	1.76	25	14	3	2	3	2
	Transit	27.2%		9		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		34	14	5	2	5	2
North Bay 1.0%	Auto	100.0%	1.76	8	4	1	1	1	1
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		8	4	1	1	1	1
South Bay 12.2%	Auto	95.3%	1.76	85	48	12	7	12	7
	Transit	4.7%		4		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		89	48	12	7	12	7
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**64.2%**	**1.76**	**468**	**266**	**65**	**37**	**63**	**36**
	Transit	**6.3%**		**46**		**6**		**6**	
	Walk	**28.4%**		**207**		**29**		**28**	
	Other	**1.1%**		**8**		**1**		**1**	
	All Modes	**100.0%**		**728**	**266**	**100**	**37**	**99**	**36**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data
[8] Assumes that 2/3 of the QSR customers are already in the area.

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APPENDIX E
COMMERCIAL VEHICLE DEMAND

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Daily Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	88	2,140	802	0	26	106	0	0	3,162	47%
Non-work	134	2,428	604	0	132	266	0	0	3,564	53%
Total	**222**	**4,568**	**1,406**	**0**	**158**	**372**	**0**	**0**	**6,726**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	67%	50%	40%	86%	97%	94%	1%	0%
Buses	0%	0%	0%	0%	0%	0%	93%	98%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	16%	12%	40%	7%	1%	2%	3%	1%
Tractor-trailer deliveri	2%	5%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	178	3,354	1,044	0	156	354	0	0	5,086	76%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	20	802	60	0	2	12	0	0	896	13%
SU truck deliveries	22	292	242	0	0	6	0	0	562	8%
Tractor-trailer deliveri	2	120	60	0	0	0	0	0	182	3%
Total	**222**	**4,568**	**1,406**	**0**	**158**	**372**	**0**	**0**	**6,726**	**100%**

AM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	6	135	94	0	3	14	0	0	252	49%
Non-work	19	187	23	0	1	37	0	0	267	51%
Total	**25**	**322**	**117**	**0**	**4**	**51**	**0**	**0**	**519**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	45%	15%	20%	86%	96%	94%	4%	0%
Buses	0%	0%	0%	0%	0%	0%	82%	98%
Vans	28%	65%	5%	7%	2%	4%	4%	1%
SU truck deliveries	26%	17%	45%	7%	2%	2%	10%	1%
Tractor-trailer deliveri	2%	3%	30%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	15	162	99	0	4	49	0	0	329	63%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	5	122	1	0	0	1	0	0	129	25%
SU truck deliveries	5	32	10	0	0	1	0	0	48	9%
Tractor-trailer deliveri	0	6	7	0	0	0	0	0	13	3%
Total	**25**	**322**	**117**	**0**	**4**	**51**	**0**	**0**	**519**	**100%**

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San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

AM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	15	228	105	0	4	33	0	0	385
Outbound	10	94	12	0	0	18	0	0	134
Total	**25**	**322**	**117**	**0**	**4**	**51**	**0**	**0**	**519**

AM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	60%	71%	90%	0%	100%	65%	0%	0%	74%
Outbound	40%	29%	10%	0%	0%	35%	0%	0%	26%
Total	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

PM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	14	107	35	0	2	14	0	0	172	28%
Non-work	13	364	18	0	12	36	0	0	443	72%
Total	**27**	**471**	**53**	**0**	**14**	**50**	**0**	**0**	**615**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	50%	66%	60%	86%	95%	95%	5%	0%
Buses	0%	0%	0%	0%	0%	0%	90%	95%
Vans	5%	28%	10%	7%	0%	0%	3%	5%
SU truck deliveries	43%	5%	20%	7%	5%	5%	2%	0%
Tractor-trailer deliveri	2%	1%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	20	347	45	0	13	48	0	0	473	77%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	1	102	2	0	0	0	0	0	105	17%
SU truck deliveries	6	18	4	0	1	2	0	0	31	5%
Tractor-trailer deliveri	0	4	2	0	0	0	0	0	6	1%
Total	**27**	**471**	**53**	**0**	**14**	**50**	**0**	**0**	**615**	**100%**

PM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	8	218	11	0	7	22	0	0	266
Outbound	19	253	42	0	7	28	0	0	349
Total	**27**	**471**	**53**	**0**	**14**	**50**	**0**	**0**	**615**

PM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	30%	46%	21%	0%	50%	44%	0%	0%	43%
Outbound	70%	54%	79%	0%	50%	56%	0%	0%	57%
Total	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Daily Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	8	168	60	0	6	26	0	0	268	8%
Superdistrict 2	8	218	84	0	4	12	0	0	326	10%
Superdistrict 3	22	508	192	0	8	38	0	0	768	24%
Superdistrict 4	6	168	62	0	0	2	0	0	238	8%
East Bay	12	290	108	0	0	2	0	0	412	13%
North Bay	6	126	48	0	2	4	0	0	186	6%
South Bay	24	612	230	0	6	22	0	0	894	28%
Out of Region	2	50	18	0	0	0	0	0	70	2%
Total	**88**	**2,140**	**802**	**0**	**26**	**106**	**0**	**0**	**3,162**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	16	316	86	0	4	10	0	0	432	12%
Superdistrict 2	20	348	100	0	10	18	0	0	496	14%
Superdistrict 3	58	1,052	244	0	52	106	0	0	1,512	42%
Superdistrict 4	10	172	40	0	32	66	0	0	320	9%
East Bay	12	204	44	0	8	14	0	0	282	8%
North Bay	0	26	8	0	2	4	0	0	40	1%
South Bay	14	238	58	0	24	48	0	0	382	11%
Out of Region	4	72	24	0	0	0	0	0	100	3%
Total	**134**	**2,428**	**604**	**0**	**132**	**266**	**0**	**0**	**3,564**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
San Francisco	78%	78%	78%	0%	74%	75%	0%	0%	77%
Rest of Bay+Out of R	22%	22%	22%	0%	26%	25%	0%	0%	23%
Total	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

Non-Work Veh-SF	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	70%	60%	50%	86%	97%	94%	1%	0%
Buses	0%	0%	0%	0%	0%	0%	93%	98%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	15%	7%	40%	7%	1%	2%	3%	1%
Tractor-trailer deliveri	0%	0%	0%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Work Veh-Othe	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	56%	15%	5%	86%	97%	94%	1%	0%
Buses	0%	0%	0%	0%	0%	0%	93%	98%
Vans	15%	32%	10%	7%	2%	4%	3%	1%
SU truck deliveries	20%	31%	40%	7%	1%	2%	3%	1%
Tractor-trailer deliveri	9%	23%	45%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Daily Automobile Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	20	356	106	0	12	34	0	0	528	10%
Superdistrict 2	22	428	132	0	12	30	0	0	624	12%
Superdistrict 3	62	1,142	314	0	60	138	0	0	1,716	34%
Superdistrict 4	14	272	82	0	32	64	0	0	464	9%
East Bay	18	320	112	0	8	14	0	0	472	9%
North Bay	6	130	46	0	4	6	0	0	192	4%
South Bay	32	646	232	0	28	68	0	0	1,006	20%
Out of Region	4	60	20	0	0	0	0	0	84	2%
Total	**178**	**3,354**	**1,044**	**0**	**156**	**354**	**0**	**0**	**5,086**	**100%**

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San Francisco Gateway Project [June 2021]

FINAL SUMMARY OF TRIPS

Daily Bus Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	0	0	0	0	0	0	0	0	0%
North Bay	0	0	0	0	0	0	0	0	0	0%
South Bay	0	0	0	0	0	0	0	0	0	0%
Out of Region	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0%**

Daily Van Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	106	8	0	0	0	0	0	116	13%
Superdistrict 2	2	116	10	0	0	2	0	0	130	15%
Superdistrict 3	8	350	24	0	0	4	0	0	386	43%
Superdistrict 4	2	56	4	0	2	2	0	0	66	7%
East Bay	2	64	4	0	0	2	0	0	72	8%
North Bay	0	10	2	0	0	0	0	0	12	1%
South Bay	2	76	6	0	0	2	0	0	86	10%
Out of Region	2	24	2	0	0	0	0	0	28	3%
Total	**20**	**802**	**60**	**0**	**2**	**12**	**0**	**0**	**896**	**100%**

Daily SU Truck Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	20	34	0	0	0	0	0	56	10%
Superdistrict 2	4	24	40	0	0	0	0	0	68	12%
Superdistrict 3	10	68	98	0	0	2	0	0	178	32%
Superdistrict 4	0	10	16	0	0	2	0	0	28	5%
East Bay	2	64	18	0	0	0	0	0	84	15%
North Bay	0	8	4	0	0	0	0	0	12	2%
South Bay	4	76	22	0	0	2	0	0	104	19%
Out of Region	0	22	10	0	0	0	0	0	32	6%
Total	**22**	**292**	**242**	**0**	**0**	**6**	**0**	**0**	**562**	**100%**

Daily Tractor-trailer Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	46	20	0	0	0	0	0	66	36%
North Bay	0	6	4	0	0	0	0	0	10	5%
South Bay	2	52	26	0	0	0	0	0	80	44%
Out of Region	0	16	10	0	0	0	0	0	26	14%
Total	**2**	**120**	**60**	**0**	**0**	**0**	**0**	**0**	**182**	**100%**

Daily Vehicle Trips

Origin/Destination	Auto	Bus	Van	SU Truck	Trctr-trlr	Total	
Superdistrict 1	528	0	116	56	0	700	10%
Superdistrict 2	624	0	130	68	0	822	12%
Superdistrict 3	1,716	0	386	178	0	2,280	34%
Superdistrict 4	464	0	66	28	0	558	8%
East Bay	472	0	72	84	66	694	10%
North Bay	192	0	12	12	10	226	3%
South Bay	1,006	0	86	104	80	1,276	19%
Out of Region	84	0	28	32	26	170	3%
Total	**5,086**	**0**	**896**	**562**	**182**	**6,726**	**100%**

San Francisco Gateway Project [June 2021]

VEHICLE CLASSIFICATION SUMMARY

DAILY VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	264	0	58	28	0	350	264	0	58	28	0	350	528	0	116	56	0	700
Superdistrict 2	312	0	65	34	0	411	312	0	65	34	0	411	624	0	130	68	0	822
Superdistrict 3	858	0	193	89	0	1,140	858	0	193	89	0	1,140	1,716	0	386	178	0	2,280
Superdistrict 4	232	0	33	14	0	279	232	0	33	14	0	279	464	0	66	28	0	558
East Bay	236	0	36	42	33	347	236	0	36	42	33	347	472	0	72	84	66	694
North Bay	96	0	6	6	5	113	96	0	6	6	5	113	192	0	12	12	10	226
South Bay	503	0	43	52	40	638	503	0	43	52	40	638	1,006	0	86	104	80	1,276
Out of Region	42	0	14	16	13	85	42	0	14	16	13	85	84	0	28	32	26	170
Total	**2,543**	**0**	**448**	**281**	**91**	**3,363**	**2,543**	**0**	**448**	**281**	**91**	**3,363**	**5,086**	**0**	**896**	**562**	**182**	**6,726**
	76%	***0%***	***13%***	***8%***	***3%***	***100%***	***76%***	***0%***	***13%***	***8%***	***3%***	***100%***	***76%***	***0%***	***13%***	***8%***	***3%***	***100%***
Check:						*3,363*						*3,363*						*6,726*

AM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	24	0	10	3	0	37	4	0	8	4	0	16	28	0	18	7	0	53
Superdistrict 2	31	0	9	4	0	44	6	0	9	3	0	18	37	0	18	7	0	62
Superdistrict 3	81	0	27	10	2	120	19	0	27	10	1	57	100	0	54	20	3	177
Superdistrict 4	24	0	5	2	0	31	8	0	4	1	0	13	32	0	9	3	0	44
East Bay	34	0	5	1	2	42	1	0	5	2	2	10	35	0	10	3	4	52
North Bay	14	0	2	0	0	16	0	0	1	0	1	2	14	0	3	0	1	18
South Bay	75	0	7	2	2	86	3	0	6	3	2	14	78	0	13	5	4	100
Out of Region	5	0	2	2	0	9	1	0	2	1	0	4	6	0	4	3	0	13
Total	**288**	**0**	**67**	**24**	**6**	**385**	**42**	**0**	**62**	**24**	**6**	**134**	**330**	**0**	**129**	**48**	**12**	**519**
	75%	***0%***	***17%***	***6%***	***2%***	***100%***	***31%***	***0%***	***46%***	***18%***	***4%***	***100%***	***64%***	***0%***	***25%***	***9%***	***2%***	***100%***
Check:						*385*						*134*						*519*

PM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	22	0	9	1	0	32	31	0	5	2	0	38	53	0	14	3	0	70
Superdistrict 2	26	0	9	1	0	36	35	0	6	0	0	41	61	0	15	1	0	77
Superdistrict 3	83	0	27	4	0	114	96	0	18	4	0	118	179	0	45	8	0	232
Superdistrict 4	18	0	5	0	1	24	24	0	3	1	0	28	42	0	8	1	1	52
East Bay	12	0	5	3	1	21	29	0	3	4	1	37	41	0	8	7	2	58
North Bay	2	0	1	0	0	3	10	0	0	0	1	11	12	0	1	0	1	14
South Bay	17	0	6	4	1	28	60	0	4	2	1	67	77	0	10	6	2	95
Out of Region	3	0	3	2	0	8	5	0	1	3	0	9	8	0	4	5	0	17
Total	**183**	**0**	**65**	**15**	**3**	**266**	**290**	**0**	**40**	**16**	**3**	**349**	**473**	**0**	**105**	**31**	**6**	**615**
	69%	***0%***	***24%***	***6%***	***1%***	***100%***	***83%***	***0%***	***11%***	***5%***	***1%***	***100%***	***77%***	***0%***	***17%***	***5%***	***1%***	***100%***
Check:						*266*						*349*						*615*

San Francisco Gateway Project

PROPOSED PROJECT

COMMERCIAL/SERVICE LOADING SPACE DEMAND FOR RETAIL

PROJECT SIZE

General Retail	4,200 gsf
Café/QSR	4,200 gsf
Total	**8,400 gsf**

SPACE DEMAND

General Retail: R [1] = 0.22

Daily Commercial Vehicles	*1 all vehicles*	*100%*
	0 tractor-trailer	0%
	0 single body	0%
	1 utility/step vans	100%
	0 automobiles/pickups	0%
Peak Hour [3]	0.1 spaces	
Average Hour [3]	0.0 spaces	

Café/Quick Service Restauran R [2] = 3.6

Daily Commercial Vehicles	*15 all vehicles*	*100%*
	0 tractor-trailer	0%
	3 single body	20%
	6 utility/step vans	40%
	6 automobiles/pickups	40%
Peak Hour [3]	0.9 spaces	
Average Hour [3]	0.7 spaces	

Total Retail Space Demand:

Daily Commercial Vehicles	*16 all vehicles*
Average Hour [3]	**0.74 spaces**
Peak Hour [3]	**0.93 spaces**

Notes

[1] 2019 SF Guidelines, Travel Demand Memorandum, Table 3, Retail (composite) daily truck generation rate

[2] 2019 SF Guidelines, Travel Demand Memorandum, Table 3, Restaurant/Bar daily truck generation rate

[3] Loading Demand Calculations for General Retail, and Café/Quick Service Restaurant Uses

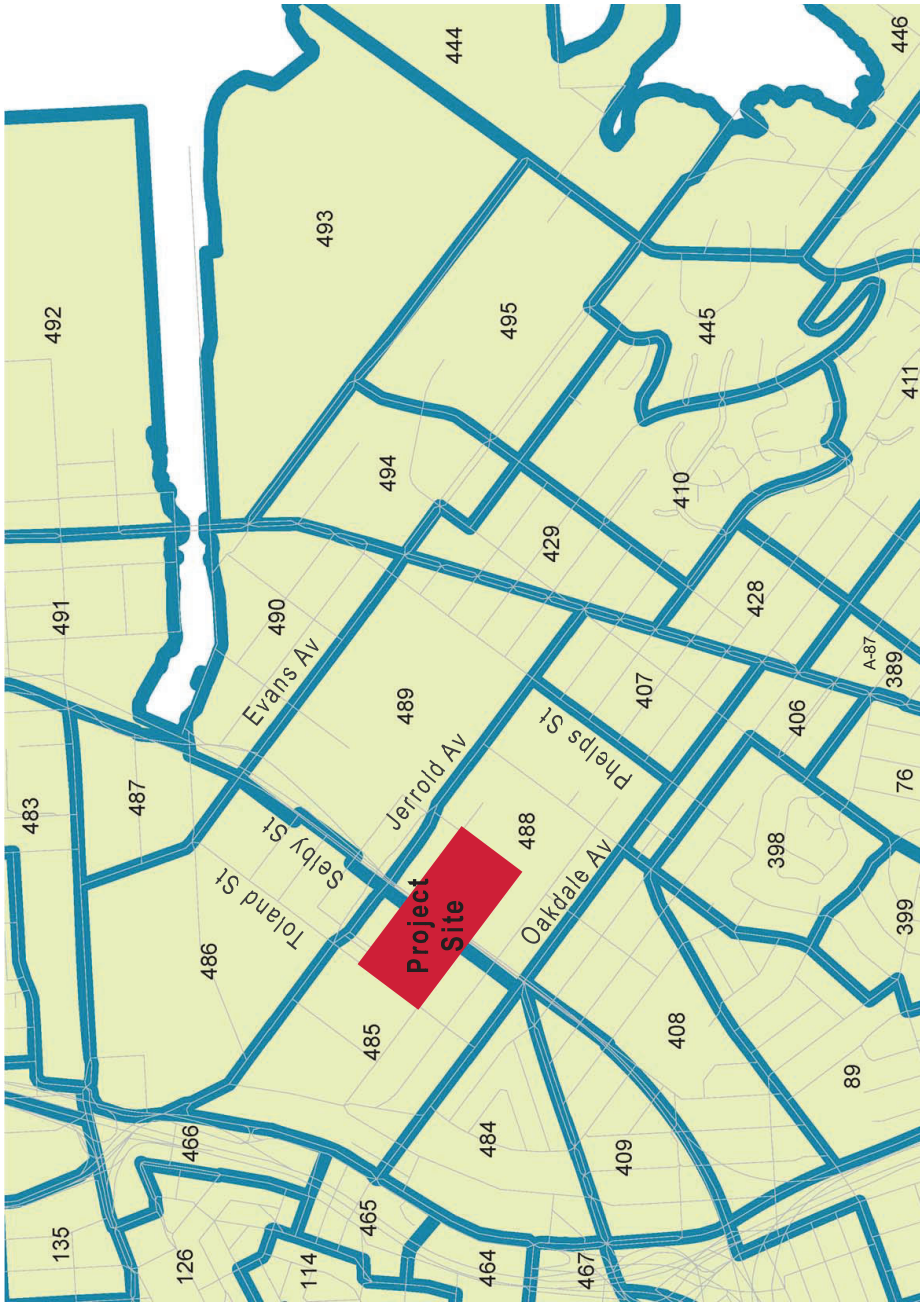
Daily Trips = (GSF / 1,000) * R

Average Hour = (GSF / 1,000) * R / 9 / (60 / 25)

Peak Hour = (GSF / 1,000) * (R * 1.25) / 9 / (60 / 25)

APPENDIX F
VEHICLE MILES TRAVELED

SF CHAMP Model - Travel Analysis Zone Map



San Francisco Gateway Project VMT Analysis

Average daily VMT per capita (weighted estimates)

TAZ	RETAIL Retail Size	RETAIL Daily VMT per retail size	OFFICE All Workers	OFFICE Daily VMT per worker
Existing (2020) [a]				
485	1,687	9.6	1,885	21.1
488	1,661	10.1	1,857	21.7
Total	**3,348**	**9.9**	**3,742**	**21.4**
SF Bay Area		14.9		25.7
Regional minus 15%		*12.7*		*21.9*
Year 2050 (with Housing Element Proposed Action) [b]				
485	1,782	12.2	2,459	18.3
488	1,644	11.8	1,921	19.5
Total	**3,427**	**12.0**	**4,380**	**18.8**
SF Bay Area		15.9		23.9
Regional minus 15%		*13.5*		*20.3*

Values selected for the analysis

Source: SFMTA
[a] vmt_wgt_update.csv for 2020 Baseline, SFCTA, April 2021
[b] vmt_wgt_update.csv for 2050 plus HE Proposed Action, SFCTA, September 20

SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT.xlsx

NREL AND FHWA DATA

Average Daily Miles by Type of Vehicle

Vehicle Type	Daily Miles	Speed (mph)	Daily stops
Delivery/Service van	56.3	10.9	126.0
Delivery/Service truck	78.9	16.8	54.3
Transit bus	77.4	14.6	130.6

Source: Fleet DNA - Commercial Fleet Vehicle Operating Data
National Renewable Energy Laboratory (2014)

	Annual average miles traveled by vehicle type					
Year	Light Duty Vehicles Short WB [1]	Light Duty Vehicles Long WB [2]	Single-Unit Trucks [3]	Combi-nation Trucks [4]	All Commercial Vehicles [2+3+4]	Subtotal Trucks [3+4]
2012	11,262	11,885	12,894	66,260	14,212	25,255
2013	11,244	11,712	13,116	68,155	14,141	25,951
2014	11,048	12,138	13,123	65,897	14,449	25,594
2015	11,327	11,855	12,960	61,978	14,134	24,979
2016	11,370	11,991	12,958	63,428	14,251	25,037
2017	11,467	11,543	12,435	62,751	13,807	24,335
Average 2012-2017	*11,286*	*11,854*	*12,914*	*64,745*	*14,166*	*25,192*
Average daily estimate (300 days)	37.6	39.5	43.0	215.8	47.2	84.0

Sources: FHWA Highway Statistics Series Publications 2012-2017

Vehicle Type	Project Non-Work Veh Trips	Daily Miles of Travel [a]	Daily VMT	Dist. to replacement site [b]	Replacement VMT
Automobiles	4,612	37.6	173,505	-7.5	-34,590
Buses	-	77.4	-	7.5	0
Vans	1,744	56.3	98,228	-7.5	-13,080
SU truck deliveries	1,048	78.9	82,726	-7.5	-7,860
Tractor-trailers	554	215.8	119,562	7.5	4,155
Total Non-work VMT	**7,958**	**59.6**	**474,021**		**-51,375**

[a] From NREL and FHWA sources
[b] Daly City (7 miles); South SF (7.5 miles)

Table 1
San Francisco Gateway Project
Daily Vehicle Trip Generation by Place of Origin/Destination and Land Use

Place of Trip Origin or Destination	Proposed Project										
	Maker & Manufact	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	General Retail	Quick Service Restrnt.	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Subtotal PDR	Total	
Commuter Vehicle Trips											
SF Superdistrict 1	8	168	60	-	6	26	-	-	236	268	8%
SF Superdistrict 2	8	218	84	-	4	12	-	-	310	326	10%
SF Superdistrict 3	22	508	192	-	8	38	-	-	722	768	24%
SF Superdistrict 4	6	168	62	-	-	2	-	-	236	238	8%
East Bay	12	290	108	-	-	2	-	-	410	412	13%
North Bay	6	126	48	-	2	4	-	-	180	186	6%
Peninsula/South Bay	24	612	230	-	6	22	-	-	866	894	28%
Outside of Bay Area	2	50	18	-	-	-	-	-	70	70	2%
Total commuter veh trips	**88**	**2,140**	**802**	**-**	**26**	**106**	**-**	**-**	**3,030**	**3,162**	**47%**
Non-commuter Vehicle Trips											
Automobiles	90	1,214	242	-	130	248	-	-	1,546	1,924	54%
Buses	-	-	-	-	-	-	-	-	-	-	0%
Vans	20	802	60	-	2	12	-	-	882	896	25%
SU trucks	22	292	242	-	-	6	-	-	556	562	16%
Tractor-trailers	2	120	60	-	-	-	-	-	182	182	5%
Total non-comm veh trips	**134**	**2,428**	**604**	**-**	**132**	**266**	**-**	**-**	**3,166**	**3,564**	**53%**
Total Project Veh Trips	**222**	**4,568**	**1,406**	**-**	**158**	**372**	**-**	**-**	**6,196**	**6,726**	**100%**
Check:	*222*	*4,568*	*1,406*	-	*158*	*372*	-	-	*6,196*	*6,726*	

Table 2b
San Francisco Gateway Project
Employee Estimates

Land Use Type	Average Employees [1]	% Empl. who drive	Employees who drive
PDR	1,955 [1]	90%	1,757
Retail / Café / QSR	25 [1]	55%	14
Total	**1,980**	**89%**	**1,771**

[1] Jillian Betro, Project Manager, AECOM · Written communication, May 17, 2021.

Daily Workers in Commuting Flow to San Francisco
Source: ACS 2011-2015

Table 3.1	WORKPLACE - San Francisco				
PLACE OF RESIDENCE	Workers on veh [a]	%	Miles to site [b]	Workers x Distance	Location
Alameda County	35,095	11.5%	25	877,375	*San Lorenzo*
Contra Costa County	27,164	8.9%	28	760,592	*Walnut Creek*
Marin County	18,785	6.2%	22	413,270	*San Rafael*
Napa County	1,335	0.4%	50	66,750	*Napa*
San Francisco County	127,255	41.9%	3.5	445,393	
San Mateo County	59,140	19.5%	18	1,064,520	*San Mateo*
Santa Clara County	8,715	2.9%	46	400,890	*San Jose*
Solano County	7,760	2.6%	42	325,920	*Amer Cany*
Sonoma County	5,125	1.7%	43	220,375	*Petaluma*
Other CA	9,202	3.0%	90	828,180	*Sacramento*
Outside CA	4,450	1.5%	12	53,400	*SFO*
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**	

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Based on 2010 US Census center of population by county

Table 3.2	WORKPLACE - San Francisco			
PLACE OF RESIDENCE	Workers on veh.	%	Miles to site [a]	Workers x Distance
San Francisco	127,255	41.9%		445,393
SD1 - Broadway / Columbus			5.0	
SD2 - Geary / Arguello			6.0	
SD3 - Guerrero / C. Chávez			2.0	
SD4 - Taraval / 30th Av			7.0	
East Bay	70,019	23.0%	28	1,963,887
North Bay	25,245	8.3%	28	700,395
South Bay	67,855	22.3%	22	1,465,410
Outside Bay Area	13,652	4.5%	65	881,580
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Weighted average based on 2010 US Census center of population by county

Table 4
San Francisco Gateway Project
Daily VMT for PDR Uses

Place of Trip Origin or Destination	Daily Miles (one-way)		Proposed Project (PDR Uses)							Existing Uses (Field Counts)		Total Net PDR VMT
			Maker & Manufact.	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Total Project PDR	Daily Vehicle Trips	Daily VMT	
Commuter VMT												
SD1 Broadway / Columbus	5		40	840	300	0	0	0	1,180	15	75	1,105
SD2 Geary / Arguello	6		48	1,308	504	0	0	0	1,860	21	126	1,734
SD3 Guerrero / C. Chávez	2		44	1,016	384	0	0	0	1,444	48	96	1,348
SD4 Taraval / 30th Av	7		42	1,176	434	0	0	0	1,652	15	108	1,544
East Bay	28		337	8,134	3,029	0	0	0	11,500	27	755	10,744
North Bay	28		166	3,496	1,332	0	0	0	4,994	12	332	4,662
South Bay	22		518	13,217	4,967	0	0	0	18,702	57	1,239	17,464
Outside Bay Area	65		129	3,229	1,162	0	0	0	4,520	4	290	4,230
Total Commuter VMT			**1,324**	**32,415**	**12,112**	**0**	**0**	**0**	**45,852**	**200**	**3,021**	**42,832**
	Total Miles (one-way)	**Net Miles**										
Non-Commuter VMT												
Automobiles	20	-7.5	1,800	-9,105	4,840	0	0	0	-2,465	200	4,000	-6,465
Buses	40	7.5	0	0	0	0	0	0	0	18	720	-720
Vans	30	-7.5	600	-6,015	1,800	0	0	0	-3,615	154	4,610	-8,225
SU trucks	40	-7.5	880	-2,190	9,680	0	0	0	8,370	132	5,293	3,077
Tractor-trailers	110	7.5	220	900	6,600	0	0	0	7,720	14	1,503	6,217
Total Non-commuter VMT			**3,500**	**-16,410**	**22,920**	**0**	**0**	**0**	**10,010**	**518**	**16,127**	**-6,117**
Total PDR Daily VMT			**4,824**	**16,005**	**35,032**	**0**	**0**	**0**	**55,862**	**718**	**19,147**	**36,715**
Onsite PDR Workers on a typical day												1,955
Average Daily PDR VMT per Worker												18.8

D.2.3: On-street Commercial Vehicle and Passenger Loading Demand

San Francisco Gateway Project [June 2021]

Table A
On-street Commercial Vehicle Loading Demand

Land Use Type	No. of Commercial Vehicles				No. of equivalent 20-ft long spaces [a]	Avg. Dwell Time (minutes) [b]	Average 20-foot long Space Demand [c]	Peak Demand Factor [d]	Peak 20-foot long Space Demand	Approx. Linear Feet of Curb
	Vans	SU Trucks	Tractor Trailers	Total Commercial Vehicles						
Maker and manufacturing	10	11	1	22	35	38	1.5	1.25	1.9	39
Parcel delivery and last-mile delivery	401	146	60	607						
Wholesale and storage	30	121	30	181						
Laboratory / R&D	-	-	-	-						
General retail	1	-	-	1	1	25	0.0	1.25	0.1	1
Café/Quick service restaurant	6	3	-	9	12	25	0.4	1.25	0.5	10
Public fleet staging/ maintenance	-	-	-	-						
Private fleet staging/ maintenance	-	-	-	-						
Total Number of Commercial Vehicles	**448**	**281**	**91**	**820**			**2.0**		**2.5**	**50**

[a] Each van equals one 20-ft space, each truck equals two 20-foot spaces, and each tractor trailer equals three 20-foot spaces.
[b] Sources: AIC vehicle survey April 2018 for maker and manufacturing; 2019 SF Guidelines; Appendix F for retail.
[c] Assumes nine hours of deliveries per day (8 a.m. to 5 p.m.)
[d] Source: 2019 SF Guidelines

Table B
Retail Passenger Drop-off/Pick up

	Retail		
Size	8,400	gsf	
Total a.m. peak hour person trips	157		
Total p.m. peak hour person trips	184		
Drop-off percentages			
Taxi/TNC	1.0%		Bayshore (Placetype 3)
Private vehicle	6.1%		Assumed 10% of Auto travel
Peak hour person-trips drop-off			
Taxi/TNC	2		
Private vehicle	11		
Total	**13**		
Average stop duration	1	minute	
Peak hour demand (spaces)	0.2	spaces	
Peak minute demand (spaces)	0.4	spaces	

Appendix D.3
CONSTRUCTION ASSESSMENT INFORMATION

Gateway Project EIR

			June 2021					July 2021				August 2021				September 2021					October 2021				November 2021				Dece	
CONSTRUCTION TRUCKS		weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
		month	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7
Timeline (by week)			5/31/21	6/7/21	6/14/21	6/21/22	6/28/21	7/5/21	7/12/21	7/19/21	7/26/21	8/2/21	8/9/21	8/16/21	8/23/21	8/30/21	9/6/21	9/13/21	9/20/21	9/27/21	10/4/21	10/11/21	10/18/21	10/25/21	11/1/21	11/8/21	11/15/21	11/22/21	11/29/21	12/6/21	
TOTAL FOR BUILDING #1	June 2021	Aug 2023	155	175	230	265	265	415	405	480	255	255	305	305	305	305	355	205	230	305	315	345	265	240	240	245	255	315	335	350
TOTAL FOR BUILDING #2	Sept 2021	Dec 2023																	155	175	230	265	265	415	405	480	255	255	305	305
TOTAL FOR BOTH BUILDINGS			155	175	230	265	265	415	405	480	255	255	305	305	305	305	355	205	385	480	545	610	530	655	645	725	510	570	640	655
FOR BOTH BUILDINGS			155	175	230	265	265	415	405	480	255	255	305	305	305	305	355	205	385	480	545	610	530	655	645	725	510	570	640	655
Average per weekday per week			31	35	46	53	53	83	81	96	51	51	61	61	61	61	71	41	77	96	109	122	106	131	129	145	102	114	128	131
Average per weekday							44				78				59					69				117				123		

trucks/day	# of months			
0-50	**17**	**months**		55%
50-100	**10**	**months**	27	87%
100-200	**4**	**months**		13%
	31	**months**		

Source: JLA

Gateway Project EIR

PERSONNEL

		June 2021					July 2021				August 2021				September 2021					October 2021					No
	weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	month	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	6
Timeline (by week)		5/31/21	6/7/21	6/14/21	6/21/22	6/28/21	7/5/21	7/12/21	7/19/21	7/26/21	8/2/21	8/9/21	8/16/21	8/23/21	8/30/21	9/6/21	9/13/21	9/20/21	9/27/21	10/4/21	10/11/21	10/18/21	10/25/21	11/1/21	
Building 1	TOTALS	18	30	30	44	55	70	70	60	45	45	45	45	43	43	43	41	31	38	42	55	103	69	74
Building 2	TOTALS																	18	30	30	44	55	70	70
Both Buildings	TOTALS	18	30	30	44	55	70	70	60	45	45	45	45	43	43	43	41	49	68	72	99	158	139	144
Average per day TOTAL FOR BOTH BUILDINGS		18	30	30	44	55	70	70	60	45	45	45	45	43	43	43	41	49	68	72	99	158	139	144
Monthly Average per weekday						35				61				45					49				117	

workers/day	# of months			
0-100	**6**	**months**		19%
100-300	**12**	**months**	18	58%
300-500	**13**	**months**		42%
	31	**months**		

Source: JLA

Gateway Project EIR

PERSONNEL	ɔvember 2021			December 2021					January 2022				February 2022				March 2022					April 2022				May 2022			
	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	6	6	6	7	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12
Timeline (by week)	11/8/21	11/15/21	11/22/21	11/29/21	12/6/21	12/13/21	12/20/21	12/27/21	1/3/22	1/10/22	1/17/22	1/24/22	1/31/22	2/7/22	2/14/22	2/21/22	2/28/22	3/7/22	3/14/22	3/21/22	3/28/22	4/4/22	4/11/22	4/18/22	4/25/22	5/2/22	5/9/22	5/16/22	5/23/22
Building 1	74	112	72	72	112	72	110	166	135	137	139	172	128	124	158	118	122	164	121	124	164	125	106	144	104	114	122	170	130
Building 2	60	45	45	45	45	43	43	43	41	31	38	42	55	103	69	74	74	112	72	72	112	72	110	166	135	137	139	172	128
Both Buildings	134	157	117	117	157	115	153	209	176	168	177	214	183	227	227	192	196	276	193	196	276	197	216	310	239	251	261	342	258
Average per day TOTAL	134	157	117	117	157	115	153	209	176	168	177	214	183	227	227	192	196	276	193	196	276	197	216	310	239	251	261	342	258
			138					150				184				207					227				241				278

Source: JLA

Gateway Project EIR

PERSONNEL	June 2022				July 2022					August 2022				September 2022					October 2022				November 2022				December		
	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17	17	17	17	18	18	18	18	19	19	19
Timeline (by week)	5/30/22	6/6/22	6/13/22	6/20/22	6/27/22	7/4/22	7/11/22	7/18/22	7/25/22	8/1/22	8/8/22	8/15/22	8/22/22	8/29/22	9/5/22	9/12/22	9/19/22	9/26/22	10/3/22	10/10/22	10/17/22	10/24/22	10/31/22	11/7/22	11/14/22	11/21/22	11/28/22	12/5/22	12/12/22	
Building 1	128	128	128	176	156	160	180	196	272	232	232	232	227	232	272	228	236	240	244	251	271	243	237	244	248	250	235	233	231
Building 2	124	158	118	122	164	121	124	164	125	106	144	104	114	122	170	130	128	128	128	176	156	160	180	196	272	232	232	232	227
Both Buildings	252	286	246	298	320	281	304	360	397	338	376	336	341	354	442	358	364	368	372	427	427	403	417	440	520	482	467	465	458
Average per day TOTAL	252	286	246	298	320	281	304	360	397	338	376	336	341	354	442	358	364	368	372	427	427	403	417	440	520	482	467	465	458
				271					332				348					377				407				465			
									420																				

Source: JLA

Gateway Project EIR

PERSONNEL	2022		January 2023				February 2023				March 2023					April 2023				May 2023				June 2023					Ju
	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110
	19	19	20	20	20	20	21	21	21	21	22	22	22	22	22	23	23	23	23	24	24	24	24	25	25	25	25	26	26
Timeline (by week)	12/19/22	12/26/22	1/2/23	1/9/23	1/16/23	1/23/23	1/30/23	2/6/23	2/13/23	2/20/23	2/27/23	3/6/23	3/13/23	3/20/23	3/27/23	4/3/23	4/10/23	4/17/23	4/24/23	5/1/23	5/8/23	5/15/23	5/22/23	5/29/23	6/5/23	6/12/23	6/19/23	6/26/23	7/3/23	
Building 1	229	227	223	223	223	223	229	229	237	237	237	237	237	237	237	237	237	232	231	231	217	202	200	195	185	172	170	167	128
Building 2	232	272	228	236	240	244	251	271	243	237	244	248	250	235	233	231	229	227	223	223	223	223	229	229	237	237	237	237	237
Both Buildings	461	499	451	459	463	467	480	500	480	474	481	485	487	472	470	468	466	459	454	454	440	425	429	424	422	409	407	404	365
Average per day TOTAL	461	499	451	459	463	467	480	500	480	474	481	485	487	472	470	468	466	459	454	454	440	425	429	424	422	409	407	404	365
		470				460				484					479				462				437				416		

Source: JLA

Gateway Project EIR

PERSONNEL	ıly 2023			August 2023				Sept 2023				October 2023				November 2023				December 2023				
	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134
	26	26	26	27	27	27	27	28	28	28	28	29	29	29	29	30	30	30	30	31	31	31	31	31
Timeline (by week)	7/10/23	7/17/23	7/24/23	7/31/23	8/7/23	8/14/23	8/21/23	8/28/23	9/11/23	9/18/23	9/25/23	10/2/23	10/9/23	10/16/23	10/23/23	10/30/23	11/6/23	11/13/23	11/20/23	11/27/23	12/4/23	12/11/23	12/18/23	12/25/23
Building 1	102	78	55	24	22	22	14	5																
Building 2	237	237	237	237	232	231	231	217	202	200	195	185	172	170	167	128	102	78	55	24	22	22	14	5
Both Buildings	339	315	292	261	254	253	245	222	202	200	195	185	172	170	167	128	102	78	55	24	22	22	14	5
Average per day TOTAL	339	315	292	261	254	253	245	222	202	200	195	185	172	170	167	128	102	78	55	24	22	22	14	5
			343					2			30				174				91					17

Source: JLA

Gateway Project EIR

	mber 2021			January 2022				February 2022				March 2022					April 2022				May 2022				June 2022				July 2022					
CONSTRUCTION TRUCK	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	14	15
Timeline (by week)	12/13/21	12/20/21	12/27/21	1/3/22	1/10/22	1/17/22	1/24/22	1/31/22	2/7/22	2/14/22	2/21/22	2/28/22	3/7/22	3/14/22	3/21/22	3/28/22	4/4/22	4/11/22	4/18/22	4/25/22	5/2/22	5/9/22	5/16/22	5/23/22	5/30/22	6/6/22	6/13/22	6/20/22	6/27/22	7/4/22	7/11/22	7/18/22	7/25/22	8/1/22
TOTAL FOR BUILDING #	372	371	360	390	450	445	335	295	130	55	55	55	75	80	75	70	55	25	30	30	30	30	35	35	35	37	93	120	120	195	150	175	145	205
TOTAL FOR BUILDING #	305	305	355	205	230	305	315	345	265	240	240	245	255	315	335	350	362	371	360	390	450	445	335	290	130	55	55	55	75	80	75	70	55	25
TOTAL FOR BOTH BUILI	677	676	715	595	680	750	650	640	395	295	295	300	330	395	410	420	417	396	390	420	480	475	370	325	165	92	148	175	195	275	225	245	200	230
FOR BOTH BUILDINGS	677	676	715	595	680	750	650	640	395	295	295	300	330	395	410	420	417	396	390	420	480	475	370	325	165	92	148	175	195	275	225	245	200	230
	135	135	143	119	136	150	130	128	79	59	59	60	66	79	82	84	83	79	78	84	96	95	74	65	33	18	30	35	39	55	45	49	40	46
			135				134				81					74				81				83				29					46	

Source: JLA

Gateway Project EIR

	August 2022			September 2022					October 2022				November 2022				December 2022					January 2023				February 2023				March 2023				
CONSTRUCTION TRUCK	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
	15	15	15	16	16	16	16	16	17	17	17	17	18	18	18	18	19	19	19	19	19	20	20	20	20	21	21	21	21	22	22	22	22	22
Timeline (by week)	8/8/22	8/15/22	8/22/22	8/29/22	9/5/22	9/12/22	9/19/22	9/26/22	10/3/22	10/10/22	10/17/22	10/24/22	10/31/22	11/7/22	11/14/22	11/21/22	11/28/22	12/5/22	12/12/22	12/19/22	12/26/22	1/2/23	1/9/23	1/16/23	1/23/23	1/30/23	2/6/23	2/13/23	2/20/23	2/27/23	3/6/23	3/13/23	3/20/23	3/27/23	
TOTAL FOR BUILDING #	165	145	145	225	145	145	145	125	125	150	130	135	175	135	120	110	75	95	75	70	70	75	95	75	85	95	120	100	100	110	115	130	110	105
TOTAL FOR BUILDING #	30	30	30	30	35	35	35	37	93	120	120	195	150	175	145	205	165	145	145	225	145	145	145	125	125	150	130	135	175	135	120	110	75	95
TOTAL FOR BOTH BUILI	195	175	175	255	180	180	180	162	218	270	250	330	325	310	265	315	240	240	220	295	215	220	240	200	210	245	250	235	275	245	235	240	185	200
FOR BOTH BUILDINGS	195	175	175	255	180	180	180	162	218	270	250	330	325	310	265	315	240	240	220	295	215	220	240	200	210	245	250	235	275	245	235	240	185	200
	39	35	35	51	36	36	36	32	44	54	50	66	65	62	53	63	48	48	44	59	43	44	48	40	42	49	50	47	55	49	47	48	37	40
			39					38				53				61					48				44				50					44

Source: JLA

Gateway Project EIR

	April 2023				May 2023				June 2023				July 2023					August 2023				Sept 2023				October 2023				November 2023				
CONSTRUCTION TRUCK	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130
	23	23	23	23	24	24	24	24	25	25	25	25	26	26	26	26	26	27	27	27	27	27	28	28	28	29	29	29	29	30	30	30	30	31
Timeline (by week)	4/3/23	4/10/23	4/17/23	4/24/23	5/1/23	5/8/23	5/15/23	5/22/23	5/29/23	6/5/23	6/12/23	6/19/23	6/26/23	7/3/23	7/10/23	7/17/23	7/24/23	7/31/23	8/7/23	8/14/23	8/21/23	9/4/23	9/11/23	9/18/23	9/25/23	10/2/23	10/9/23	10/16/23	10/23/23	10/30/23	11/6/23	11/13/23	11/20/23	11/27/23
TOTAL FOR BUILDING #	105	110	130	110	105	110	135	115	110	110	120	110	100	90	80	48	55	40	30	15	15	5												
TOTAL FOR BUILDING #	75	70	70	75	95	75	85	95	120	100	100	110	115	130	110	105	105	110	130	110	105	110	135	115	110	110	120	110	100	90	80	48	55	40
TOTAL FOR BOTH BUILI	180	180	200	185	200	185	220	210	230	210	220	220	215	220	190	153	160	150	160	125	120	115	135	115	110	110	120	110	100	90	80	48	55	40
FOR BOTH BUILDINGS	180	180	200	185	200	185	220	210	230	210	220	220	215	220	190	153	160	150	160	125	120	115	135	115	110	110	120	110	100	90	80	48	55	40
	36	36	40	37	40	37	44	42	46	42	44	44	43	44	38	31	32	30	32	25	24	23	27	23	22	22	24	22	20	18	16	10	11	8
				37				41				44					38					27			24				22				14	

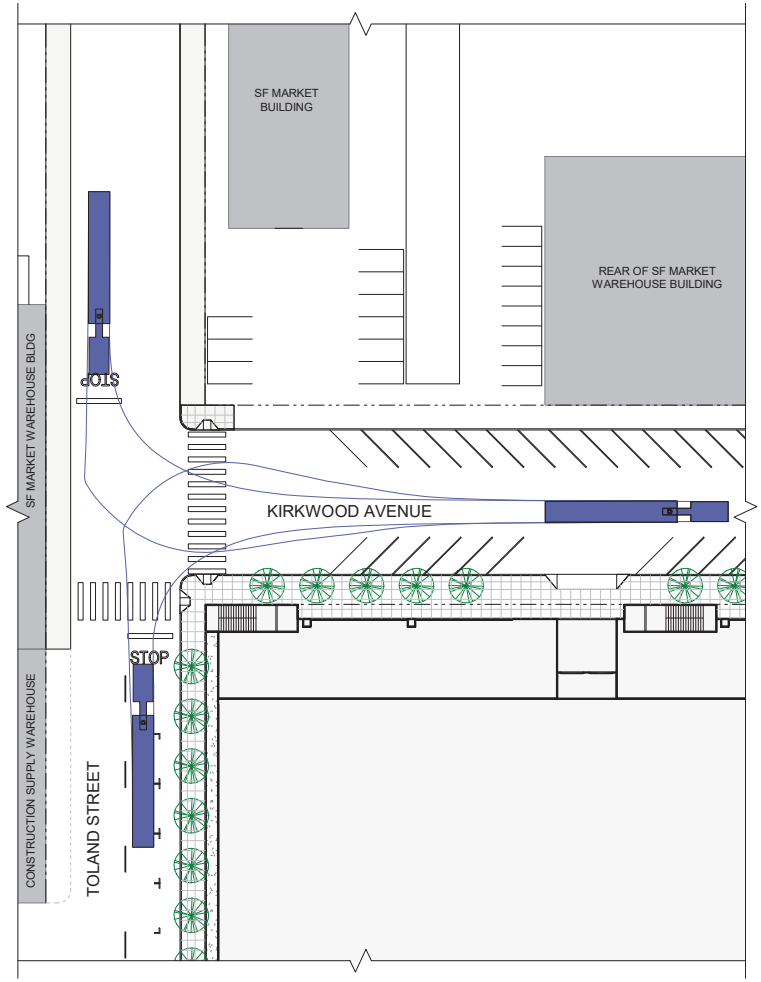
Source: JLA

Gateway Project EIR

	December 2023			
CONSTRUCTION TRUCK	131	132	133	134
	31	31	31	31
Timeline (by week)	12/4/23	12/11/23	12/18/23	12/25/23
TOTAL FOR BUILDING #				
TOTAL FOR BUILDING #	30	15	15	5
TOTAL FOR BOTH BUILD	30	15	15	5
FOR BOTH BUILDINGS	30	15	15	5
	6	3	3	1
				4

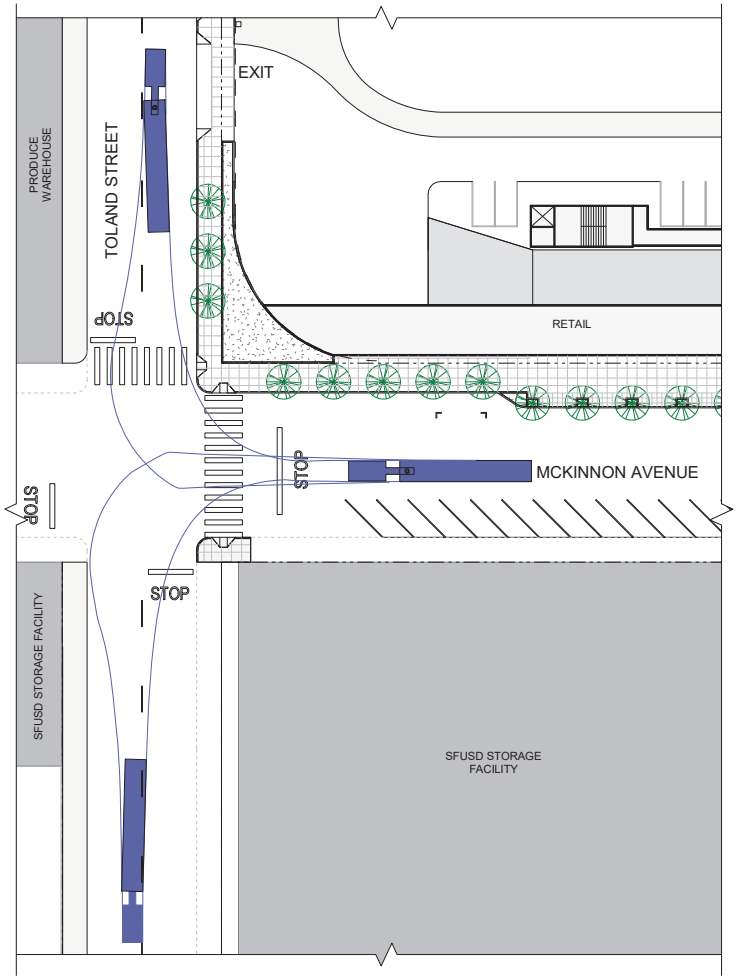
Source: JLA

Appendix D.4
TRUCK ACCESS ASSESSMENT INFORMATION



2 KIRKWOOD AND TOLAND INTERSECTION - ONE WAY

1" = 50'-0"



1 MCKINNON AND TOLAND INTERSECTION - ONE WAY

1" = 50'-0"

Jackson Liles ARCHITECTURE

INTERSECTION DETAIL - ONE WAY TRAFFIC

ROADWAY ANALYSIS

SDAT STREETSCAPE SUBMITTAL

RA-2

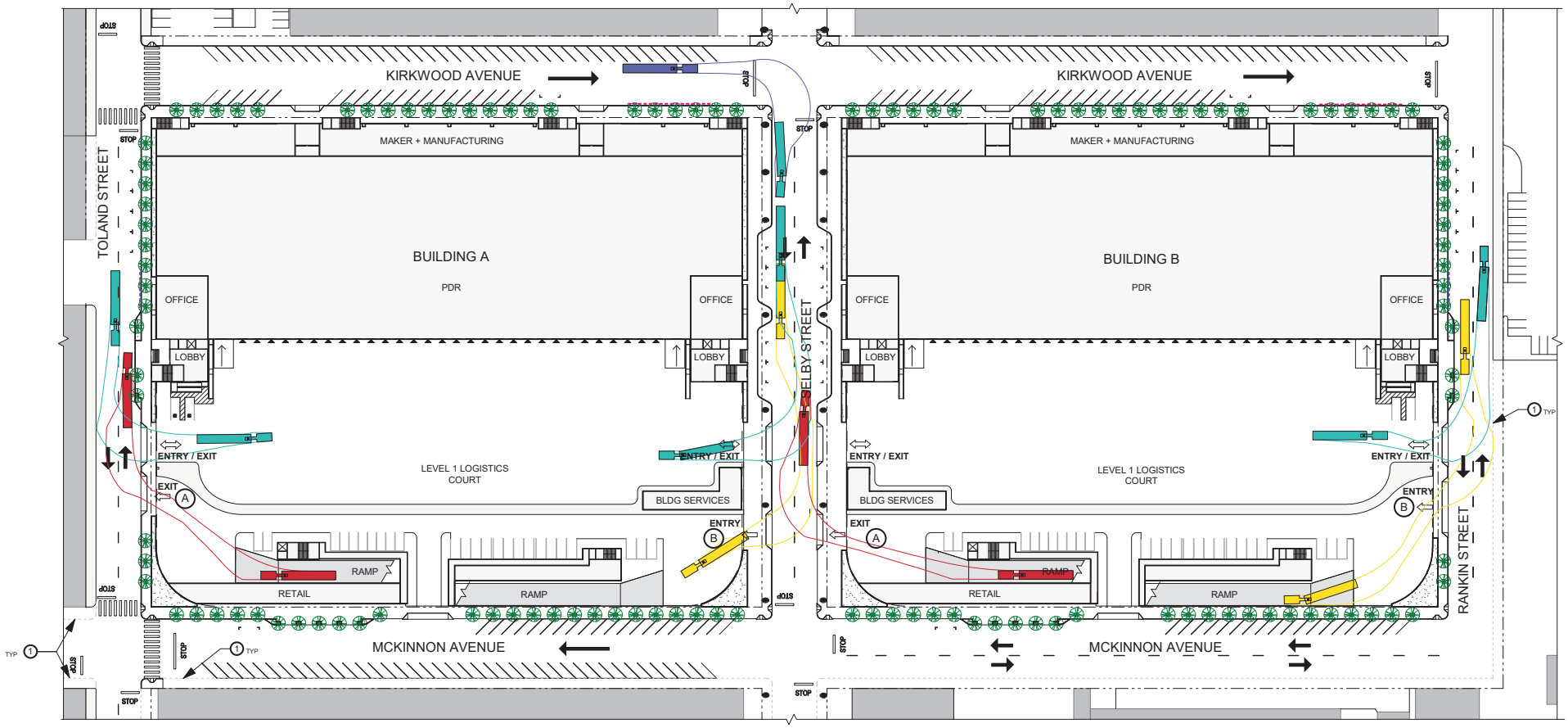
1" = 50'-0"

09/04/2019

SAN FRANCISCO GATEWAY

749 Toland St. / 2000 McKinnon Ave.

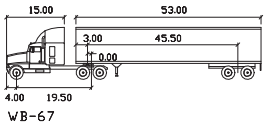
San Francisco, CA 94124



KEY

- UP RAMP ENTRY VEHICLE MOTION
- DOWN RAMP EXIT VEHICLE MOTION
- LEVEL 1 ENTRY AND EXIT VEHICLE MOTION
- OFF-SITE VEHICLE MOTION
- PASSENGER LOADING ZONE
- COMMERCIAL LOADING ZONE
- TWO-WAY TRAFFIC FLOW
- ONE-WAY TRAFFIC FLOW
- (1) LINE OF FUTURE SIDEWALK NOT IN PROJECT SCOPE

DESIGN VEHICLE: 74' TRUCK



WB-67

VEHICLE MOTION GUIDE

ALL VEHICLE MOTION UNRESTRICTED UNLESS NOTED

(A) ARTICULATED TRUCK EXIT RIGHT TURN ONLY (ALL OTHER VEHICLES UNRESTRICTED)

(B) ARTICULATED TRUCK ENTRY RIGHT TURN ONLY (ALL OTHER VEHICLES UNRESTRICTED)

Jackson Liles ARCHITECTURE

SITE PLAN - TRUCK TURNING - WB-67

APPENDIX

SDAT STREETSCAPE SUBMITTAL

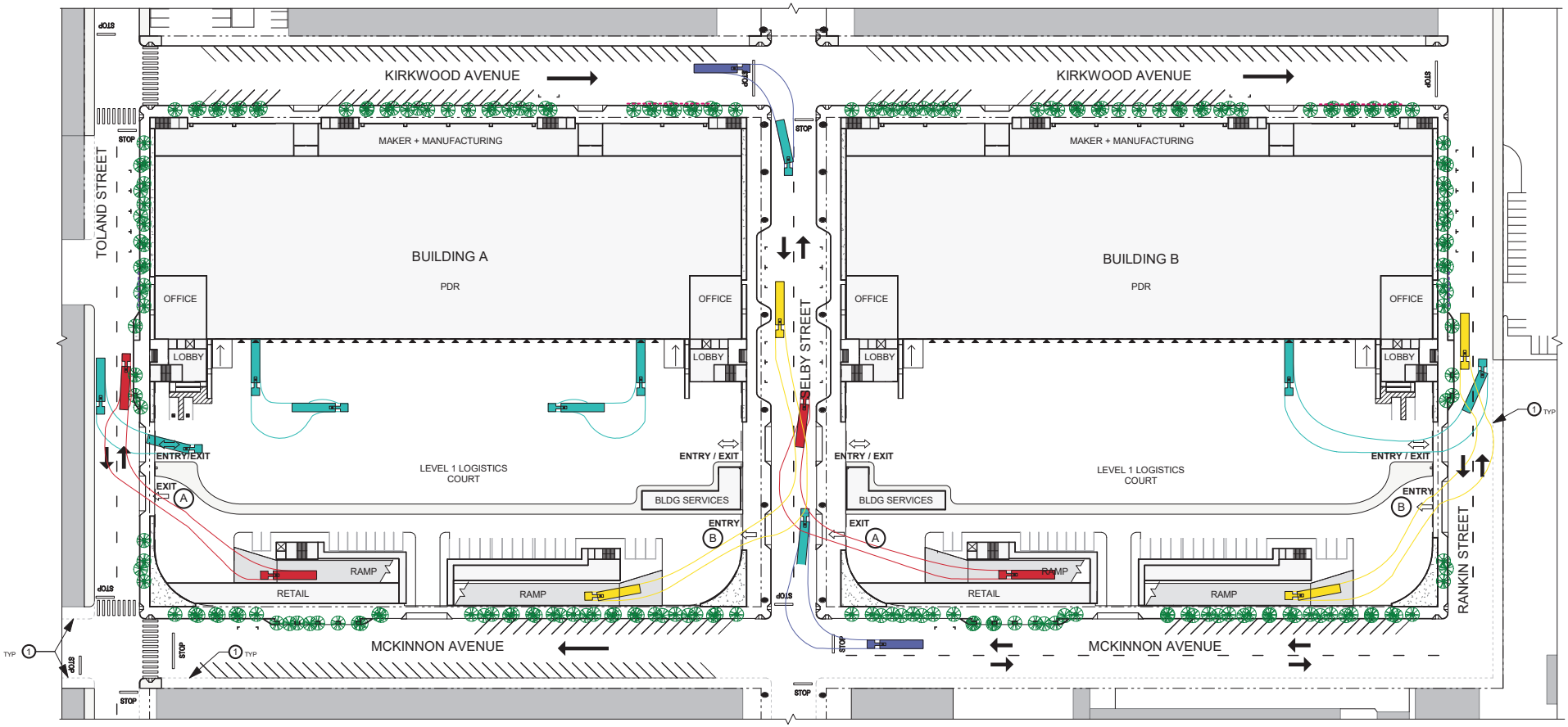
RN

AP-1

1" = 100'-0"
09/04/2019

SAN FRANCISCO GATEWAY

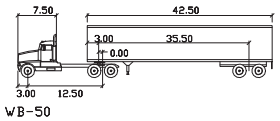
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124



KEY

- UP RAMP ENTRY VEHICLE MOTION
- DOWN RAMP EXIT VEHICLE MOTION
- LEVEL 1 ENTRY AND EXIT VEHICLE MOTION
- OFF-SITE VEHICLE MOTION
- PASSENGER LOADING ZONE
- COMMERCIAL LOADING ZONE
- TWO-WAY TRAFFIC FLOW
- ONE-WAY TRAFFIC FLOW
- (1) LINE OF FUTURE SIDEWALK NOT IN PROJECT SCOPE

DESIGN VEHICLE: 55' TRUCK



VEHICLE MOTION GUIDE

ALL VEHICLE MOTION UNRESTRICTED UNLESS NOTED

(A) ARTICULATED TRUCK EXIT RIGHT TURN ONLY (ALL OTHER VEHICLES UNRESTRICTED)

(B) ARTICULATED TRUCK ENTRY RIGHT TURN ONLY (ALL OTHER VEHICLES UNRESTRICTED)

Jackson Liles ARCHITECTURE

SITE PLAN - TRUCK TURNING - WB-50

APPENDIX

SDAT STREETSCAPE SUBMITTAL

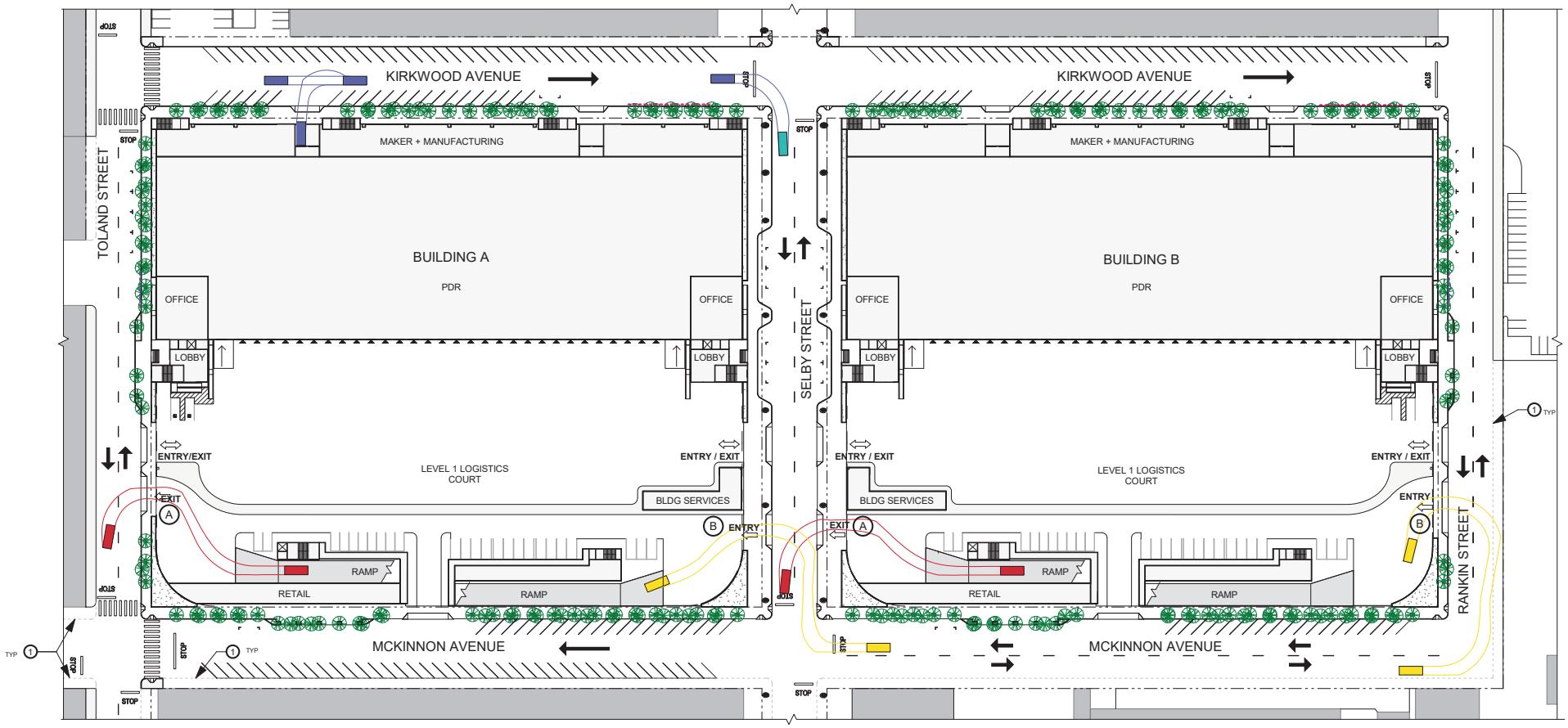
RN

AP-2

1" = 100'-0"
09/04/2019

SAN FRANCISCO GATEWAY

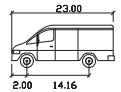
749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124



KEY

- UP RAMP ENTRY VEHICLE MOTION
- DOWN RAMP EXIT VEHICLE MOTION
- LEVEL 1 ENTRY AND EXIT VEHICLE MOTION
- OFF-SITE VEHICLE MOTION
- PASSENGER LOADING ZONE
- COMMERCIAL LOADING ZONE
- TWO-WAY TRAFFIC FLOW
- ONE-WAY TRAFFIC FLOW
- (1) LINE OF FUTURE SIDEWALK NOT IN PROJECT SCOPE

DESIGN VEHICLE: 23' VAN



SPRINTER

VEHICLE MOTION GUIDE

ALL VEHICLE MOTION UNRESTRICTED UNLESS NOTED

(A) ARTICULATED TRUCK EXIT RIGHT TURN ONLY (ALL OTHER VEHICLES UNRESTRICTED)

(B) ARTICULATED TRUCK ENTRY RIGHT TURN ONLY (ALL OTHER VEHICLES UNRESTRICTED)

Jackson Liles ARCHITECTURE

SITE PLAN - TRUCK TURNING - SPRINTER VAN

APPENDIX

SDAT STREETSCAPE SUBMITTAL

RN

AP-3

1" = 100'-0"
09/04/2019

SAN FRANCISCO GATEWAY

749 Toland St. / 2000 McKinnon Ave.
San Francisco, CA 94124

Appendix D.5
TRANSIT ASSESSMENT INFORMATION

San Francisco Gateway Project EIR
Public Transit Stops in Project Vicinity

		Closest Stop Location			
Route/Line	**Direction of Travel**	**1**	**2**	**3**	**4**
9 San Bruno	Inbound to Downtown	Manago	Cortland	Flower	
	Outbound to Vis Valley	Oakdale	288 Bayshore	Cortland	Alemany
9R SB Rapid	Inbound to Downtown	Cortland	Flower		
	Outbound to Vis Valley	Oakdale	Cortland		
19 Polk	Inbound to Fisherman's Wharf	Napoleon	Cesar Chavez		
	Outbound to Hunters Point	Cesar Chavez	Napoleon		
23 Monterey	Inbound to Bayview	Barneveld	Toland		
	Outbound to SF Zoo	Toland	Loomis		
24 Divis	Inbound to Pac Heights	Revere	Bayshore		
	Outbound to Bayview	Bayshore	Elmira	Palou	
T Third	Inbound to Sunnydale	Kirkwood/LaSalle	Oakdale/Palou	Revere/Shafter	
(Kirkwood-Thomas)	Outbound to Balboa Park	Revere/Shafter	Oakdale/Palou	Kirkwood/LaSalle	
Sam Trans 292	Inbound - Northbound	Industrial	Cortland	Flower	
	Outbound - Southbound	Oakdale			

8/8AX/8BX on the freeway
15 Express

Source: SFMTA https://www.sfmta.com/getting-around/muni/routes-stops
SamTrans https://www.samtrans.com/maps

San Francisco Gateway Project EIR
Headways (in minutes) for Public Transit Routes

			AM	PM
Muni	8 San Bruno		10	10
	9R SB Rapid		12	12
	15 Express		10	10
	19 Polk		15	15
	23 Monterey		20	20
	24 Divis		10	10
	44 O'Shaugh		12	12
8/8AX/8BX on the freeway			5	5
SamTrans		292	30	30

Source: SFMTA https://www.sfmta.com/getting-around/muni/routes-stops
SamTrans https://www.samtrans.com/maps

San Francisco Gateway Project EIR
Project Vehicle Trips by Roadway Segment

Roadway	Roadway Segment Between		Public Transit Routes					AM Peak Hour NB/EB	AM Peak Hour SB/WB	AM Peak Hour Total	PM Peak Hour NB/EB	PM Peak Hour SB/WB	PM Peak Hour Total
Cesar Chavez	Evans	Connecticut	19					16	49	65	49	26	75
Evans	Cesar Chavez	Toland	19					21	134	155	60	92	152
Oakdale	Bayshore	Selby	23					28	4	32	51	8	59
Bayshore	Jerrold	N. 101 ramps	9	9R				55	72	127	143	46	189
Bayshore	101 ramps	Jerrold (U-turn)	9	9R	292			72	72	144	46	46	92
Bayshore	Oakdale	Industrial	9	9R	23	292	24	13	6	19	9	16	25
Bayshore	Industrial	Selby	9	9R				0	0	0	0	0	0
Industrial	Bayshore	Oakdale	23	24				53	23	76	37	63	100
Third	Oakdale	Jerrold	T					30	20	50	26	30	56

Source: Adavant Consulting/LCW Consulting

San Francisco Gateway Project EIR
Transit Assessment by Route

Bus Route/Light Rail Line			Distance		AM Peak Hour			PM Peak Hour		
			feet	miles	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total
19 Polk										
Evans	Cesar Chavez	Toland	975	0.18	21	134	155	60	92	152
Cesar Chavez	Evans	Connecticut	285	0.05	16	49	65	49	26	75
23 Monterey										
Bayshore	Industrial	Oakdale	1,915	0.36	13	6	19	9	16	25
Oakdale	Bayshore	Selby/Industria	1,940	0.37	28	4	32	51	8	59
Industrial	Oakdale	Palou	330	0.06	53	23	76	37	63	100
24 Divisadero										
Bayshore	Cortland	Industrial	600	0.11	72	72	144	46	46	92
Industrial	Bayshore	Oakdale	2,195	0.42	53	23	76	37	63	100
9/9R San Bruno										
Bayshore	CC/101 ramps	Jerrold			57	72	129	143	46	189
Bayshore	Jerrold	Oakdale			72	72	144	46	46	92
Bayshore	Oakdale	Industrial			13	6	19	9	16	25
Bayshore	Industrial	Selby			0	0	0	0	0	0
T Third										
South of Jerrold Avenue					30	20	50	26	30	56

Source: Adavant Consulting/LCW Consulting

Appendix D.6
VMT ASSESSMENT INFORMATION

749 Toland Street and 200 McKinnon Avenue
San Francisco Gateway Project
Average Daily VMT per capita for TAZs 485 and 488

TAZ 485

Existing (2020)	**TAZ**	**Regional**	**Delta**	**% Below**
residential	9.29	18.59	9.30	50.0%
Office	21.10	25.73	4.63	18.0%
Retail	9.62	14.92	5.30	35.5%

2050	**TAZ**	**Regional**	**Delta**	**% Below**
residential	8.71	17.17	8.46	49.3%
Office	18.28	23.86	5.58	23.4%
Retail	12.16	15.87	3.71	23.38%

TAZ 488

Existing (2020)	**TAZ**	**Regional**	**Delta**	**% Below**
Residential	9.05	18.59	9.54	51.3%
Office	21.71	25.73	4.02	15.6%
Retail	10.14	14.92	4.78	32.0%

2050	**TAZ**	**Regional**	**Delta**	**% Below**
Residential	8.34	17.17	8.83	51.4%
Office	19.54	23.86	4.32	18.1%
Retail	11.83	15.87	4.04	25.46%

Source: SF-CHAMP model runs used by SF Planning for estimating Average Daily VMT per capita for years 2020 and 2050, as presented in the San Francisco Housing Element 2022 Update EIR (Case No. 2019-016230ENV); the SF-CHAMP model output data was provided to the consultants by SFCTA in April 2021.

749 Toland Street and 200 McKinnon Avenue
San Francisco Gateway Project
Average Daily VMT per capita

2020

Existing	Project	Regional	Delta	% Below
PDR	18.8	25.7	6.9	26.8%
Retail	9.9	14.9	5	33.6%

2050

Cumulative	Project	Regional	Delta	% Below
PDR	18.8	23.9	5.1	21.3%
Retail	12.0	15.9	3.9	24.5%

Source:s SF-CHAMP (April 2021), Adavant Consulting/LCW Consulting (see Appendix C.2)

Project value for retail use represents weighted average for combination of TAZs 485 and 488.
Represents average daily VMT per employee

Appendix D.7
ALTERNATIVES
TRAVEL DEMAND

D.7.1: Alternative A-No Project Alternative

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	0	2,970	1,214	0	0	0	0	0	4,184	90%
Transit	0	322	130	0	0	0	0	0	452	10%
Walk/Other	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**3,292**	**1,344**	**0**	**0**	**0**	**0**	**0**	**4,636**	**100%**
Vehicle Trips	0	2,804	752	0	0	0	0	0	3,556	
Avg. veh occup.	*0.00*	*1.06*	*1.61*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.18*	

	Daily Person Work Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	0	1,480	484	0	0	0	0	0	1,964	90%
Transit	0	166	54	0	0	0	0	0	220	10%
Walk/Other	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1,646**	**538**	**0**	**0**	**0**	**0**	**0**	**2,184**	**100%**
Vehicle Trips	0	1,314	428	0	0	0	0	0	1,742	
Avg. veh occup.	*0.00*	*1.13*	*1.13*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.13*	

	Daily Person Visitor Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	0	1,492	728	0	0	0	0	0	2,220	91%
Transit	0	154	78	0	0	0	0	0	232	9%
Walk/Other	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1,646**	**806**	**0**	**0**	**0**	**0**	**0**	**2,452**	**100%**
Vehicle Trips	0	1,490	324	0	0	0	0	0	1,814	
Avg. veh occup.	*0.00*	*1.00*	*2.25*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.22*	

	AM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	0	208	85	0	0	0	0	0	293	90%	7.0%
Transit	0	22	9	0	0	0	0	0	31	10%	6.9%
Walk/Other	0	0	0	0	0	0	0	0	0	0%	#DIV/0!
Total	**0**	**230**	**94**	**0**	**0**	**0**	**0**	**0**	**324**	**100%**	**7.0%**
Vehicle Trips	0	198	63	0	0	0	0	0	261		7.3%
Avg. veh occup.	*0.00*	*1.05*	*1.35*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.12*		

	PM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	0	298	42	0	0	0	0	0	340	90%	8.1%
Transit	0	32	5	0	0	0	0	0	37	10%	8.2%
Walk/Other	0	0	0	0	0	0	0	0	0	0%	#DIV/0!
Total	**0**	**330**	**47**	**0**	**0**	**0**	**0**	**0**	**377**	**100%**	**8.1%**
Vehicle Trips	0	289	28	0	0	0	0	0	317		8.9%
Avg. veh occup.	*0.00*	*1.03*	*1.50*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.07*		

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

Daily Person Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	350	150	0	0	0	0	0	500	10.8%
Superdistrict 2	0	404	170	0	0	0	0	0	574	12.4%
Superdistrict 3	0	1,120	482	0	0	0	0	0	1,602	34.6%
Superdistrict 4	0	242	100	0	0	0	0	0	342	7.4%
East Bay	0	386	148	0	0	0	0	0	534	11.5%
North Bay	0	110	38	0	0	0	0	0	148	3.2%
South Bay	0	590	218	0	0	0	0	0	808	17.4%
Out of Region	0	90	38	0	0	0	0	0	128	2.8%
Total	**0**	**3,292**	**1,344**	**0**	**0**	**0**	**0**	**0**	**4,636**	**100.0%**

Daily Auto Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	308	132	0	0	0	0	0	440	10.5%
Superdistrict 2	0	364	154	0	0	0	0	0	518	12.4%
Superdistrict 3	0	1,000	432	0	0	0	0	0	1,432	34.2%
Superdistrict 4	0	222	90	0	0	0	0	0	312	7.5%
East Bay	0	326	128	0	0	0	0	0	454	10.9%
North Bay	0	104	36	0	0	0	0	0	140	3.3%
South Bay	0	568	210	0	0	0	0	0	778	18.6%
Out of Region	0	78	32	0	0	0	0	0	110	2.6%
Total	**0**	**2,970**	**1,214**	**0**	**0**	**0**	**0**	**0**	**4,184**	**100.0%**

Daily Transit Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	44	16	0	0	0	0	0	60	13.3%
Superdistrict 2	0	40	16	0	0	0	0	0	56	12.4%
Superdistrict 3	0	118	52	0	0	0	0	0	170	37.6%
Superdistrict 4	0	22	8	0	0	0	0	0	30	6.6%
East Bay	0	58	22	0	0	0	0	0	80	17.7%
North Bay	0	6	2	0	0	0	0	0	8	1.8%
South Bay	0	22	8	0	0	0	0	0	30	6.6%
Out of Region	0	12	6	0	0	0	0	0	18	4.0%
Total	**0**	**322**	**130**	**0**	**0**	**0**	**0**	**0**	**452**	**100.0%**

Daily Vehicle Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	294	80	0	0	0	0	0	374	10.5%
Superdistrict 2	0	348	96	0	0	0	0	0	444	12.5%
Superdistrict 3	0	960	234	0	0	0	0	0	1,194	33.6%
Superdistrict 4	0	208	54	0	0	0	0	0	262	7.4%
East Bay	0	304	82	0	0	0	0	0	386	10.9%
North Bay	0	94	30	0	0	0	0	0	124	3.5%
South Bay	0	522	154	0	0	0	0	0	676	19.0%
Out of Region	0	74	22	0	0	0	0	0	96	2.7%
Total	**0**	**2,804**	**752**	**0**	**0**	**0**	**0**	**0**	**3,556**	**100.0%**

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

	AM Peak Hour Person-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	0	25	9	0	0	0	0	0	34	10.5%
Superdistrict 2	0	29	10	0	0	0	0	0	39	12.0%
Superdistrict 3	0	81	29	0	0	0	0	0	110	34.0%
Superdistrict 4	0	17	7	0	0	0	0	0	24	7.4%
East Bay	0	26	12	0	0	0	0	0	38	11.7%
North Bay	0	7	4	0	0	0	0	0	11	3.4%
South Bay	0	39	20	0	0	0	0	0	59	18.2%
Out of Region	0	6	3	0	0	0	0	0	9	2.8%
Total	**0**	**230**	**94**	**0**	**0**	**0**	**0**	**0**	**324**	**100.0%**

	AM Peak Hour Auto-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	0	22	8	0	0	0	0	0	30	10.2%
Superdistrict 2	0	26	10	0	0	0	0	0	36	12.3%
Superdistrict 3	0	72	26	0	0	0	0	0	98	33.4%
Superdistrict 4	0	15	6	0	0	0	0	0	21	7.2%
East Bay	0	22	10	0	0	0	0	0	32	10.9%
North Bay	0	7	4	0	0	0	0	0	11	3.8%
South Bay	0	38	19	0	0	0	0	0	57	19.5%
Out of Region	0	6	2	0	0	0	0	0	8	2.7%
Total	**0**	**208**	**85**	**0**	**0**	**0**	**0**	**0**	**293**	**100.0%**

	AM Peak Hour Transit-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	0	3	1	0	0	0	0	0	4	12.9%
Superdistrict 2	0	2	1	0	0	0	0	0	3	9.7%
Superdistrict 3	0	9	3	0	0	0	0	0	12	38.7%
Superdistrict 4	0	2	1	0	0	0	0	0	3	9.7%
East Bay	0	4	2	0	0	0	0	0	6	19.4%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	1	1	0	0	0	0	0	2	6.5%
Out of Region	0	1	0	0	0	0	0	0	1	3.2%
Total	**0**	**22**	**9**	**0**	**0**	**0**	**0**	**0**	**31**	**100.0%**

	AM Peak Hour Vehicle-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	0	21	6	0	0	0	0	0	27	10.3%
Superdistrict 2	0	25	7	0	0	0	0	0	32	12.3%
Superdistrict 3	0	70	17	0	0	0	0	0	87	33.3%
Superdistrict 4	0	15	5	0	0	0	0	0	20	7.7%
East Bay	0	21	8	0	0	0	0	0	29	11.1%
North Bay	0	6	3	0	0	0	0	0	9	3.4%
South Bay	0	35	15	0	0	0	0	0	50	19.2%
Out of Region	0	5	2	0	0	0	0	0	7	2.7%
Total	**0**	**198**	**63**	**0**	**0**	**0**	**0**	**0**	**261**	**100.0%**

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

PM Peak Hour Person-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	39	5	0	0	0	0	0	44	11.7%
Superdistrict 2	0	45	6	0	0	0	0	0	51	13.5%
Superdistrict 3	0	129	16	0	0	0	0	0	145	38.5%
Superdistrict 4	0	23	4	0	0	0	0	0	27	7.2%
East Bay	0	35	5	0	0	0	0	0	40	10.6%
North Bay	0	6	2	0	0	0	0	0	8	2.1%
South Bay	0	44	8	0	0	0	0	0	52	13.8%
Out of Region	0	9	1	0	0	0	0	0	10	2.7%
Total	**0**	**330**	**47**	**0**	**0**	**0**	**0**	**0**	**377**	**100.0%**

PM Peak Hour Auto-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	34	5	0	0	0	0	0	39	11.5%
Superdistrict 2	0	40	5	0	0	0	0	0	45	13.2%
Superdistrict 3	0	115	14	0	0	0	0	0	129	37.9%
Superdistrict 4	0	22	3	0	0	0	0	0	25	7.4%
East Bay	0	29	5	0	0	0	0	0	34	10.0%
North Bay	0	7	1	0	0	0	0	0	8	2.4%
South Bay	0	43	8	0	0	0	0	0	51	15.0%
Out of Region	0	8	1	0	0	0	0	0	9	2.6%
Total	**0**	**298**	**42**	**0**	**0**	**0**	**0**	**0**	**340**	**100.0%**

PM Peak Hour Transit-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	4	1	0	0	0	0	0	5	13.5%
Superdistrict 2	0	5	1	0	0	0	0	0	6	16.2%
Superdistrict 3	0	14	2	0	0	0	0	0	16	43.2%
Superdistrict 4	0	2	0	0	0	0	0	0	2	5.4%
East Bay	0	5	1	0	0	0	0	0	6	16.2%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	1	0	0	0	0	0	0	1	2.7%
Out of Region	0	1	0	0	0	0	0	0	1	2.7%
Total	**0**	**32**	**5**	**0**	**0**	**0**	**0**	**0**	**37**	**100.0%**

PM Peak Hour Vehicle-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	0	34	3	0	0	0	0	0	37	11.7%
Superdistrict 2	0	39	3	0	0	0	0	0	42	13.2%
Superdistrict 3	0	112	9	0	0	0	0	0	121	38.2%
Superdistrict 4	0	21	2	0	0	0	0	0	23	7.3%
East Bay	0	28	3	0	0	0	0	0	31	9.8%
North Bay	0	6	1	0	0	0	0	0	7	2.2%
South Bay	0	41	6	0	0	0	0	0	47	14.8%
Out of Region	0	8	1	0	0	0	0	0	9	2.8%
Total	**0**	**289**	**28**	**0**	**0**	**0**	**0**	**0**	**317**	**100.0%**

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

	Daily			AM Peak Hour			PM Peak Hour		
Auto Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	220	220	440	21	9	30	19	20	39
Superdistrict 2	259	259	518	26	10	36	21	24	45
Superdistrict 3	716	716	1,432	67	31	98	64	65	129
Superdistrict 4	156	156	312	16	5	21	10	15	25
East Bay	227	227	454	26	6	32	12	22	34
North Bay	70	70	140	10	1	11	2	6	8
South Bay	389	389	778	50	7	57	14	37	51
Out of Region	55	55	110	6	2	8	4	5	9
Total	**2,092**	**2,092**	**4,184**	**222**	**71**	**293**	**146**	**194**	**340**

	Daily			AM Peak Hour			PM Peak Hour		
Transit Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	30	30	60	3	1	4	2	3	5
Superdistrict 2	28	28	56	2	1	3	2	4	6
Superdistrict 3	85	85	170	8	4	12	8	8	16
Superdistrict 4	15	15	30	3	0	3	1	1	2
East Bay	40	40	80	5	1	6	2	4	6
North Bay	4	4	8	0	0	0	0	0	0
South Bay	15	15	30	2	0	2	0	1	1
Out of Region	9	9	18	1	0	1	1	0	1
Total	**226**	**226**	**452**	**24**	**7**	**31**	**16**	**21**	**37**

	Daily			AM Peak Hour			PM Peak Hour		
Walk/Other Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	0	0	0	0	0	0	0	0	0
Superdistrict 2	0	0	0	0	0	0	0	0	0
Superdistrict 3	0	0	0	0	0	0	0	0	0
Superdistrict 4	0	0	0	0	0	0	0	0	0
East Bay	0	0	0	0	0	0	0	0	0
North Bay	0	0	0	0	0	0	0	0	0
South Bay	0	0	0	0	0	0	0	0	0
Out of Region	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Daily			AM Peak Hour			PM Peak Hour		
Total Person Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	250	250	500	24	10	34	21	23	44
Superdistrict 2	287	287	574	28	11	39	23	28	51
Superdistrict 3	801	801	1,602	75	35	110	72	73	145
Superdistrict 4	171	171	342	19	5	24	11	16	27
East Bay	267	267	534	31	7	38	14	26	40
North Bay	74	74	148	10	1	11	2	6	8
South Bay	404	404	808	52	7	59	14	38	52
Out of Region	64	64	128	7	2	9	5	5	10
Total	**2,318**	**2,318**	**4,636**	**246**	**78**	**324**	**162**	**215**	**377**

	Daily			AM Peak Hour			PM Peak Hour		
Vehicle Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	187	187	374	19	8	27	18	19	37
Superdistrict 2	222	222	444	23	9	32	20	22	42
Superdistrict 3	597	597	1,194	60	27	87	60	61	121
Superdistrict 4	131	131	262	16	4	20	10	13	23
East Bay	193	193	386	24	5	29	12	19	31
North Bay	62	62	124	8	1	9	2	5	7
South Bay	338	338	676	44	6	50	14	33	47
Out of Region	48	48	96	5	2	7	4	5	9
Total	**1,778**	**1,778**	**3,556**	**199**	**62**	**261**	**140**	**177**	**317**

San Francisco Gateway - Alt A: No Project [November 2022]

LAND USE: PARCEL DELIVERY (WORK TRIPS)

Proposed Size:		224,000 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		3,293	person-trips	Total Person-trips:		230		329
Work Trips [1]:	50%	1,646	person-trips	Work Person-trips:	45% [1]	104	25% [1]	82

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	114	101	7	6	6	5
	Transit	16.4%		22		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		137	101	9	6	7	5
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	151	135	10	8	8	7
	Transit	13.2%		23		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		175	135	11	8	9	7
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	353	313	22	20	18	16
	Transit	10.3%		41		3		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		393	313	25	20	20	16
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	116	103	7	6	6	5
	Transit	10.8%		14		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		130	103	8	6	7	5
East Bay 14.3%	Auto	85.1%	1.13	200	178	13	11	10	9
	Transit	14.9%		35		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		235	178	15	11	12	9
North Bay 5.6%	Auto	94.7%	1.13	87	78	6	5	4	4
	Transit	5.3%		5		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		92	78	6	5	5	4
South Bay 26.9%	Auto	95.6%	1.13	423	376	27	24	21	19
	Transit	4.4%		19		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		443	376	28	24	22	19
Out of Region 2.5%	Auto	82.3%	1.13	34	30	2	2	2	2
	Transit	17.7%		7		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		41	30	3	2	2	2
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**1,480**	**1,314**	**93**	**83**	**74**	**66**
	Transit	**10.1%**		**167**		**11**		**8**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,646**	**1,314**	**104**	**83**	**82**	**66**

Notes:

[1] Surveys of OnTrac and Amazon

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of

[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt A: No Project [November 2022]

LAND USE: PARCEL DELIVERY (NON-WORK TRIPS)

Proposed Size:		224,000 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		3,293	person-trips	Total Person-trips:		230		329
Non-Work Trips [1]:	50%	1,646	person-trips	Non-Work Person-trips:	55% [1]	127	75% [1]	247

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.00	193	193	15	15	29	29
	Transit	9.6%		21		2		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		214	193	16	15	32	29
SF Superdistrict 2 14.0%	Auto	92.7%	1.00	214	214	16	16	32	32
	Transit	7.3%		17		1		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		230	214	18	16	35	32
SF Superdistrict 3 44.0%	Auto	89.2%	1.00	646	646	50	50	97	97
	Transit	10.8%		78		6		12	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		724	646	56	50	109	97
SF Superdistrict 4 7.0%	Auto	91.8%	1.00	106	106	8	8	16	16
	Transit	8.2%		9		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		115	106	9	8	17	16
East Bay 9.0%	Auto	85.1%	1.00	126	126	10	10	19	19
	Transit	14.9%		22		2		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		148	126	11	10	22	19
North Bay 1.0%	Auto	100.0%	1.00	16	16	1	1	2	2
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		16	16	1	1	2	2
South Bay 9.0%	Auto	98.2%	1.00	146	146	11	11	22	22
	Transit	1.8%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		148	146	11	11	22	22
Out of Region 3.0%	Auto	89.5%	1.00	44	44	3	3	7	7
	Transit	10.6%		5		0		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		49	44	4	3	7	7
All Origins 100.0%	**Auto**	**90.6%**	**1.00**	**1,491**	**1,491**	**115**	**115**	**224**	**224**
	Transit	**9.4%**		**155**		**12**		**23**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,646**	**1,491**	**127**	**115**	**247**	**224**

Notes:

[1] Surveys of OnTrac and Amazon

[3] Assumes one person per vehicle (van, truck, etc.).

[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as

[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt A: No Project [November 2022]

LAND USE: WHOLESALE/STORAGE (WORK TRIPS)

Proposed Size:		**112,000 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		12.0	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	0.8	3.5% [1]	0.4
Total Person Trips:		1,344	person-trips	Total Person-trips:		94		47
Work Trips [2]:	40%	538	person-trips	Work Person-trips:	67% [5]	63	50% [2]	24

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	37	33	4	4	2	1
	Transit	16.4%		7		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		45	33	5	4	2	1
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	49	44	6	5	2	2
	Transit	13.2%		8		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		57	44	7	5	2	2
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	115	102	14	12	5	4
	Transit	10.3%		13		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		128	102	15	12	6	4
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	38	34	4	4	2	1
	Transit	10.8%		5		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		42	34	5	4	2	1
East Bay 14.3%	Auto	85.1%	1.13	65	58	8	7	3	3
	Transit	14.9%		11		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		77	58	9	7	3	3
North Bay 5.6%	Auto	94.7%	1.13	29	25	3	3	1	1
	Transit	5.3%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		30	25	4	3	1	1
South Bay 26.9%	Auto	95.6%	1.13	138	123	16	14	6	5
	Transit	4.4%		6		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		145	123	17	14	6	5
Out of Region 2.5%	Auto	82.3%	1.13	11	10	1	1	0	0
	Transit	17.7%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		13	10	2	1	1	0
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**483**	**429**	**57**	**50**	**21**	**19**
	Transit	**10.1%**		**54**		**6**		**2**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**538**	**429**	**63**	**50**	**24**	**19**

Notes:
[1] SF Wholesale Produce Market Expansion TIS (2011)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% o
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt A: No Project [November 2022]

LAND USE: WHOLESALE/STORAGE (NON-WORK TRIPS)

Proposed Size:		**112,000 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		12.0	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	0.8	3.5% [1]	0.4
Total Person Trips:		1,344	person-trips	Total Person-trips:		94		47
Non-Work Trips [2]:	60%	806	person-trips	Non-Work Person-trips:	33% [5]	31	50% [2]	24

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	2.03	95	47	4	2	3	1
	Transit	9.6%		10		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		105	47	4	2	3	1
SF Superdistrict 2 14.0%	Auto	92.7%	1.97	105	53	4	2	3	2
	Transit	7.3%		8		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		113	53	4	2	3	2
SF Superdistrict 3 44.0%	Auto	89.2%	2.43	316	130	12	5	9	4
	Transit	10.8%		38		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		355	130	14	5	10	4
SF Superdistrict 4 7.0%	Auto	91.8%	2.51	52	21	2	1	2	1
	Transit	8.2%		5		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		56	21	2	1	2	1
East Bay 9.0%	Auto	85.1%	2.59	62	24	2	1	2	1
	Transit	14.9%		11		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		73	24	3	1	2	1
North Bay 1.0%	Auto	100.0%	2.11	8	4	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		8	4	0	0	0	0
South Bay 9.0%	Auto	98.2%	2.28	71	31	3	1	2	1
	Transit	1.8%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		73	31	3	1	2	1
Out of Region 3.0%	Auto	89.5%	1.68	22	13	1	0	1	0
	Transit	10.6%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		24	13	1	0	1	0
All Origins 100.0%	**Auto**	**90.6%**	**2.26**	**730**	**323**	**28**	**12**	**21**	**9**
	Transit	**9.4%**		**76**		**3**		**2**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**806**	**323**	**31**	**12**	**24**	**9**

Notes:
[1] SF Wholesale Produce Market Expansion TIS (2011)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] SF Wholesale Produce Market Expansion - SF Guidelines, Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

D.7.2: Alternative B-Code Compliant Alternative

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	158	3,390	1,590	0	168	388	0	0	5,694	86%
Transit	16	366	172	0	24	68	0	0	646	10%
Walk/Other	0	0	0	0	76	178	0	0	254	4%
Total	**174**	**3,756**	**1,762**	**0**	**268**	**634**	**0**	**0**	**6,594**	**100%**
Vehicle Trips	140	3,200	986	0	94	222	0	0	4,642	
Avg. veh occup.	*1.13*	*1.06*	*1.61*	*0.00*	*1.79*	*1.75*	*0.00*	*0.00*	*1.23*	

	Daily Person Work Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	62	1,688	634	0	28	110	0	0	2,522	87%
Transit	8	190	70	0	10	40	0	0	318	11%
Walk/Other	0	0	0	0	14	50	0	0	64	2%
Total	**70**	**1,878**	**704**	**0**	**52**	**200**	**0**	**0**	**2,904**	**100%**
Vehicle Trips	56	1,498	562	0	16	64	0	0	2,196	
Avg. veh occup.	*1.11*	*1.13*	*1.13*	*0.00*	*1.75*	*1.72*	*0.00*	*0.00*	*1.15*	

	Daily Person Visitor Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	94	1,702	958	0	140	278	0	0	3,172	86%
Transit	10	176	100	0	14	28	0	0	328	9%
Walk/Other	0	0	0	0	62	128	0	0	190	5%
Total	**104**	**1,878**	**1,058**	**0**	**216**	**434**	**0**	**0**	**3,690**	**100%**
Vehicle Trips	84	1,702	424	0	78	158	0	0	2,446	
Avg. veh occup.	*1.12*	*1.00*	*2.26*	*0.00*	*1.79*	*1.76*	*0.00*	*0.00*	*1.30*	

	AM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	18	237	111	0	4	53	0	0	423	85%	7.4%
Transit	2	26	12	0	1	9	0	0	50	10%	7.7%
Walk/Other	0	0	0	0	2	24	0	0	26	5%	10.2%
Total	**20**	**263**	**123**	**0**	**7**	**86**	**0**	**0**	**499**	**100%**	**7.6%**
Vehicle Trips	16	225	82	0	3	30	0	0	356		7.7%
Avg. veh occup.	*1.13*	*1.05*	*1.35*	*0.00*	*1.33*	*1.77*	*0.00*	*0.00*	*1.19*		

	PM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	19	340	56	0	15	52	0	0	482	85%	8.5%
Transit	2	36	6	0	2	9	0	0	55	10%	8.5%
Walk/Other	0	0	0	0	7	24	0	0	31	5%	12.2%
Total	**21**	**376**	**62**	**0**	**24**	**85**	**0**	**0**	**568**	**100%**	**8.6%**
Vehicle Trips	17	330	37	0	9	30	0	0	423		9.1%
Avg. veh occup.	*1.12*	*1.03*	*1.51*	*0.00*	*1.67*	*1.73*	*0.00*	*0.00*	*1.14*		

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	20	400	196	0	44	120	0	0	780	11.8%
Superdistrict 2	22	462	222	0	30	70	0	0	806	12.2%
Superdistrict 3	62	1,274	634	0	110	262	0	0	2,342	35.5%
Superdistrict 4	14	280	130	0	36	74	0	0	534	8.1%
East Bay	18	438	196	0	10	22	0	0	684	10.4%
North Bay	6	124	50	0	4	8	0	0	192	2.9%
South Bay	28	674	286	0	34	78	0	0	1,100	16.7%
Out of Region	4	104	48	0	0	0	0	0	156	2.4%
Total	**174**	**3,756**	**1,762**	**0**	**268**	**634**	**0**	**0**	**6,594**	**100.0%**

	Daily Auto Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	18	350	172	0	12	36	0	0	588	10.3%
Superdistrict 2	20	418	202	0	14	34	0	0	688	12.1%
Superdistrict 3	56	1,140	566	0	64	150	0	0	1,976	34.7%
Superdistrict 4	12	254	118	0	34	70	0	0	488	8.6%
East Bay	16	372	166	0	8	16	0	0	578	10.2%
North Bay	6	118	48	0	4	8	0	0	184	3.2%
South Bay	26	650	274	0	32	74	0	0	1,056	18.5%
Out of Region	4	88	44	0	0	0	0	0	136	2.4%
Total	**158**	**3,390**	**1,590**	**0**	**168**	**388**	**0**	**0**	**5,694**	**100.0%**

	Daily Transit Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	2	48	24	0	4	18	0	0	96	14.9%
Superdistrict 2	2	44	22	0	2	2	0	0	72	11.1%
Superdistrict 3	6	136	68	0	10	34	0	0	254	39.3%
Superdistrict 4	0	28	12	0	2	4	0	0	46	7.1%
East Bay	2	66	28	0	4	4	0	0	104	16.1%
North Bay	0	6	2	0	0	0	0	0	8	1.2%
South Bay	2	24	10	0	2	6	0	0	44	6.8%
Out of Region	2	14	6	0	0	0	0	0	22	3.4%
Total	**16**	**366**	**172**	**0**	**24**	**68**	**0**	**0**	**646**	**100.0%**

	Daily Vehicle Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	14	336	106	0	6	22	0	0	484	10.4%
Superdistrict 2	18	396	128	0	8	18	0	0	568	12.2%
Superdistrict 3	50	1,096	304	0	36	86	0	0	1,572	33.9%
Superdistrict 4	10	238	70	0	20	40	0	0	378	8.1%
East Bay	16	346	108	0	4	10	0	0	484	10.4%
North Bay	4	108	38	0	2	4	0	0	156	3.4%
South Bay	24	594	202	0	18	42	0	0	880	19.0%
Out of Region	4	86	30	0	0	0	0	0	120	2.6%
Total	**140**	**3,200**	**986**	**0**	**94**	**222**	**0**	**0**	**4,642**	**100.0%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

AM Peak Hour Person-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	29	13	0	2	15	0	0	61	12.2%
Superdistrict 2	3	33	14	0	1	10	0	0	61	12.2%
Superdistrict 3	8	92	38	0	3	36	0	0	177	35.5%
Superdistrict 4	1	19	9	0	0	10	0	0	39	7.8%
East Bay	2	30	15	0	0	3	0	0	50	10.0%
North Bay	0	8	5	0	0	1	0	0	14	2.8%
South Bay	3	45	26	0	1	11	0	0	86	17.2%
Out of Region	1	7	3	0	0	0	0	0	11	2.2%
Total	**20**	**263**	**123**	**0**	**7**	**86**	**0**	**0**	**499**	**100.0%**

AM Peak Hour Auto-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	25	11	0	1	5	0	0	44	10.4%
Superdistrict 2	2	30	13	0	1	5	0	0	51	12.1%
Superdistrict 3	7	82	33	0	1	20	0	0	143	33.8%
Superdistrict 4	1	18	8	0	0	10	0	0	37	8.7%
East Bay	2	25	13	0	0	2	0	0	42	9.9%
North Bay	0	8	5	0	0	1	0	0	14	3.3%
South Bay	3	43	25	0	1	10	0	0	82	19.4%
Out of Region	1	6	3	0	0	0	0	0	10	2.4%
Total	**18**	**237**	**111**	**0**	**4**	**53**	**0**	**0**	**423**	**100.0%**

AM Peak Hour Transit-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	1	4	2	0	0	3	0	0	10	20.0%
Superdistrict 2	0	3	2	0	0	0	0	0	5	10.0%
Superdistrict 3	1	10	4	0	1	4	0	0	20	40.0%
Superdistrict 4	0	2	1	0	0	0	0	0	3	6.0%
East Bay	0	4	2	0	0	1	0	0	7	14.0%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	2	1	0	0	1	0	0	4	8.0%
Out of Region	0	1	0	0	0	0	0	0	1	2.0%
Total	**2**	**26**	**12**	**0**	**1**	**9**	**0**	**0**	**50**	**100.0%**

AM Peak Hour Vehicle-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	24	7	0	1	3	0	0	37	10.4%
Superdistrict 2	2	28	9	0	0	3	0	0	42	11.8%
Superdistrict 3	7	79	23	0	1	12	0	0	122	34.3%
Superdistrict 4	1	17	6	0	0	5	0	0	29	8.1%
East Bay	2	24	10	0	0	1	0	0	37	10.4%
North Bay	0	7	4	0	0	1	0	0	12	3.4%
South Bay	2	40	21	0	1	5	0	0	69	19.4%
Out of Region	0	6	2	0	0	0	0	0	8	2.2%
Total	**16**	**225**	**82**	**0**	**3**	**30**	**0**	**0**	**356**	**100.0%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

PM Peak Hour Person-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	44	7	0	4	16	0	0	73	12.9%
Superdistrict 2	3	49	8	0	3	9	0	0	72	12.7%
Superdistrict 3	6	146	21	0	10	35	0	0	218	38.4%
Superdistrict 4	2	27	5	0	3	10	0	0	47	8.3%
East Bay	3	39	7	0	1	3	0	0	53	9.3%
North Bay	1	8	2	0	0	1	0	0	12	2.1%
South Bay	3	51	11	0	3	11	0	0	79	13.9%
Out of Region	1	12	1	0	0	0	0	0	14	2.5%
Total	**21**	**376**	**62**	**0**	**24**	**85**	**0**	**0**	**568**	**100.0%**

PM Peak Hour Auto-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	40	6	0	1	5	0	0	54	11.2%
Superdistrict 2	2	45	7	0	1	5	0	0	60	12.4%
Superdistrict 3	6	131	19	0	6	20	0	0	182	37.8%
Superdistrict 4	1	25	4	0	3	9	0	0	42	8.7%
East Bay	2	33	6	0	1	2	0	0	44	9.1%
North Bay	1	8	2	0	0	1	0	0	12	2.5%
South Bay	4	49	11	0	3	10	0	0	77	16.0%
Out of Region	1	9	1	0	0	0	0	0	11	2.3%
Total	**19**	**340**	**56**	**0**	**15**	**52**	**0**	**0**	**482**	**100.0%**

PM Peak Hour Transit-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	1	5	2	0	1	3	0	0	12	21.8%
Superdistrict 2	0	4	1	0	0	0	0	0	5	9.1%
Superdistrict 3	1	16	2	0	1	4	0	0	24	43.6%
Superdistrict 4	0	2	0	0	0	0	0	0	2	3.6%
East Bay	0	6	1	0	0	1	0	0	8	14.5%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	2	0	0	0	1	0	0	3	5.5%
Out of Region	0	1	0	0	0	0	0	0	1	1.8%
Total	**2**	**36**	**6**	**0**	**2**	**9**	**0**	**0**	**55**	**100.0%**

PM Peak Hour Vehicle-Trips

Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Percent Distribution
Superdistrict 1	2	39	4	0	1	3	0	0	49	11.6%
Superdistrict 2	2	44	5	0	1	3	0	0	55	13.0%
Superdistrict 3	6	128	11	0	3	11	0	0	159	37.6%
Superdistrict 4	1	24	3	0	2	5	0	0	35	8.3%
East Bay	2	32	4	0	0	1	0	0	39	9.2%
North Bay	1	7	2	0	0	1	0	0	11	2.6%
South Bay	3	47	7	0	2	6	0	0	65	15.4%
Out of Region	0	9	1	0	0	0	0	0	10	2.4%
Total	**17**	**330**	**37**	**0**	**9**	**30**	**0**	**0**	**423**	**100.0%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

	Daily			AM Peak Hour			PM Peak Hour		
Auto Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	294	294	588	32	12	44	24	30	54
Superdistrict 2	344	344	688	37	14	51	27	33	60
Superdistrict 3	988	988	1,976	97	46	143	88	94	182
Superdistrict 4	244	244	488	26	11	37	20	22	42
East Bay	289	289	578	33	9	42	16	28	44
North Bay	92	92	184	13	1	14	2	10	12
South Bay	528	528	1,056	70	12	82	23	54	77
Out of Region	68	68	136	7	3	10	5	6	11
Total	**2,847**	**2,847**	**5,694**	**315**	**108**	**423**	**205**	**277**	**482**

	Daily			AM Peak Hour			PM Peak Hour		
Transit Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	48	48	96	8	2	10	4	8	12
Superdistrict 2	36	36	72	4	1	5	2	3	5
Superdistrict 3	127	127	254	14	6	20	10	14	24
Superdistrict 4	23	23	46	2	1	3	1	1	2
East Bay	52	52	104	5	2	7	3	5	8
North Bay	4	4	8	0	0	0	0	0	0
South Bay	22	22	44	4	0	4	1	2	3
Out of Region	11	11	22	1	0	1	0	1	1
Total	**323**	**323**	**646**	**38**	**12**	**50**	**21**	**34**	**55**

	Daily			AM Peak Hour			PM Peak Hour		
Walk/Other Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	48	48	96	5	2	7	3	4	7
Superdistrict 2	23	23	46	3	2	5	4	3	7
Superdistrict 3	56	56	112	9	5	14	5	7	12
Superdistrict 4	0	0	0	-1	0	-1	2	1	3
East Bay	1	1	2	1	0	1	0	1	1
North Bay	0	0	0	0	0	0	0	0	0
South Bay	0	0	0	0	0	0	0	-1	-1
Out of Region	-1	-1	-2	0	0	0	1	1	2
Total	**127**	**127**	**254**	**17**	**9**	**26**	**15**	**16**	**31**

	Daily			AM Peak Hour			PM Peak Hour		
Total Person Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	390	390	780	45	16	61	31	42	73
Superdistrict 2	403	403	806	44	17	61	33	39	72
Superdistrict 3	1,171	1,171	2,342	120	57	177	103	115	218
Superdistrict 4	267	267	534	27	12	39	23	24	47
East Bay	342	342	684	39	11	50	19	34	53
North Bay	96	96	192	13	1	14	2	10	12
South Bay	550	550	1,100	74	12	86	24	55	79
Out of Region	78	78	156	8	3	11	6	8	14
Total	**3,297**	**3,297**	**6,594**	**370**	**129**	**499**	**241**	**327**	**568**

	Daily			AM Peak Hour			PM Peak Hour		
Vehicle Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	242	242	484	26	11	37	23	26	49
Superdistrict 2	284	284	568	30	12	42	25	30	55
Superdistrict 3	786	786	1,572	83	39	122	78	81	159
Superdistrict 4	189	189	378	21	8	29	16	19	35
East Bay	242	242	484	30	7	37	15	24	39
North Bay	78	78	156	11	1	12	2	9	11
South Bay	440	440	880	59	10	69	19	46	65
Out of Region	60	60	120	6	2	8	5	5	10
Total	**2,321**	**2,321**	**4,642**	**266**	**90**	**356**	**183**	**240**	**423**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: MANUFACTURING (WORK TRIPS)

Proposed Size:		**22,006 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		7.9	trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		174	person-trips	Total Person-trips:		20		22
Work Trips [2]:	40%	70	person-trips	Work Person-trips:	25% [5]	5	50% [2]	11

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	5	4	0	0	1	1
	Transit	16.4%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	4	0	0	1	1
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	6	6	0	0	1	1
	Transit	13.2%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		7	6	1	0	1	1
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	15	13	1	1	2	2
	Transit	10.3%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		17	13	1	1	3	2
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	5	4	0	0	1	1
	Transit	10.8%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		5	4	0	0	1	1
East Bay 14.3%	Auto	85.1%	1.13	8	8	1	1	1	1
	Transit	14.9%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		10	8	1	1	2	1
North Bay 5.6%	Auto	94.7%	1.13	4	3	0	0	1	1
	Transit	5.3%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		4	3	0	0	1	1
South Bay 26.9%	Auto	95.6%	1.13	18	16	1	1	3	2
	Transit	4.4%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	16	1	1	3	2
Out of Region 2.5%	Auto	82.3%	1.13	1	1	0	0	0	0
	Transit	17.7%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**62**	**56**	**4**	**4**	**10**	**9**
	Transit	**10.1%**		**7**		**1**		**1**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**70**	**56**	**5**	**4**	**11**	**9**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: MANUFACTURING (NON-WORK TRIPS)

Proposed Size:		**22,006 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		7.9	trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		174	person-trips	Total Person-trips:		20		22
Non-Work Trips [2]:	60%	104	person-trips	Non-Work Person-trips:	75% [5]	15	50% [2]	11

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.13	12	11	2	2	1	1
	Transit	9.6%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		14	11	2	2	1	1
SF Superdistrict 2 14.0%	Auto	92.7%	1.13	14	12	2	2	1	1
	Transit	7.3%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	12	2	2	2	1
SF Superdistrict 3 44.0%	Auto	89.2%	1.13	41	36	6	5	4	4
	Transit	10.8%		5		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		46	36	7	5	5	4
SF Superdistrict 4 7.0%	Auto	91.8%	1.13	7	6	1	1	1	1
	Transit	8.2%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		7	6	1	1	1	1
East Bay 9.0%	Auto	85.1%	1.13	8	7	1	1	1	1
	Transit	14.9%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	1	1	1
North Bay 1.0%	Auto	100.0%	1.13	1	1	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
South Bay 9.0%	Auto	98.2%	1.13	9	8	1	1	1	1
	Transit	1.8%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	8	1	1	1	1
Out of Region 3.0%	Auto	89.5%	1.13	3	2	0	0	0	0
	Transit	10.6%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		3	2	0	0	0	0
All Origins 100.0%	**Auto**	**90.6%**	**1.13**	**94**	**84**	**14**	**12**	**10**	**9**
	Transit	**9.4%**		**10**		**1**		**1**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**104**	**84**	**15**	**12**	**11**	**9**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: PARCEL DELIVERY (WORK TRIPS)

Proposed Size:		255,552 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		3,757	person-trips	Total Person-trips:		263		376
Work Trips [1]:	50%	1,878	person-trips	Work Person-trips:	45% [1]	118	25% [1]	94

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	130	116	8	7	7	6
	Transit	16.4%		26		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		156	116	10	7	8	6
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	173	153	11	10	9	8
	Transit	13.2%		26		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		199	153	13	10	10	8
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	403	358	25	23	20	18
	Transit	10.3%		46		3		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		449	358	28	23	22	18
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	132	118	8	7	7	6
	Transit	10.8%		16		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		148	118	9	7	7	6
East Bay 14.3%	Auto	85.1%	1.13	229	203	14	13	11	10
	Transit	14.9%		40		3		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		269	203	17	13	13	10
North Bay 5.6%	Auto	94.7%	1.13	100	88	6	6	5	4
	Transit	5.3%		6		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		105	88	7	6	5	4
South Bay 26.9%	Auto	95.6%	1.13	483	429	30	27	24	21
	Transit	4.4%		22		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		505	429	32	27	25	21
Out of Region 2.5%	Auto	82.3%	1.13	39	34	2	2	2	2
	Transit	17.7%		8		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		47	34	3	2	2	2
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**1,688**	**1,499**	**106**	**94**	**84**	**75**
	Transit	**10.1%**		**190**		**12**		**10**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,878**	**1,499**	**118**	**94**	**94**	**75**

Notes:
[1] Surveys of OnTrac and Amazon

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: PARCEL DELIVERY (NON-WORK TRIPS)

Proposed Size:		255,552 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		3,757	person-trips	Total Person-trips:		263		376
Non-Work Trips [1]:	50%	1,878	person-trips	Non-Work Person-trips:	55% [1]	145	75% [1]	282

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.00	221	221	17	17	33	33
	Transit	9.6%		23		2		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		244	221	19	17	37	33
SF Superdistrict 2 14.0%	Auto	92.7%	1.00	244	244	19	19	37	37
	Transit	7.3%		19		1		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		263	244	20	19	39	37
SF Superdistrict 3 44.0%	Auto	89.2%	1.00	737	737	57	57	111	111
	Transit	10.8%		89		7		13	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		826	737	64	57	124	111
SF Superdistrict 4 7.0%	Auto	91.8%	1.00	121	121	9	9	18	18
	Transit	8.2%		11		1		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		131	121	10	9	20	18
East Bay 9.0%	Auto	85.1%	1.00	144	144	11	11	22	22
	Transit	14.9%		25		2		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		169	144	13	11	25	22
North Bay 1.0%	Auto	100.0%	1.00	19	19	1	1	3	3
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	19	1	1	3	3
South Bay 9.0%	Auto	98.2%	1.00	166	166	13	13	25	25
	Transit	1.8%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		169	166	13	13	25	25
Out of Region 3.0%	Auto	89.5%	1.00	50	50	4	4	8	8
	Transit	10.6%		6		0		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		56	50	4	4	8	8
All Origins 100.0%	**Auto**	**90.6%**	**1.00**	**1,701**	**1,701**	**131**	**131**	**255**	**255**
	Transit	**9.4%**		**177**		**14**		**27**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,878**	**1,701**	**145**	**131**	**282**	**255**

Notes:
[1] Surveys of OnTrac and Amazon

[3] Assumes one person per vehicle (van, truck, etc.).

[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: WHOLESALE/STORAGE (WORK TRIPS)

Proposed Size:		146,809 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		12.0 trips/1000 sq.ft.		Person-trip Gen Rate:	7.0% [1]	0.8	3.5% [1]	0.4
Total Person Trips:		1,762 person-trips		Total Person-trips:		123		62
Work Trips [2]:	40%	705 person-trips		Work Person-trips:	67% [5]	83	50% [2]	31

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	49	43	6	5	2	2
	Transit	16.4%		10		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		58	43	7	5	3	2
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	65	58	8	7	3	3
	Transit	13.2%		10		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		75	58	9	7	3	3
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	151	134	18	16	7	6
	Transit	10.3%		17		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		168	134	20	16	7	6
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	50	44	6	5	2	2
	Transit	10.8%		6		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		56	44	7	5	2	2
East Bay 14.3%	Auto	85.1%	1.13	86	76	10	9	4	3
	Transit	14.9%		15		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		101	76	12	9	4	3
North Bay 5.6%	Auto	94.7%	1.13	37	33	4	4	2	1
	Transit	5.3%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		39	33	5	4	2	1
South Bay 26.9%	Auto	95.6%	1.13	181	161	21	19	8	7
	Transit	4.4%		8		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		190	161	22	19	8	7
Out of Region 2.5%	Auto	82.3%	1.13	14	13	2	2	1	1
	Transit	17.7%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		18	13	2	2	1	1
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**633**	**562**	**74**	**66**	**28**	**25**
	Transit	**10.1%**		**71**		**8**		**3**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**705**	**562**	**83**	**66**	**31**	**25**

Notes:
[1] SF Wholesale Produce Market Expansion TIS (2011)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% o
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: WHOLESALE/STORAGE (NON-WORK TRIPS)

Proposed Size:		146,809 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		12.0 trips/1000 sq.ft.		Person-trip Gen Rate:	7.0% [1]	0.8	3.5% [1]	0.4
Total Person Trips:		1,762 person-trips		Total Person-trips:		123		62
Non-Work Trips [2]:	60%	1,057 person-trips		Non-Work Person-trips:	33% [5]	41	50% [2]	31

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	2.03	124	61	5	2	4	2
	Transit	9.6%		13		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		137	61	5	2	4	2
SF Superdistrict 2 14.0%	Auto	92.7%	1.97	137	70	5	3	4	2
	Transit	7.3%		11		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		148	70	6	3	4	2
SF Superdistrict 3 44.0%	Auto	89.2%	2.43	415	171	16	7	12	5
	Transit	10.8%		50		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		465	171	18	7	14	5
SF Superdistrict 4 7.0%	Auto	91.8%	2.51	68	27	3	1	2	1
	Transit	8.2%		6		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		74	27	3	1	2	1
East Bay 9.0%	Auto	85.1%	2.59	81	31	3	1	2	1
	Transit	14.9%		14		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		95	31	4	1	3	1
North Bay 1.0%	Auto	100.0%	2.11	11	5	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		11	5	0	0	0	0
South Bay 9.0%	Auto	98.2%	2.28	93	41	4	2	3	1
	Transit	1.8%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		95	41	4	2	3	1
Out of Region 3.0%	Auto	89.5%	1.68	28	17	1	1	1	0
	Transit	10.6%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		32	17	1	1	1	0
All Origins 100.0%	**Auto**	**90.6%**	**2.26**	**958**	**423**	**37**	**16**	**28**	**12**
	Transit	**9.4%**		**100**		**4**		**3**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,057**	**423**	**41**	**16**	**31**	**12**

Notes:
[1] SF Wholesale Produce Market Expansion TIS (2011)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] SF Wholesale Produce Market Expansion - SF Guidelines, Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: GENERAL RETAIL (WORK TRIPS)

Proposed Size:		**2,500 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		150.0 trips/1000 sq.ft.	Person-trip Gen Rate:		2.2% [4]	3.3	9.0% [1]	13.5
Total Person Trips:		375 person-trips	Total Person-trips:			8		34
Work Trips [2]:	13%	50 person-trips	Work Person-trips:		85% [5]	7	13% [2]	4

Percent of Origin Distribution [3]	**Mode of Travel**	**Percent Distribution [6]**	**Average Vehicle Occupancy [3]**	**Daily**		**AM Peak Hour**		**PM Peak Hour**	
				Person Trips	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**
	Auto	41.9%	1.76	7	4	1	1	1	0
SF Superdistrict 1	Transit	22.9%		4		1		0	
31.7%	Walk	33.9%		5		1		0	
	Other	1.3%		0		0		0	
	All Modes	100.0%		16	4	2	1	1	0
	Auto	71.6%	1.76	3	2	0	0	0	0
SF Superdistrict 2	Transit	1.9%		0		0		0	
9.7%	Walk	22.1%		1		0		0	
	Other	4.4%		0		0		0	
	All Modes	100.0%		5	2	1	0	0	0
	Auto	46.5%	1.76	10	6	1	1	1	0
SF Superdistrict 3	Transit	26.8%		6		1		0	
41.9%	Walk	25.7%		5		1		0	
	Other	1.0%		0		0		0	
	All Modes	100.0%		21	6	3	1	2	0
	Auto	93.0%	1.76	1	0	0	0	0	0
SF Superdistrict 4	Transit	0.0%		0		0		0	
1.2%	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		1	0	0	0	0	0
	Auto	100.0%	1.76	1	0	0	0	0	0
East Bay	Transit	0.0%		0		0		0	
1.1%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	0	0	0	0	0
	Auto	100.0%	1.76	1	0	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	0	0	0	0	0
	Auto	89.4%	1.76	6	3	1	0	0	0
South Bay	Transit	10.6%		1		0		0	
12.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		6	3	1	0	1	0
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**55.0%**	**1.76**	**28**	**16**	**4**	**2**	**2**	**1**
All Origins	**Transit**	**20.0%**		**10**		**1**		**1**	
100.0%	**Walk**	**23.7%**		**12**		**2**		**1**	
	Other	**1.3%**		**1**		**0**		**0**	
	All Modes	**100.0%**		**50**	**16**	**7**	**2**	**4**	**1**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: GENERAL RETAIL (NON-WORK TRIPS)

Proposed Size:		**2,500 sq.ft.**						
DAILY	Linked trip factor:	33% [7]			**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip rate w/ linked factor [1]:		100.0 trips/1000 sq.ft.	Person-trip Gen Rate:		2.2% [4]	2.2	9.0% [1]	9.0
Total Person Trips:		250 person-trips	Total Person-trips:			6		23
Non-Work Trips [2]:	87%	217 person-trips	Non-Work Person-trips:		15% [5]	1	87% [2]	20

Percent of Origin Distribution [3]	**Mode of Travel**	**Percent Distribution [6]**	**Average Vehicle Occupancy [3]**	**Daily**		**AM Peak Hour**		**PM Peak Hour**	
				Person Trips	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**
	Auto	18.2%	1.76	5	3	0	0	0	0
SF Superdistrict 1	Transit	4.7%		1		0		0	
12.8%	Walk	74.6%		21		0		2	
	Other	2.5%		1		0		0	
	All Modes	100.0%		28	3	0	0	3	0
	Auto	39.8%	1.76	10	6	0	0	1	1
SF Superdistrict 1	Transit	5.1%		1		0		0	
11.6%	Walk	52.4%		13		0		1	
	Other	2.7%		1		0		0	
	All Modes	100.0%		25	6	0	0	2	1
	Auto	62.2%	1.76	55	32	0	0	5	3
SF Superdistrict 1	Transit	6.0%		5		0		0	
41.2%	Walk	31.0%		28		0		2	
	Other	0.8%		1		0		0	
	All Modes	100.0%		89	32	0	0	8	3
	Auto	94.6%	1.76	34	19	0	0	3	2
SF Superdistrict 1	Transit	4.7%		2		0		0	
16.5%	Walk	0.0%		0		0		0	
	Other	0.7%		0		0		0	
	All Modes	100.0%		36	19	0	0	3	2
	Auto	72.8%	1.76	7	4	0	0	1	0
East Bay	Transit	27.2%		3		0		0	
4.6%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		10	4	0	0	1	0
	Auto	100.0%	1.76	2	1	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
	Auto	95.3%	1.76	25	14	0	0	2	1
South Bay	Transit	4.7%		1		0		0	
12.2%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		27	14	0	0	2	1
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**64.2%**	**1.76**	**139**	**79**	**1**	**0**	**13**	**7**
All Origins	**Transit**	**6.3%**		**14**		**0**		**1**	
100.0%	**Walk**	**28.4%**		**62**		**0**		**6**	
	Other	**1.1%**		**2**		**0**		**0**	
	All Modes	**100.0%**		**217**	**79**	**1**	**0**	**20**	**7**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Assumes that 1/3 of the retail customers are already in the area.

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: QUICK SERVICE RESTAURANT (WORK TRIPS)

Proposed Size:		2,500 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		600.0	trips/1000 sq.ft.	Person-trip Gen Rate:	13.7% [4]	82.4	13.5% [7]	81.0
Total Person Trips:		1,500	person-trips	Total Person-trips:		206		203
Work Trips [2]:	13%	200	person-trips	Work Person-trips:	13% [5]	27	13% [2]	26

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 31.7%	Auto	41.9%	1.76	27	15	4	2	3	2
	Transit	22.9%		15		2		2	
	Walk	33.9%		22		3		3	
	Other	1.3%		1		0		0	
	All Modes	100.0%		63	15	8	2	8	2
SF Superdistrict 2 9.7%	Auto	71.6%	1.76	14	8	2	1	2	1
	Transit	1.9%		0		0		0	
	Walk	22.1%		4		1		1	
	Other	4.4%		1		0		0	
	All Modes	100.0%		20	8	3	1	3	1
SF Superdistrict 3 41.9%	Auto	46.5%	1.76	39	22	5	3	5	3
	Transit	26.8%		22		3		3	
	Walk	25.7%		22		3		3	
	Other	1.0%		1		0		0	
	All Modes	100.0%		84	22	11	3	11	3
SF Superdistrict 4 1.2%	Auto	93.0%	1.76	2	1	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
East Bay 1.1%	Auto	100.0%	1.76	2	1	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
North Bay 1.7%	Auto	100.0%	1.76	3	2	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		3	2	0	0	0	0
South Bay 12.7%	Auto	89.4%	1.76	23	13	3	2	3	2
	Transit	10.6%		3		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		25	13	3	2	3	2
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**55.0%**	**1.76**	**110**	**63**	**15**	**8**	**14**	**8**
	Transit	**20.0%**		**40**		**5**		**5**	
	Walk	**23.7%**		**47**		**6**		**6**	
	Other	**1.3%**		**3**		**0**		**0**	
	All Modes	**100.0%**		**200**	**63**	**27**	**8**	**26**	**8**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data

San Francisco Gateway - Alt B: Code Compliant [November 2022]

LAND USE: QUICK SERVICE RESTAURANT (NON-WORK TRIPS)

Proposed Size:		2,500 sq.ft.						
DAILY	Linked trip factor:	67% [8]			AM PEAK HOUR		PM PEAK HOUR	
Person-trip rate w/ linked factor [1]:		200.0	trips/1000 sq.ft.	Person-trip Gen Rate:	13.7% [4]	27.5	13.5% [7]	27.0
Total Person Trips:		500	person-trips	Total Person-trips:		69		68
Non-Work Trips [2]:	87%	433	person-trips	Non-Work Person-trips:	87% [5]	60	87% [2]	59

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 12.8%	Auto	18.2%	1.76	10	6	1	1	1	1
	Transit	4.7%		3		0		0	
	Walk	74.6%		42		6		6	
	Other	2.5%		1		0		0	
	All Modes	100.0%		56	6	8	1	8	1
SF Superdistrict 2 11.6%	Auto	39.8%	1.76	20	11	3	2	3	2
	Transit	5.1%		3		0		0	
	Walk	52.4%		26		4		4	
	Other	2.7%		1		0		0	
	All Modes	100.0%		50	11	7	2	7	2
SF Superdistrict 3 41.2%	Auto	62.2%	1.76	111	63	15	9	15	9
	Transit	6.0%		11		1		1	
	Walk	31.0%		55		8		7	
	Other	0.8%		1		0		0	
	All Modes	100.0%		178	63	25	9	24	9
SF Superdistrict 4 16.5%	Auto	94.6%	1.76	68	38	9	5	9	5
	Transit	4.7%		3		0		0	
	Walk	0.0%		0		0		0	
	Other	0.7%		1		0		0	
	All Modes	100.0%		71	38	10	5	10	5
East Bay 4.6%	Auto	72.8%	1.76	15	8	2	1	2	1
	Transit	27.2%		5		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		20	8	3	1	3	1
North Bay 1.0%	Auto	100.0%	1.76	5	3	1	0	1	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		5	3	1	0	1	0
South Bay 12.2%	Auto	95.3%	1.76	51	29	7	4	7	4
	Transit	4.7%		2		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		53	29	7	4	7	4
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**64.2%**	**1.76**	**278**	**158**	**38**	**22**	**38**	**21**
	Transit	**6.3%**		**27**		**4**		**4**	
	Walk	**28.4%**		**123**		**17**		**17**	
	Other	**1.1%**		**5**		**1**		**1**	
	All Modes	**100.0%**		**433**	**158**	**60**	**22**	**59**	**21**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data
[8] Assumes that 2/3 of the QSR customers are already in the area.

D.7.3: Alternative C-Fleet Management Use Mix Alternative

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	250	3,672	0	0	280	652	1,664	634	7,152	85%
Transit	28	398	0	0	40	112	130	28	736	9%
Walk/Other	0	0	0	0	128	300	110	24	562	7%
Total	**278**	**4,070**	**0**	**0**	**448**	**1,064**	**1,904**	**686**	**8,450**	**100%**
Vehicle Trips	222	3,468	0	0	158	372	1,550	608	6,378	
Avg. veh occup.	*1.13*	*1.06*	*0.00*	*0.00*	*1.77*	*1.75*	*1.07*	*1.04*	*1.12*	

	Daily Person Work Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	100	1,828	0	0	46	184	1,030	224	3,412	83%
Transit	12	206	0	0	16	68	130	28	460	11%
Walk/Other	0	0	0	0	22	84	110	24	240	6%
Total	**112**	**2,034**	**0**	**0**	**84**	**336**	**1,270**	**276**	**4,112**	**100%**
Vehicle Trips	88	1,624	0	0	26	106	916	198	2,958	
Avg. veh occup.	*1.14*	*1.13*	*0.00*	*0.00*	*1.77*	*1.74*	*1.12*	*1.13*	*1.15*	

	Daily Person Visitor Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	150	1,844	0	0	234	468	634	410	3,740	86%
Transit	16	192	0	0	22	46	0	0	276	6%
Walk/Other	0	0	0	0	108	214	0	0	322	7%
Total	**166**	**2,036**	**0**	**0**	**364**	**728**	**634**	**410**	**4,338**	**100%**
Vehicle Trips	134	1,844	0	0	132	266	634	410	3,420	
Avg. veh occup.	*1.12*	*1.00*	*0.00*	*0.00*	*1.77*	*1.76*	*1.00*	*1.00*	*1.09*	

	AM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	29	257	0	0	7	89	98	41	521	83%	7.3%
Transit	3	28	0	0	2	15	4	2	54	9%	7.3%
Walk/Other	0	0	0	0	3	41	3	2	49	8%	8.7%
Total	**32**	**285**	**0**	**0**	**12**	**145**	**105**	**45**	**624**	**100%**	**7.4%**
Vehicle Trips	25	244	0	0	4	51	95	40	459		7.2%
Avg. veh occup.	*1.16*	*1.05*	*0.00*	*0.00*	*1.75*	*1.75*	*1.03*	*1.03*	*1.14*		

	PM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	31	368	0	0	25	88	102	52	666	84%	9.3%
Transit	3	39	0	0	4	15	6	1	68	9%	9.2%
Walk/Other	0	0	0	0	12	40	5	1	58	7%	10.3%
Total	**34**	**407**	**0**	**0**	**41**	**143**	**113**	**54**	**792**	**100%**	**9.4%**
Vehicle Trips	27	358	0	0	14	50	97	51	597		9.4%
Avg. veh occup.	*1.15*	*1.03*	*0.00*	*0.00*	*1.79*	*1.76*	*1.05*	*1.02*	*1.12*		

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	32	434	0	0	74	200	264	42	1,046	12.4%
Superdistrict 2	34	502	0	0	50	118	294	50	1,048	12.4%
Superdistrict 3	100	1,380	0	0	184	440	462	86	2,652	31.4%
Superdistrict 4	20	302	0	0	62	124	258	42	808	9.6%
East Bay	32	474	0	0	18	36	182	164	906	10.7%
North Bay	8	134	0	0	4	14	70	98	328	3.9%
South Bay	44	732	0	0	56	132	342	196	1,502	17.8%
Out of Region	8	112	0	0	0	0	32	8	160	1.9%
Total	**278**	**4,070**	**0**	**0**	**448**	**1,064**	**1,904**	**686**	**8,450**	**100.0%**

	Daily Auto Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	28	380	0	0	20	62	224	36	750	10.5%
Superdistrict 2	32	450	0	0	22	58	264	42	868	12.1%
Superdistrict 3	88	1,236	0	0	110	252	372	66	2,124	29.7%
Superdistrict 4	18	274	0	0	58	116	246	40	752	10.5%
East Bay	26	404	0	0	14	28	152	156	780	10.9%
North Bay	8	128	0	0	4	14	64	96	314	4.4%
South Bay	42	702	0	0	52	122	318	194	1,430	20.0%
Out of Region	8	98	0	0	0	0	24	4	134	1.9%
Total	**250**	**3,672**	**0**	**0**	**280**	**652**	**1,664**	**634**	**7,152**	**100.0%**

	Daily Transit Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	4	54	0	0	8	28	18	4	116	15.8%
Superdistrict 2	2	48	0	0	2	6	18	4	80	10.9%
Superdistrict 3	12	148	0	0	18	56	30	6	270	36.7%
Superdistrict 4	2	28	0	0	4	6	12	2	54	7.3%
East Bay	6	72	0	0	4	8	26	6	122	16.6%
North Bay	0	6	0	0	0	0	4	2	12	1.6%
South Bay	2	26	0	0	4	8	16	4	60	8.2%
Out of Region	0	16	0	0	0	0	6	0	22	3.0%
Total	**28**	**398**	**0**	**0**	**40**	**112**	**130**	**28**	**736**	**100.0%**

	Daily Vehicle Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	24	364	0	0	10	36	218	34	686	10.8%
Superdistrict 2	28	432	0	0	12	32	252	40	796	12.5%
Superdistrict 3	78	1,186	0	0	62	144	348	62	1,880	29.5%
Superdistrict 4	16	258	0	0	34	66	236	36	646	10.1%
East Bay	24	376	0	0	8	16	134	152	710	11.1%
North Bay	8	116	0	0	2	8	58	94	286	4.5%
South Bay	38	644	0	0	30	70	282	184	1,248	19.6%
Out of Region	6	92	0	0	0	0	22	6	126	2.0%
Total	**222**	**3,468**	**0**	**0**	**158**	**372**	**1,550**	**608**	**6,378**	**100.0%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

Distribution	AM Peak Hour Person-Trips									Percent
	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	4	31	0	0	3	27	20	3	88	14.1%
Superdistrict 2	4	36	0	0	1	16	21	3	81	13.0%
Superdistrict 3	13	99	0	0	6	60	26	6	210	33.7%
Superdistrict 4	2	21	0	0	0	17	20	3	63	10.1%
East Bay	3	32	0	0	0	5	6	11	57	9.1%
North Bay	1	9	0	0	0	2	2	6	20	3.2%
South Bay	4	49	0	0	2	18	9	13	95	15.2%
Out of Region	1	8	0	0	0	0	1	0	10	1.6%
Total	**32**	**285**	**0**	**0**	**12**	**145**	**105**	**45**	**624**	**100.0%**

Distribution	AM Peak Hour Auto-Trips									Percent
	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	3	27	0	0	1	8	19	3	61	11.7%
Superdistrict 2	4	32	0	0	1	8	20	3	68	13.1%
Superdistrict 3	11	89	0	0	3	34	23	4	164	31.5%
Superdistrict 4	2	19	0	0	0	16	20	3	60	11.5%
East Bay	3	28	0	0	0	4	4	10	49	9.4%
North Bay	1	8	0	0	0	2	2	6	19	3.6%
South Bay	4	47	0	0	2	17	9	12	91	17.5%
Out of Region	1	7	0	0	0	0	1	0	9	1.7%
Total	**29**	**257**	**0**	**0**	**7**	**89**	**98**	**41**	**521**	**100.0%**

Distribution	AM Peak Hour Transit-Trips									Percent
	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	1	4	0	0	1	4	0	0	10	18.5%
Superdistrict 2	0	3	0	0	0	1	1	1	6	11.1%
Superdistrict 3	2	11	0	0	1	7	1	1	23	42.6%
Superdistrict 4	0	2	0	0	0	1	0	0	3	5.6%
East Bay	0	5	0	0	0	1	2	0	8	14.8%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	2	0	0	0	1	0	0	3	5.6%
Out of Region	0	1	0	0	0	0	0	0	1	1.9%
Total	**3**	**28**	**0**	**0**	**2**	**15**	**4**	**2**	**54**	**100.0%**

Distribution	AM Peak Hour Vehicle-Trips									Percent
	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	2	26	0	0	0	5	19	2	54	11.8%
Superdistrict 2	3	31	0	0	1	4	20	3	62	13.5%
Superdistrict 3	10	86	0	0	2	20	22	4	144	31.4%
Superdistrict 4	2	18	0	0	0	9	20	2	51	11.1%
East Bay	2	26	0	0	0	2	4	10	44	9.6%
North Bay	1	8	0	0	0	1	2	6	18	3.9%
South Bay	4	42	0	0	1	10	7	12	76	16.6%
Out of Region	1	7	0	0	0	0	1	1	10	2.2%
Total	**25**	**244**	**0**	**0**	**4**	**51**	**95**	**40**	**459**	**100.0%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

	PM Peak Hour Person-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	4	48	0	0	7	27	17	3	106	13.4%
Superdistrict 2	4	54	0	0	5	16	19	4	102	12.9%
Superdistrict 3	11	158	0	0	16	58	27	5	275	34.7%
Superdistrict 4	3	29	0	0	6	17	18	3	76	9.6%
East Bay	4	42	0	0	2	5	9	14	76	9.6%
North Bay	1	9	0	0	0	2	4	9	25	3.2%
South Bay	6	55	0	0	5	18	17	16	117	14.8%
Out of Region	1	12	0	0	0	0	2	0	15	1.9%
Total	**34**	**407**	**0**	**0**	**41**	**143**	**113**	**54**	**792**	**100.0%**

	PM Peak Hour Auto-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	3	43	0	0	2	8	16	3	75	11.3%
Superdistrict 2	4	49	0	0	2	8	18	3	84	12.6%
Superdistrict 3	10	142	0	0	10	34	23	4	223	33.5%
Superdistrict 4	2	27	0	0	5	16	17	3	70	10.5%
East Bay	3	36	0	0	1	4	8	14	66	9.9%
North Bay	2	8	0	0	0	2	3	9	24	3.6%
South Bay	6	53	0	0	5	16	16	16	112	16.8%
Out of Region	1	10	0	0	0	0	1	0	12	1.8%
Total	**31**	**368**	**0**	**0**	**25**	**88**	**102**	**52**	**666**	**100.0%**

	PM Peak Hour Transit-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	1	5	0	0	2	4	1	0	13	19.1%
Superdistrict 2	0	5	0	0	0	1	1	0	7	10.3%
Superdistrict 3	1	17	0	0	2	7	1	1	29	42.6%
Superdistrict 4	0	3	0	0	0	1	1	0	5	7.4%
East Bay	1	6	0	0	0	1	1	0	9	13.2%
North Bay	0	0	0	0	0	0	0	0	0	0.0%
South Bay	0	2	0	0	0	1	1	0	4	5.9%
Out of Region	0	1	0	0	0	0	0	0	1	1.5%
Total	**3**	**39**	**0**	**0**	**4**	**15**	**6**	**1**	**68**	**100.0%**

	PM Peak Hour Vehicle-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	3	42	0	0	1	5	16	3	70	11.7%
Superdistrict 2	3	48	0	0	1	4	17	3	76	12.7%
Superdistrict 3	9	140	0	0	5	19	22	4	199	33.3%
Superdistrict 4	2	26	0	0	3	9	17	3	60	10.1%
East Bay	3	34	0	0	1	3	7	14	62	10.4%
North Bay	1	8	0	0	0	1	3	9	22	3.7%
South Bay	5	50	0	0	3	9	14	15	96	16.1%
Out of Region	1	10	0	0	0	0	1	0	12	2.0%
Total	**27**	**358**	**0**	**0**	**14**	**50**	**97**	**51**	**597**	**100.0%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

	Daily			AM Peak Hour			PM Peak Hour		
Auto Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	375	375	750	34	27	61	33	42	75
Superdistrict 2	434	434	868	38	30	68	38	46	84
Superdistrict 3	1,062	1,062	2,124	99	65	164	106	117	223
Superdistrict 4	376	376	752	31	29	60	34	36	70
East Bay	390	390	780	32	17	49	26	40	66
North Bay	157	157	314	13	6	19	8	16	24
South Bay	715	715	1,430	67	24	91	36	76	112
Out of Region	67	67	134	6	3	9	5	7	12
Total	**3,576**	**3,576**	**7,152**	**320**	**201**	**521**	**286**	**380**	**666**

	Daily			AM Peak Hour			PM Peak Hour		
Transit Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	58	58	116	8	2	10	4	9	13
Superdistrict 2	40	40	80	5	1	6	3	4	7
Superdistrict 3	135	135	270	17	6	23	11	18	29
Superdistrict 4	27	27	54	2	1	3	2	3	5
East Bay	61	61	122	6	2	8	4	5	9
North Bay	6	6	12	0	0	0	0	0	0
South Bay	30	30	60	2	1	3	1	3	4
Out of Region	11	11	22	1	0	1	1	0	1
Total	**368**	**368**	**736**	**41**	**13**	**54**	**26**	**42**	**68**

	Daily			AM Peak Hour			PM Peak Hour		
Walk/Other Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	90	90	180	12	5	17	7	11	18
Superdistrict 2	50	50	100	4	3	7	5	6	11
Superdistrict 3	129	129	258	15	8	23	9	14	23
Superdistrict 4	1	1	2	0	0	0	0	1	1
East Bay	2	2	4	0	0	0	0	1	1
North Bay	1	1	2	0	1	1	0	1	1
South Bay	6	6	12	1	0	1	0	1	1
Out of Region	2	2	4	0	0	0	1	1	2
Total	**281**	**281**	**562**	**32**	**17**	**49**	**22**	**36**	**58**

	Daily			AM Peak Hour			PM Peak Hour		
Total Person Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	523	523	1,046	54	34	88	44	62	106
Superdistrict 2	524	524	1,048	47	34	81	46	56	102
Superdistrict 3	1,326	1,326	2,652	131	79	210	126	149	275
Superdistrict 4	404	404	808	33	30	63	36	40	76
East Bay	453	453	906	38	19	57	30	46	76
North Bay	164	164	328	13	7	20	8	17	25
South Bay	751	751	1,502	70	25	95	37	80	117
Out of Region	80	80	160	7	3	10	7	8	15
Total	**4,225**	**4,225**	**8,450**	**393**	**231**	**624**	**334**	**458**	**792**

	Daily			AM Peak Hour			PM Peak Hour		
Vehicle Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	343	343	686	29	25	54	32	38	70
Superdistrict 2	398	398	796	34	28	62	36	40	76
Superdistrict 3	940	940	1,880	85	59	144	96	103	199
Superdistrict 4	323	323	646	26	25	51	28	32	60
East Bay	355	355	710	28	16	44	25	37	62
North Bay	143	143	286	12	6	18	8	14	22
South Bay	624	624	1,248	55	21	76	32	64	96
Out of Region	63	63	126	6	4	10	5	7	12
Total	**3,189**	**3,189**	**6,378**	**275**	**184**	**459**	**262**	**335**	**597**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: MANUFACTURING (WORK TRIPS)

Proposed Size:		35,000 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		7.9	trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		277	person-trips	Total Person-trips:		32		34
Work Trips [2]:	40%	111	person-trips	Work Person-trips:	25% [5]	8	50% [2]	17

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	8	7	1	0	1	1
	Transit	16.4%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	0	1	1
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	10	9	1	1	2	1
	Transit	13.2%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		12	9	1	1	2	1
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	24	21	2	2	4	3
	Transit	10.3%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		26	21	2	2	4	3
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	8	7	1	0	1	1
	Transit	10.8%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	0	1	1
East Bay 14.3%	Auto	85.1%	1.13	13	12	1	1	2	2
	Transit	14.9%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		16	12	1	1	2	2
North Bay 5.6%	Auto	94.7%	1.13	6	5	0	0	1	1
	Transit	5.3%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	5	0	0	1	1
South Bay 26.9%	Auto	95.6%	1.13	28	25	2	2	4	4
	Transit	4.4%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		30	25	2	2	5	4
Out of Region 2.5%	Auto	82.3%	1.13	2	2	0	0	0	0
	Transit	17.7%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	0	0	0	0
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**99**	**88**	**7**	**6**	**15**	**14**
	Transit	**10.1%**		**11**		**1**		**2**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**111**	**88**	**8**	**6**	**17**	**14**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: MANUFACTURING (NON-WORK TRIPS)

Proposed Size:		35,000 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		7.9	trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		277	person-trips	Total Person-trips:		32		34
Non-Work Trips [2]:	60%	166	person-trips	Non-Work Person-trips:	75% [5]	24	50% [2]	17

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.13	19	17	3	2	2	2
	Transit	9.6%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		22	17	3	2	2	2
SF Superdistrict 2 14.0%	Auto	92.7%	1.13	22	19	3	3	2	2
	Transit	7.3%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		23	19	3	3	2	2
SF Superdistrict 3 44.0%	Auto	89.2%	1.13	65	58	9	8	7	6
	Transit	10.8%		8		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		73	58	10	8	8	6
SF Superdistrict 4 7.0%	Auto	91.8%	1.13	11	9	2	1	1	1
	Transit	8.2%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		12	9	2	1	1	1
East Bay 9.0%	Auto	85.1%	1.13	13	11	2	2	1	1
	Transit	14.9%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	11	2	2	2	1
North Bay 1.0%	Auto	100.0%	1.13	2	1	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
South Bay 9.0%	Auto	98.2%	1.13	15	13	2	2	2	1
	Transit	1.8%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	13	2	2	2	1
Out of Region 3.0%	Auto	89.5%	1.13	4	4	1	1	0	0
	Transit	10.6%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		5	4	1	1	1	0
All Origins 100.0%	**Auto**	**90.6%**	**1.13**	**150**	**133**	**22**	**19**	**16**	**14**
	Transit	**9.4%**		**16**		**2**		**2**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**166**	**133**	**24**	**19**	**17**	**14**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: PARCEL DELIVERY (WORK TRIPS)

Proposed Size:		276,960 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		4,071	person-trips	Total Person-trips:		285		407
Work Trips [1]:	50%	2,036	person-trips	Work Person-trips:	45% [1]	128	25% [1]	102

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	141	125	9	8	7	6
	Transit	16.4%		28		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		169	125	11	8	8	6
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	187	166	12	10	9	8
	Transit	13.2%		28		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		216	166	14	10	11	8
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	436	388	27	24	22	19
	Transit	10.3%		50		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		487	388	31	24	24	19
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	143	127	9	8	7	6
	Transit	10.8%		17		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		161	127	10	8	8	6
East Bay 14.3%	Auto	85.1%	1.13	248	220	16	14	12	11
	Transit	14.9%		43		3		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		291	220	18	14	15	11
North Bay 5.6%	Auto	94.7%	1.13	108	96	7	6	5	5
	Transit	5.3%		6		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		114	96	7	6	6	5
South Bay 26.9%	Auto	95.6%	1.13	523	465	33	29	26	23
	Transit	4.4%		24		2		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		548	465	34	29	27	23
Out of Region 2.5%	Auto	82.3%	1.13	42	37	3	2	2	2
	Transit	17.7%		9		1		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		51	37	3	2	3	2
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**1,829**	**1,625**	**115**	**102**	**91**	**81**
	Transit	**10.1%**		**206**		**13**		**10**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**2,036**	**1,625**	**128**	**102**	**102**	**81**

Notes:
[1] Surveys of OnTrac and Amazon

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: PARCEL DELIVERY (NON-WORK TRIPS)

Proposed Size:		276,960 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		4,071	person-trips	Total Person-trips:		285		407
Non-Work Trips [1]:	50%	2,036	person-trips	Non-Work Person-trips:	55% [1]	157	75% [1]	305

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.00	239	239	18	18	36	36
	Transit	9.6%		25		2		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		265	239	20	18	40	36
SF Superdistrict 2 14.0%	Auto	92.7%	1.00	264	264	20	20	40	40
	Transit	7.3%		21		2		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		285	264	22	20	43	40
SF Superdistrict 3 44.0%	Auto	89.2%	1.00	799	799	62	62	120	120
	Transit	10.8%		97		7		15	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		896	799	69	62	134	120
SF Superdistrict 4 7.0%	Auto	91.8%	1.00	131	131	10	10	20	20
	Transit	8.2%		12		1		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		142	131	11	10	21	20
East Bay 9.0%	Auto	85.1%	1.00	156	156	12	12	23	23
	Transit	14.9%		27		2		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		183	156	14	12	27	23
North Bay 1.0%	Auto	100.0%	1.00	20	20	2	2	3	3
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		20	20	2	2	3	3
South Bay 9.0%	Auto	98.2%	1.00	180	180	14	14	27	27
	Transit	1.8%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		183	180	14	14	27	27
Out of Region 3.0%	Auto	89.5%	1.00	55	55	4	4	8	8
	Transit	10.6%		6		0		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		61	55	5	4	9	8
All Origins 100.0%	**Auto**	**90.6%**	**1.00**	**1,844**	**1,844**	**142**	**142**	**277**	**277**
	Transit	**9.4%**		**192**		**15**		**29**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**2,036**	**1,844**	**157**	**142**	**305**	**277**

Notes:
[1] Surveys of OnTrac and Amazon

[3] Assumes one person per vehicle (van, truck, etc.).

[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: GENERAL RETAIL (WORK TRIPS)

Proposed Size:		**4,200 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		150.0 trips/1000 sq.ft.	Person-trip Gen Rate:		2.2% [4]	3.3	9.0% [1]	13.5
Total Person Trips:		630 person-trips	Total Person-trips:			14		57
Work Trips [2]:	13%	84 person-trips	Work Person-trips:		85% [5]	12	13% [2]	7

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	41.9%	1.76	11	6	2	1	1	1
SF Superdistrict 1	Transit	22.9%		6		1		1	
31.7%	Walk	33.9%		9		1		1	
	Other	1.3%		0		0		0	
	All Modes	100.0%		27	6	4	1	2	1
	Auto	71.6%	1.76	6	3	1	0	1	0
SF Superdistrict 2	Transit	1.9%		0		0		0	
9.7%	Walk	22.1%		2		0		0	
	Other	4.4%		0		0		0	
	All Modes	100.0%		8	3	1	0	1	0
	Auto	46.5%	1.76	16	9	2	1	1	1
SF Superdistrict 3	Transit	26.8%		9		1		1	
41.9%	Walk	25.7%		9		1		1	
	Other	1.0%		0		0		0	
	All Modes	100.0%		35	9	5	1	3	1
	Auto	93.0%	1.76	1	1	0	0	0	0
SF Superdistrict 4	Transit	0.0%		0		0		0	
1.2%	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	100.0%	1.76	1	1	0	0	0	0
East Bay	Transit	0.0%		0		0		0	
1.1%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	100.0%	1.76	1	1	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	89.4%	1.76	10	5	1	1	1	0
South Bay	Transit	10.6%		1		0		0	
12.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		11	5	2	1	1	0
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**55.0%**	**1.76**	**46**	**26**	**7**	**4**	**4**	**2**
All Origins	**Transit**	**20.0%**		**17**		**2**		**1**	
100.0%	**Walk**	**23.7%**		**20**		**3**		**2**	
	Other	**1.3%**		**1**		**0**		**0**	
	All Modes	**100.0%**		**84**	**26**	**12**	**4**	**7**	**2**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: GENERAL RETAIL (NON-WORK TRIPS)

Proposed Size:		**4,200 sq.ft.**						
DAILY	Linked trip factor:	33% [7]			**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip rate w/ linked factor [1]:		100.0 trips/1000 sq.ft.	Person-trip Gen Rate:		2.2% [4]	2.2	9.0% [1]	9.0
Total Person Trips:		420 person-trips	Total Person-trips:			9		38
Non-Work Trips [2]:	87%	364 person-trips	Non-Work Person-trips:		15% [5]	1	87% [2]	33

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	18.2%	1.76	9	5	0	0	1	0
SF Superdistrict 1	Transit	4.7%		2		0		0	
12.8%	Walk	74.6%		35		0		3	
	Other	2.5%		1		0		0	
	All Modes	100.0%		47	5	0	0	4	0
	Auto	39.8%	1.76	17	10	0	0	2	1
SF Superdistrict 1	Transit	5.1%		2		0		0	
11.6%	Walk	52.4%		22		0		2	
	Other	2.7%		1		0		0	
	All Modes	100.0%		42	10	0	0	4	1
	Auto	62.2%	1.76	93	53	0	0	8	5
SF Superdistrict 1	Transit	6.0%		9		0		1	
41.2%	Walk	31.0%		46		0		4	
	Other	0.8%		1		0		0	
	All Modes	100.0%		150	53	1	0	14	5
	Auto	94.6%	1.76	57	32	0	0	5	3
SF Superdistrict 1	Transit	4.7%		3		0		0	
16.5%	Walk	0.0%		0		0		0	
	Other	0.7%		0		0		0	
	All Modes	100.0%		60	32	0	0	5	3
	Auto	72.8%	1.76	12	7	0	0	1	1
East Bay	Transit	27.2%		5		0		0	
4.6%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		17	7	0	0	2	1
	Auto	100.0%	1.76	4	2	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		4	2	0	0	0	0
	Auto	95.3%	1.76	42	24	0	0	4	2
South Bay	Transit	4.7%		2		0		0	
12.2%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		45	24	0	0	4	2
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**64.2%**	**1.76**	**234**	**133**	**1**	**1**	**21**	**12**
All Origins	**Transit**	**6.3%**		**23**		**0**		**2**	
100.0%	**Walk**	**28.4%**		**103**		**0**		**9**	
	Other	**1.1%**		**4**		**0**		**0**	
	All Modes	**100.0%**		**364**	**133**	**1**	**1**	**33**	**12**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Assumes that 1/3 of the retail customers are already in the area.

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: QUICK SERVICE RESTAURANT (WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY						**AM PEAK HOUR**		**PM PEAK HOUR**
Person-trip Generation Rate [1]:		600.0	trips/1000 sq.ft.	Person-trip Gen Rate:	13.7% [4]	82.4	13.5% [7]	81.0
Total Person Trips:		2,520	person-trips	Total Person-trips:		346		340
Work Trips [2]:	13%	336	person-trips	Work Person-trips:	13% [5]	45	13% [2]	44

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 31.7%	Auto	41.9%	1.76	45	25	6	3	6	3
	Transit	22.9%		24		3		3	
	Walk	33.9%		36		5		5	
	Other	1.3%		1		0		0	
	All Modes	100.0%		107	25	14	3	14	3
SF Superdistrict 2 9.7%	Auto	71.6%	1.76	23	13	3	2	3	2
	Transit	1.9%		1		0		0	
	Walk	22.1%		7		1		1	
	Other	4.4%		1		0		0	
	All Modes	100.0%		33	13	4	2	4	2
SF Superdistrict 3 41.9%	Auto	46.5%	1.76	65	37	9	5	9	5
	Transit	26.8%		38		5		5	
	Walk	25.7%		36		5		5	
	Other	1.0%		1		0		0	
	All Modes	100.0%		141	37	19	5	18	5
SF Superdistrict 4 1.2%	Auto	93.0%	1.76	4	2	1	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		4	2	1	0	1	0
East Bay 1.1%	Auto	100.0%	1.76	4	2	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		4	2	0	0	0	0
North Bay 1.7%	Auto	100.0%	1.76	6	3	1	0	1	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		6	3	1	0	1	0
South Bay 12.7%	Auto	89.4%	1.76	38	22	5	3	5	3
	Transit	10.6%		5		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		43	22	6	3	6	3
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**55.0%**	**1.76**	**185**	**105**	**25**	**14**	**24**	**14**
	Transit	**20.0%**		**67**		**9**		**9**	
	Walk	**23.7%**		**80**		**11**		**10**	
	Other	**1.3%**		**5**		**1**		**1**	
	All Modes	**100.0%**		**336**	**105**	**45**	**14**	**44**	**14**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: QUICK SERVICE RESTAURANT (NON-WORK TRIPS)

Proposed Size:			4,200 sq.ft.						
DAILY	Linked trip factor:	67% [8]				**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip rate w/ linked factor [1]:			200.0	trips/1000 sq.ft.	Person-trip Gen Rate:	13.7% [4]	27.5	13.5% [7]	27.0
Total Person Trips:			840	person-trips	Total Person-trips:		115		113
Non-Work Trips [2]:	87%		728	person-trips	Non-Work Person-trips:	87% [5]	100	87% [2]	99

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 12.8%	Auto	18.2%	1.76	17	10	2	1	2	1
	Transit	4.7%		4		1		1	
	Walk	74.6%		70		10		9	
	Other	2.5%		2		0		0	
	All Modes	100.0%		93	10	13	1	13	1
SF Superdistrict 2 11.6%	Auto	39.8%	1.76	34	19	5	3	5	3
	Transit	5.1%		4		1		1	
	Walk	52.4%		44		6		6	
	Other	2.7%		2		0		0	
	All Modes	100.0%		84	19	12	3	11	3
SF Superdistrict 3 41.2%	Auto	62.2%	1.76	186	106	26	15	25	14
	Transit	6.0%		18		2		2	
	Walk	31.0%		93		13		13	
	Other	0.8%		2		0		0	
	All Modes	100.0%		300	106	41	15	41	14
SF Superdistrict 4 16.5%	Auto	94.6%	1.76	114	65	16	9	15	9
	Transit	4.7%		6		1		1	
	Walk	0.0%		0		0		0	
	Other	0.7%		1		0		0	
	All Modes	100.0%		120	65	17	9	16	9
East Bay 4.6%	Auto	72.8%	1.76	25	14	3	2	3	2
	Transit	27.2%		9		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		34	14	5	2	5	2
North Bay 1.0%	Auto	100.0%	1.76	8	4	1	1	1	1
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		8	4	1	1	1	1
South Bay 12.2%	Auto	95.3%	1.76	85	48	12	7	12	7
	Transit	4.7%		4		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		89	48	12	7	12	7
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**64.2%**	**1.76**	**468**	**266**	**65**	**37**	**63**	**36**
	Transit	**6.3%**		**46**		**6**		**6**	
	Walk	**28.4%**		**207**		**29**		**28**	
	Other	**1.1%**		**8**		**1**		**1**	
	All Modes	**100.0%**		**728**	**266**	**100**	**37**	**99**	**36**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data
[8] Assumes that 2/3 of the QSR customers are already in the area.

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: PUBLIC FLEET MANAGEMENT (EMPLOYEE TRIPS)

Proposed Size:		152,355 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		12.5	trips/1000 sq.ft.	Person-trip Gen Rate:	5.5% [1]	0.7	6.0% [1]	0.8
Total Person Trips:		1,904	person-trips	Total Person-trips:		105		114
Work Trips [1]:	67%	1,270	person-trips	Work Person-trips:	33% [1]	35	55% [1]	63

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1	Auto	63.2%	1.13	67	59	2	2	3	3
8.3%	Transit	16.4%		17		0		1	
	Walk	17.7%		19		1		1	
	Other	2.7%		3		0		0	
	All Modes	100.0%		105	59	3	2	5	3
SF Superdistrict 2	Auto	77.8%	1.13	105	93	3	3	5	5
10.6%	Transit	13.2%		18		0		1	
	Walk	6.9%		9		0		0	
	Other	2.1%		3		0		0	
	All Modes	100.0%		135	93	4	3	7	5
SF Superdistrict 3	Auto	70.0%	1.13	212	189	6	5	11	9
23.9%	Transit	10.3%		31		1		2	
	Walk	15.1%		46		1		2	
	Other	4.6%		14		0		1	
	All Modes	100.0%		303	189	8	5	15	9
SF Superdistrict 4	Auto	86.4%	1.13	87	77	2	2	4	4
7.9%	Transit	10.8%		11		0		1	
	Walk	0.0%		0		0		0	
	Other	2.8%		3		0		0	
	All Modes	100.0%		100	77	3	2	5	4
East Bay	Auto	83.6%	1.13	152	135	4	4	8	7
14.3%	Transit	14.9%		27		1		1	
	Walk	0.0%		0		0		0	
	Other	1.5%		3		0		0	
	All Modes	100.0%		182	135	5	4	9	7
North Bay	Auto	92.1%	1.13	65	58	2	2	3	3
5.6%	Transit	5.3%		4		0		0	
	Walk	0.0%		0		0		0	
	Other	2.6%		2		0		0	
	All Modes	100.0%		71	58	2	2	4	3
South Bay	Auto	92.9%	1.13	317	282	9	8	16	14
26.9%	Transit	4.4%		15		0		1	
	Walk	0.0%		0		0		0	
	Other	2.7%		9		0		0	
	All Modes	100.0%		342	282	9	8	17	14
Out of Region	Auto	79.4%	1.13	25	22	1	1	1	1
2.5%	Transit	17.7%		6		0		0	
	Walk	0.0%		0		0		0	
	Other	2.9%		1		0		0	
	All Modes	100.0%		32	22	1	1	2	1
All Origins	**Auto**	**81.1%**	**1.13**	**1,030**	**915**	**28**	**25**	**51**	**45**
100.0%	**Transit**	**10.1%**		**129**		**4**		**6**	
	Walk	**5.8%**		**74**		**2**		**4**	
	Other	**2.9%**		**37**		**1**		**2**	
	All Modes	**100.0%**		**1,270**	**915**	**35**	**25**	**63**	**45**

Notes:
[1] SF Muni Kirkland survey

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: 50% of the "Transit" percentage has been added to "Auto".
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: PUBLIC FLEET MANAGEMENT (NON-EMPLOYEE TRIPS)

Proposed Size:		152,355 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		12.5	trips/1000 sq.ft.	Person-trip Gen Rate:	5.5% [1]	0.7	6.0% [1]	0.8
Total Person Trips:		1,904	person-trips	Total Person-trips:		105		114
Non-Work Trips [1]:	33%	635	person-trips	Non-Work Person-trips:	67% [1]	70	45% [1]	51

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1	Auto	100.0%	1.00	159	159	17	17	13	13
25.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		159	159	17	17	13	13
SF Superdistrict 2	Auto	100.0%	1.00	159	159	17	17	13	13
25.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		159	159	17	17	13	13
SF Superdistrict 3	Auto	100.0%	1.00	159	159	17	17	13	13
25.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		159	159	17	17	13	13
SF Superdistrict 4	Auto	100.0%	1.00	159	159	17	17	13	13
25.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		159	159	17	17	13	13
East Bay	Auto	100.0%	1.00	0	0	0	0	0	0
0.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
North Bay	Auto	100.0%	1.00	0	0	0	0	0	0
0.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
South Bay	Auto	100.0%	1.00	0	0	0	0	0	0
0.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
Out of Region	Auto	100.0%	1.00	0	0	0	0	0	0
0.0%	Transit			0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
All Origins	**Auto**	**100.0%**	**1.00**	**635**	**635**	**70**	**70**	**51**	**51**
100.0%	**Transit**	**0.0%**		**0**		**0**		**0**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**635**	**635**	**70**	**70**	**51**	**51**

Notes:
[1] SF Muni Kirkland survey
[2] Assumed even distribution of all bus trips among four SF superdistricts
[3] Assumed all auto trips; single occupant

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: PRIVATE FLEET MANAGEMENT (EMPLOYEE TRIPS)

Proposed Size:		**152,355 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		4.5 trips/1000 sq.ft.	Person-trip Gen Rate:	6.5% [1]	0.3	8.0% [1]	0.4
Total Person Trips:		686 person-trips	Total Person-trips:		45		55
Work Trips [1]:	40%	274 person-trips	Work Person-trips:	40% [1]	18	25% [1]	14

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	63.2%	1.13	14	13	1	1	1	1
	Transit	16.4%		4		0		0	
	Walk	17.7%		4		0		0	
	Other	2.7%		1		0		0	
	All Modes	100.0%		23	13	1	1	1	1
SF Superdistrict 2 10.6%	Auto	77.8%	1.13	23	20	1	1	1	1
	Transit	13.2%		4		0		0	
	Walk	6.9%		2		0		0	
	Other	2.1%		1		0		0	
	All Modes	100.0%		29	20	2	1	1	1
SF Superdistrict 3 23.9%	Auto	70.0%	1.13	46	41	3	3	2	2
	Transit	10.3%		7		0		0	
	Walk	15.1%		10		1		0	
	Other	4.6%		3		0		0	
	All Modes	100.0%		66	41	4	3	3	2
SF Superdistrict 4 7.9%	Auto	86.4%	1.13	19	17	1	1	1	1
	Transit	10.8%		2		0		0	
	Walk	0.0%		0		0		0	
	Other	2.8%		1		0		0	
	All Modes	100.0%		22	17	1	1	1	1
East Bay 14.3%	Auto	83.6%	1.13	33	29	2	2	2	1
	Transit	14.9%		6		0		0	
	Walk	0.0%		0		0		0	
	Other	1.5%		1		0		0	
	All Modes	100.0%		39	29	3	2	2	1
North Bay 5.6%	Auto	92.1%	1.13	14	13	1	1	1	1
	Transit	5.3%		1		0		0	
	Walk	0.0%		0		0		0	
	Other	2.6%		0		0		0	
	All Modes	100.0%		15	13	1	1	1	1
South Bay 26.9%	Auto	92.9%	1.13	69	61	4	4	3	3
	Transit	4.4%		3		0		0	
	Walk	0.0%		0		0		0	
	Other	2.7%		2		0		0	
	All Modes	100.0%		74	61	5	4	4	3
Out of Region 2.5%	Auto	79.4%	1.13	5	5	0	0	0	0
	Transit	17.7%		1		0		0	
	Walk	0.0%		0		0		0	
	Other	2.9%		0		0		0	
	All Modes	100.0%		7	5	0	0	0	0
All Origins 100.0%	**Auto**	**81.1%**	**1.13**	**223**	**198**	**14**	**13**	**11**	**10**
	Transit	**10.1%**		**28**		**2**		**1**	
	Walk	**5.8%**		**16**		**1**		**1**	
	Other	**2.9%**		**8**		**1**		**0**	
	All Modes	**100.0%**		**274**	**198**	**18**	**13**	**14**	**10**

Notes:
[1] Bauer Transportation survey

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: 50% of the "Transit" percentage has been added to "Auto".
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

LAND USE: PRIVATE FLEET MANAGEMENT (NON-EMPLOYEE TRIPS)

Proposed Size:		**152,355 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		4.5 trips/1000 sq.ft.	Person-trip Gen Rate:	6.5% [1]	0.3	8.0% [1]	0.4
Total Person Trips:		686 person-trips	Total Person-trips:		45		55
Non-Work Trips [2]:	60%	411 person-trips	Non-Work Person-trips:	60% [1]	27	75% [1]	41

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 5.0%	Auto	100.0%	1.00	21	21	1	1	2	2
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		21	21	1	1	2	2
SF Superdistrict 2 5.0%	Auto	100.0%	1.00	21	21	1	1	2	2
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		21	21	1	1	2	2
SF Superdistrict 3 5.0%	Auto	100.0%	1.00	21	21	1	1	2	2
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		21	21	1	1	2	2
SF Superdistrict 4 5.0%	Auto	100.0%	1.00	21	21	1	1	2	2
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		21	21	1	1	2	2
East Bay 30.0%	Auto	100.0%	1.00	123	123	8	8	12	12
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		123	123	8	8	12	12
North Bay 20.0%	Auto	100.0%	1.00	82	82	5	5	8	8
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		82	82	5	5	8	8
South Bay 30.0%	Auto	100.0%	1.00	123	123	8	8	12	12
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		123	123	8	8	12	12
Out of Region 0.0%	Auto	100.0%	1.00	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**100.0%**	**1.00**	**411**	**411**	**27**	**27**	**41**	**41**
	Transit	**0.0%**		**0**		**0**		**0**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**411**	**411**	**27**	**27**	**41**	**41**

Notes:
[1] Bauer Transportation survey
[2] Event split among four geographical areas, with more emphasis on East Bay and South Bay.
[3] Assumed all auto trips; single occupant

D.7.4: Alternative D-Expanded Parcel Delivery Use Alternative

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	250	6,516	0	0	280	652	0	0	7,698	85%
Transit	28	706	0	0	40	112	0	0	886	10%
Walk/Other	0	0	0	0	128	300	0	0	428	5%
Total	**278**	**7,222**	**0**	**0**	**448**	**1,064**	**0**	**0**	**9,012**	**100%**
Vehicle Trips	222	6,154	0	0	158	372	0	0	6,906	
Avg. veh occup.	*1.13*	*1.06*	*0.00*	*0.00*	*1.77*	*1.75*	*0.00*	*0.00*	*1.11*	

	Daily Person Work Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	100	3,246	0	0	46	184	0	0	3,576	86%
Transit	12	366	0	0	16	68	0	0	462	11%
Walk/Other	0	0	0	0	22	84	0	0	106	3%
Total	**112**	**3,612**	**0**	**0**	**84**	**336**	**0**	**0**	**4,144**	**100%**
Vehicle Trips	88	2,882	0	0	26	106	0	0	3,102	
Avg. veh occup.	*1.14*	*1.13*	*0.00*	*0.00*	*1.77*	*1.74*	*0.00*	*0.00*	*1.15*	

	Daily Person Visitor Trips									
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Auto	150	3,270	0	0	234	468	0	0	4,122	85%
Transit	16	340	0	0	22	46	0	0	424	9%
Walk/Other	0	0	0	0	108	214	0	0	322	7%
Total	**166**	**3,610**	**0**	**0**	**364**	**728**	**0**	**0**	**4,868**	**100%**
Vehicle Trips	134	3,272	0	0	132	266	0	0	3,804	
Avg. veh occup.	*1.12*	*1.00*	*0.00*	*0.00*	*1.77*	*1.76*	*0.00*	*0.00*	*1.08*	

	AM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	29	456	0	0	7	89	0	0	581	84%	7.5%
Transit	3	49	0	0	2	15	0	0	69	10%	7.8%
Walk/Other	0	0	0	0	3	41	0	0	44	6%	10.3%
Total	**32**	**505**	**0**	**0**	**12**	**145**	**0**	**0**	**694**	**100%**	**7.7%**
Vehicle Trips	25	433	0	0	4	51	0	0	513		7.4%
Avg. veh occup.	*1.16*	*1.05*	*0.00*	*0.00*	*1.75*	*1.75*	*0.00*	*0.00*	*1.13*		

	PM Peak Hour Person Trips										Percent
Mode	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total		of Daily
Auto	31	653	0	0	25	88	0	0	797	85%	10.4%
Transit	3	69	0	0	4	15	0	0	91	10%	10.3%
Walk/Other	0	0	0	0	12	40	0	0	52	6%	12.1%
Total	**34**	**722**	**0**	**0**	**41**	**143**	**0**	**0**	**940**	**100%**	**10.4%**
Vehicle Trips	27	635	0	0	14	50	0	0	726		10.5%
Avg. veh occup.	*1.15*	*1.03*	*0.00*	*0.00*	*1.79*	*1.76*	*0.00*	*0.00*	*1.10*		

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

	Daily Person Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	32	768	0	0	74	200	0	0	1,074	11.9%
Superdistrict 2	34	888	0	0	50	118	0	0	1,090	12.1%
Superdistrict 3	100	2,452	0	0	184	440	0	0	3,176	35.2%
Superdistrict 4	20	538	0	0	62	124	0	0	744	8.3%
East Bay	32	842	0	0	18	36	0	0	928	10.3%
North Bay	8	238	0	0	4	14	0	0	264	2.9%
South Bay	44	1,296	0	0	56	132	0	0	1,528	17.0%
Out of Region	8	200	0	0	0	0	0	0	208	2.3%
Total	**278**	**7,222**	**0**	**0**	**448**	**1,064**	**0**	**0**	**9,012**	**100.0%**

	Daily Auto Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	28	674	0	0	20	62	0	0	784	10.2%
Superdistrict 2	32	802	0	0	22	58	0	0	914	11.9%
Superdistrict 3	88	2,190	0	0	110	252	0	0	2,640	34.3%
Superdistrict 4	18	486	0	0	58	116	0	0	678	8.8%
East Bay	26	716	0	0	14	28	0	0	784	10.2%
North Bay	8	228	0	0	4	14	0	0	254	3.3%
South Bay	42	1,248	0	0	52	122	0	0	1,464	19.0%
Out of Region	8	172	0	0	0	0	0	0	180	2.3%
Total	**250**	**6,516**	**0**	**0**	**280**	**652**	**0**	**0**	**7,698**	**100.0%**

	Daily Transit Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	4	94	0	0	8	28	0	0	134	15.1%
Superdistrict 2	4	88	0	0	2	6	0	0	100	11.3%
Superdistrict 3	10	260	0	0	18	56	0	0	344	38.8%
Superdistrict 4	2	52	0	0	4	6	0	0	64	7.2%
East Bay	6	124	0	0	4	8	0	0	142	16.0%
North Bay	0	12	0	0	0	0	0	0	12	1.4%
South Bay	2	48	0	0	4	8	0	0	62	7.0%
Out of Region	0	28	0	0	0	0	0	0	28	3.2%
Total	**28**	**706**	**0**	**0**	**40**	**112**	**0**	**0**	**886**	**100.0%**

	Daily Vehicle Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	24	648	0	0	10	36	0	0	718	10.4%
Superdistrict 2	28	764	0	0	12	32	0	0	836	12.1%
Superdistrict 3	78	2,104	0	0	62	144	0	0	2,388	34.6%
Superdistrict 4	16	458	0	0	34	66	0	0	574	8.3%
East Bay	24	666	0	0	8	16	0	0	714	10.3%
North Bay	8	206	0	0	2	8	0	0	224	3.2%
South Bay	38	1,144	0	0	30	70	0	0	1,282	18.6%
Out of Region	6	164	0	0	0	0	0	0	170	2.5%
Total	**222**	**6,154**	**0**	**0**	**158**	**372**	**0**	**0**	**6,906**	**100.0%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

	AM Peak Hour Person-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	4	55	0	0	3	27	0	0	89	12.8%
Superdistrict 2	4	63	0	0	1	16	0	0	84	12.1%
Superdistrict 3	13	176	0	0	6	60	0	0	255	36.7%
Superdistrict 4	2	37	0	0	0	17	0	0	56	8.1%
East Bay	3	58	0	0	0	5	0	0	66	9.5%
North Bay	1	16	0	0	0	2	0	0	19	2.7%
South Bay	4	86	0	0	2	18	0	0	110	15.9%
Out of Region	1	14	0	0	0	0	0	0	15	2.2%
Total	**32**	**505**	**0**	**0**	**12**	**145**	**0**	**0**	**694**	**100.0%**

	AM Peak Hour Auto-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	3	48	0	0	1	8	0	0	60	10.3%
Superdistrict 2	4	57	0	0	1	8	0	0	70	12.0%
Superdistrict 3	11	158	0	0	3	34	0	0	206	35.5%
Superdistrict 4	2	34	0	0	0	16	0	0	52	9.0%
East Bay	3	49	0	0	0	4	0	0	56	9.6%
North Bay	1	15	0	0	0	2	0	0	18	3.1%
South Bay	4	83	0	0	2	17	0	0	106	18.2%
Out of Region	1	12	0	0	0	0	0	0	13	2.2%
Total	**29**	**456**	**0**	**0**	**7**	**89**	**0**	**0**	**581**	**100.0%**

	AM Peak Hour Transit-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	1	7	0	0	1	4	0	0	13	18.8%
Superdistrict 2	0	5	0	0	0	1	0	0	6	8.7%
Superdistrict 3	2	19	0	0	1	7	0	0	29	42.0%
Superdistrict 4	0	4	0	0	0	1	0	0	5	7.2%
East Bay	0	8	0	0	0	1	0	0	9	13.0%
North Bay	0	1	0	0	0	0	0	0	1	1.4%
South Bay	0	3	0	0	0	1	0	0	4	5.8%
Out of Region	0	2	0	0	0	0	0	0	2	2.9%
Total	**3**	**49**	**0**	**0**	**2**	**15**	**0**	**0**	**69**	**100.0%**

	AM Peak Hour Vehicle-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	2	47	0	0	0	5	0	0	54	10.5%
Superdistrict 2	3	55	0	0	1	4	0	0	63	12.3%
Superdistrict 3	10	152	0	0	2	20	0	0	184	35.9%
Superdistrict 4	2	32	0	0	0	9	0	0	43	8.4%
East Bay	2	46	0	0	0	2	0	0	50	9.7%
North Bay	1	13	0	0	0	1	0	0	15	2.9%
South Bay	4	76	0	0	1	10	0	0	91	17.7%
Out of Region	1	12	0	0	0	0	0	0	13	2.5%
Total	**25**	**433**	**0**	**0**	**4**	**51**	**0**	**0**	**513**	**100.0%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

	PM Peak Hour Person-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	4	85	0	0	7	27	0	0	123	13.1%
Superdistrict 2	4	95	0	0	5	16	0	0	120	12.8%
Superdistrict 3	11	280	0	0	16	58	0	0	365	38.8%
Superdistrict 4	3	52	0	0	6	17	0	0	78	8.3%
East Bay	4	75	0	0	2	5	0	0	86	9.1%
North Bay	1	16	0	0	0	2	0	0	19	2.0%
South Bay	6	97	0	0	5	18	0	0	126	13.4%
Out of Region	1	22	0	0	0	0	0	0	23	2.4%
Total	**34**	**722**	**0**	**0**	**41**	**143**	**0**	**0**	**940**	**100.0%**

	PM Peak Hour Auto-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	3	76	0	0	2	8	0	0	89	11.2%
Superdistrict 2	4	87	0	0	2	8	0	0	101	12.7%
Superdistrict 3	10	252	0	0	10	34	0	0	306	38.4%
Superdistrict 4	2	48	0	0	5	16	0	0	71	8.9%
East Bay	3	63	0	0	1	4	0	0	71	8.9%
North Bay	2	15	0	0	0	2	0	0	19	2.4%
South Bay	6	94	0	0	5	16	0	0	121	15.2%
Out of Region	1	18	0	0	0	0	0	0	19	2.4%
Total	**31**	**653**	**0**	**0**	**25**	**88**	**0**	**0**	**797**	**100.0%**

	PM Peak Hour Transit-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	1	9	0	0	2	4	0	0	16	17.6%
Superdistrict 2	0	7	0	0	0	1	0	0	8	8.8%
Superdistrict 3	1	30	0	0	2	7	0	0	40	44.0%
Superdistrict 4	0	5	0	0	0	1	0	0	6	6.6%
East Bay	1	11	0	0	0	1	0	0	13	14.3%
North Bay	0	1	0	0	0	0	0	0	1	1.1%
South Bay	0	3	0	0	0	1	0	0	4	4.4%
Out of Region	0	3	0	0	0	0	0	0	3	3.3%
Total	**3**	**69**	**0**	**0**	**4**	**15**	**0**	**0**	**91**	**100.0%**

	PM Peak Hour Vehicle-Trips									Percent
Distribution	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	Distribution
Superdistrict 1	3	75	0	0	1	5	0	0	84	11.6%
Superdistrict 2	3	85	0	0	1	4	0	0	93	12.8%
Superdistrict 3	9	247	0	0	5	19	0	0	280	38.6%
Superdistrict 4	2	46	0	0	3	9	0	0	60	8.3%
East Bay	3	61	0	0	1	3	0	0	68	9.4%
North Bay	1	14	0	0	0	1	0	0	16	2.2%
South Bay	5	89	0	0	3	9	0	0	106	14.6%
Out of Region	1	18	0	0	0	0	0	0	19	2.6%
Total	**27**	**635**	**0**	**0**	**14**	**50**	**0**	**0**	**726**	**100.0%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

	Daily			AM Peak Hour			PM Peak Hour		
Auto Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	392	392	784	42	18	60	41	48	89
Superdistrict 2	457	457	914	48	22	70	47	54	101
Superdistrict 3	1,320	1,320	2,640	134	72	206	152	154	306
Superdistrict 4	339	339	678	34	18	52	34	37	71
East Bay	392	392	784	43	13	56	28	43	71
North Bay	127	127	254	15	3	18	4	15	19
South Bay	732	732	1,464	86	20	106	39	82	121
Out of Region	90	90	180	9	4	13	9	10	19
Total	**3,849**	**3,849**	**7,698**	**411**	**170**	**581**	**354**	**443**	**797**

	Daily			AM Peak Hour			PM Peak Hour		
Transit Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	67	67	134	10	3	13	5	11	16
Superdistrict 2	50	50	100	4	2	6	4	4	8
Superdistrict 3	172	172	344	21	8	29	18	22	40
Superdistrict 4	32	32	64	4	1	5	3	3	6
East Bay	71	71	142	7	2	9	5	8	13
North Bay	6	6	12	1	0	1	0	1	1
South Bay	31	31	62	3	1	4	1	3	4
Out of Region	14	14	28	2	0	2	1	2	3
Total	**443**	**443**	**886**	**52**	**17**	**69**	**37**	**54**	**91**

	Daily			AM Peak Hour			PM Peak Hour		
Walk/Other Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	78	78	156	11	5	16	7	11	18
Superdistrict 2	38	38	76	5	3	8	6	5	11
Superdistrict 3	96	96	192	13	7	20	8	11	19
Superdistrict 4	1	1	2	0	-1	-1	0	1	1
East Bay	1	1	2	0	1	1	1	1	2
North Bay	-1	-1	-2	0	0	0	0	-1	-1
South Bay	1	1	2	0	0	0	0	1	1
Out of Region	0	0	0	0	0	0	0	1	1
Total	**214**	**214**	**428**	**29**	**15**	**44**	**22**	**30**	**52**

	Daily			AM Peak Hour			PM Peak Hour		
Total Person Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	537	537	1,074	63	26	89	53	70	123
Superdistrict 2	545	545	1,090	57	27	84	57	63	120
Superdistrict 3	1,588	1,588	3,176	168	87	255	178	187	365
Superdistrict 4	372	372	744	38	18	56	37	41	78
East Bay	464	464	928	50	16	66	34	52	86
North Bay	132	132	264	16	3	19	4	15	19
South Bay	764	764	1,528	89	21	110	40	86	126
Out of Region	104	104	208	11	4	15	10	13	23
Total	**4,506**	**4,506**	**9,012**	**492**	**202**	**694**	**413**	**527**	**940**

	Daily			AM Peak Hour			PM Peak Hour		
Vehicle Trips	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Superdistrict 1	359	359	718	36	18	54	40	44	84
Superdistrict 2	418	418	836	42	21	63	45	48	93
Superdistrict 3	1,194	1,194	2,388	118	66	184	143	137	280
Superdistrict 4	287	287	574	29	14	43	28	32	60
East Bay	357	357	714	38	12	50	27	41	68
North Bay	112	112	224	13	2	15	4	12	16
South Bay	641	641	1,282	74	17	91	35	71	106
Out of Region	85	85	170	9	4	13	9	10	19
Total	**3,453**	**3,453**	**6,906**	**359**	**154**	**513**	**331**	**395**	**726**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: MANUFACTURING (WORK TRIPS)

Proposed Size:		**35,000 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		7.9	trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		277	person-trips	Total Person-trips:		32		34
Work Trips [2]:	40%	111	person-trips	Work Person-trips:	25% [5]	8	50% [2]	17

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	8	7	1	0	1	1
	Transit	16.4%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	0	1	1
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	10	9	1	1	2	1
	Transit	13.2%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		12	9	1	1	2	1
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	24	21	2	2	4	3
	Transit	10.3%		3		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		26	21	2	2	4	3
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	8	7	1	0	1	1
	Transit	10.8%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	7	1	0	1	1
East Bay 14.3%	Auto	85.1%	1.13	13	12	1	1	2	2
	Transit	14.9%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		16	12	1	1	2	2
North Bay 5.6%	Auto	94.7%	1.13	6	5	0	0	1	1
	Transit	5.3%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	5	0	0	1	1
South Bay 26.9%	Auto	95.6%	1.13	28	25	2	2	4	4
	Transit	4.4%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		30	25	2	2	5	4
Out of Region 2.5%	Auto	82.3%	1.13	2	2	0	0	0	0
	Transit	17.7%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	0	0	0	0
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**99**	**88**	**7**	**6**	**15**	**14**
	Transit	**10.1%**		**11**		**1**		**2**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**111**	**88**	**8**	**6**	**17**	**14**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: MANUFACTURING (NON-WORK TRIPS)

Proposed Size:		**35,000 sq.ft.**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		7.9	trips/1000 sq.ft.	Person-trip Gen Rate:	11.5% [4]	0.9	12.4% [1]	1.0
Total Person Trips:		277	person-trips	Total Person-trips:		32		34
Non-Work Trips [2]:	60%	166	person-trips	Non-Work Person-trips:	75% [5]	24	50% [2]	17

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.13	19	17	3	2	2	2
	Transit	9.6%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		22	17	3	2	2	2
SF Superdistrict 2 14.0%	Auto	92.7%	1.13	22	19	3	3	2	2
	Transit	7.3%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		23	19	3	3	2	2
SF Superdistrict 3 44.0%	Auto	89.2%	1.13	65	58	9	8	7	6
	Transit	10.8%		8		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		73	58	10	8	8	6
SF Superdistrict 4 7.0%	Auto	91.8%	1.13	11	9	2	1	1	1
	Transit	8.2%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		12	9	2	1	1	1
East Bay 9.0%	Auto	85.1%	1.13	13	11	2	2	1	1
	Transit	14.9%		2		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	11	2	2	2	1
North Bay 1.0%	Auto	100.0%	1.13	2	1	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	0	0	0	0
South Bay 9.0%	Auto	98.2%	1.13	15	13	2	2	2	1
	Transit	1.8%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		15	13	2	2	2	1
Out of Region 3.0%	Auto	89.5%	1.13	4	4	1	1	0	0
	Transit	10.6%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		5	4	1	1	1	0
All Origins 100.0%	**Auto**	**90.6%**	**1.13**	**150**	**133**	**22**	**19**	**16**	**14**
	Transit	**9.4%**		**16**		**2**		**2**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**166**	**133**	**24**	**19**	**17**	**14**

Notes:
[1] 2002 SF Guidelines, Appendix C - Table C-1 (Manufacturing/Industrial)
[2] 2002 SF Guidelines, Appendix C - Table C-2 (Manufacturing/Industrial)
[3] 2019 SF Guidelines - Office Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are based on AIC survey.
[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: PARCEL DELIVERY (WORK TRIPS)

Proposed Size:		491,276 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		7,222	person-trips	Total Person-trips:		506		722
Work Trips [1]:	50%	3,611	person-trips	Work Person-trips:	45% [1]	227	25% [1]	181

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	83.6%	1.13	251	223	16	14	13	11
	Transit	16.4%		49		3		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		300	223	19	14	15	11
SF Superdistrict 2 10.6%	Auto	86.8%	1.13	332	295	21	19	17	15
	Transit	13.2%		51		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		383	295	24	19	19	15
SF Superdistrict 3 23.9%	Auto	89.7%	1.13	774	687	49	43	39	34
	Transit	10.3%		89		6		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		863	687	54	43	43	34
SF Superdistrict 4 7.9%	Auto	89.2%	1.13	254	226	16	14	13	11
	Transit	10.8%		31		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		285	226	18	14	14	11
East Bay 14.3%	Auto	85.1%	1.13	439	390	28	25	22	20
	Transit	14.9%		77		5		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		516	390	33	25	26	20
North Bay 5.6%	Auto	94.7%	1.13	191	170	12	11	10	9
	Transit	5.3%		11		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		202	170	13	11	10	9
South Bay 26.9%	Auto	95.6%	1.13	929	825	59	52	46	41
	Transit	4.4%		43		3		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		971	825	61	52	49	41
Out of Region 2.5%	Auto	82.3%	1.13	74	66	5	4	4	3
	Transit	17.7%		16		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		90	66	6	4	5	3
All Origins 100.0%	**Auto**	**89.9%**	**1.13**	**3,245**	**2,882**	**204**	**182**	**162**	**144**
	Transit	**10.1%**		**366**		**23**		**18**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**3,611**	**2,882**	**227**	**182**	**181**	**144**

Notes:
[1] Surveys of OnTrac and Amazon

[3] 2019 SF Guidelines - Office Work Trips, Daily (Bayshore District)

[6] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All) with adjustments: "Walk" and "Other" have been added to "Auto", as well as 50% of
[7] 2002 SF Guidelines Appendix E - Table E-5 Work Trips to SD3 (All)

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: PARCEL DELIVERY (NON-WORK TRIPS)

Proposed Size:		491,276 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		14.7	trips/1000 sq.ft.	Person-trip Gen Rate:	7.0% [1]	1.0	10.0% [1]	1.5
Total Person Trips:		7,222	person-trips	Total Person-trips:		506		722
Non-Work Trips [1]:	50%	3,611	person-trips	Non-Work Person-trips:	55% [1]	278	75% [1]	542

Percent of Origin Distribution [7]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily Person Trips	Daily Vehicle-Trips	AM Peak Hour Person Trips	AM Peak Hour Vehicle-Trips	PM Peak Hour Person Trips	PM Peak Hour Vehicle-Trips
SF Superdistrict 1 13.0%	Auto	90.4%	1.00	424	424	33	33	64	64
	Transit	9.6%		45		3		7	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		469	424	36	33	70	64
SF Superdistrict 2 14.0%	Auto	92.7%	1.00	469	469	36	36	70	70
	Transit	7.3%		37		3		6	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		506	469	39	36	76	70
SF Superdistrict 3 44.0%	Auto	89.2%	1.00	1,417	1,417	109	109	213	213
	Transit	10.8%		172		13		26	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		1,589	1,417	122	109	238	213
SF Superdistrict 4 7.0%	Auto	91.8%	1.00	232	232	18	18	35	35
	Transit	8.2%		21		2		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		253	232	19	18	38	35
East Bay 9.0%	Auto	85.1%	1.00	277	277	21	21	41	41
	Transit	14.9%		48		4		7	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		325	277	25	21	49	41
North Bay 1.0%	Auto	100.0%	1.00	36	36	3	3	5	5
	Transit	0.0%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		36	36	3	3	5	5
South Bay 9.0%	Auto	98.2%	1.00	319	319	25	25	48	48
	Transit	1.8%		6		0		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		325	319	25	25	49	48
Out of Region 3.0%	Auto	89.5%	1.00	97	97	7	7	15	15
	Transit	10.6%		11		1		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.1%		108	97	8	7	16	15
All Origins 100.0%	**Auto**	**90.6%**	**1.00**	**3,271**	**3,271**	**252**	**252**	**491**	**491**
	Transit	**9.4%**		**340**		**26**		**51**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**3,611**	**3,271**	**278**	**252**	**542**	**491**

Notes:
[1] Surveys of OnTrac and Amazon

[3] Assumes one person per vehicle (van, truck, etc.).

[6] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other) with adjustments: "Walk" and "Other" have been added to "Auto", as well as
[7] 2002 SF Guidelines Appendix E - Table E-15 Visitor Trips to SD3 (All Other)

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: GENERAL RETAIL (WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		150.0 trips/1000 sq.ft.	Person-trip Gen Rate:		2.2% [4]	3.3	9.0% [1]	13.5
Total Person Trips:		630 person-trips	Total Person-trips:			14		57
Work Trips [2]:	13%	84 person-trips	Work Person-trips:		85% [5]	12	13% [2]	7

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	41.9%	1.76	11	6	2	1	1	1
SF Superdistrict 1	Transit	22.9%		6		1		1	
31.7%	Walk	33.9%		9		1		1	
	Other	1.3%		0		0		0	
	All Modes	100.0%		27	6	4	1	2	1
	Auto	71.6%	1.76	6	3	1	0	1	0
SF Superdistrict 2	Transit	1.9%		0		0		0	
9.7%	Walk	22.1%		2		0		0	
	Other	4.4%		0		0		0	
	All Modes	100.0%		8	3	1	0	1	0
	Auto	46.5%	1.76	16	9	2	1	1	1
SF Superdistrict 3	Transit	26.8%		9		1		1	
41.9%	Walk	25.7%		9		1		1	
	Other	1.0%		0		0		0	
	All Modes	100.0%		35	9	5	1	3	1
	Auto	93.0%	1.76	1	1	0	0	0	0
SF Superdistrict 4	Transit	0.0%		0		0		0	
1.2%	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	100.0%	1.76	1	1	0	0	0	0
East Bay	Transit	0.0%		0		0		0	
1.1%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	100.0%	1.76	1	1	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		1	1	0	0	0	0
	Auto	89.4%	1.76	10	5	1	1	1	0
South Bay	Transit	10.6%		1		0		0	
12.7%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		11	5	2	1	1	0
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**55.0%**	**1.76**	**46**	**26**	**7**	**4**	**4**	**2**
All Origins	**Transit**	**20.0%**		**17**		**2**		**1**	
100.0%	**Walk**	**23.7%**		**20**		**3**		**2**	
	Other	**1.3%**		**1**		**0**		**0**	
	All Modes	**100.0%**		**84**	**26**	**12**	**4**	**7**	**2**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: GENERAL RETAIL (NON-WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY	Linked trip factor:	33% [7]			AM PEAK HOUR		PM PEAK HOUR	
Person-trip rate w/ linked factor [1]:		100.0 trips/1000 sq.ft.	Person-trip Gen Rate:		2.2% [4]	2.2	9.0% [1]	9.0
Total Person Trips:		420 person-trips	Total Person-trips:			9		38
Non-Work Trips [2]:	87%	364 person-trips	Non-Work Person-trips:		15% [5]	1	87% [2]	33

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	18.2%	1.76	9	5	0	0	1	0
SF Superdistrict 1	Transit	4.7%		2		0		0	
12.8%	Walk	74.6%		35		0		3	
	Other	2.5%		1		0		0	
	All Modes	100.0%		47	5	0	0	4	0
	Auto	39.8%	1.76	17	10	0	0	2	1
SF Superdistrict 1	Transit	5.1%		2		0		0	
11.6%	Walk	52.4%		22		0		2	
	Other	2.7%		1		0		0	
	All Modes	100.0%		42	10	0	0	4	1
	Auto	62.2%	1.76	93	53	0	0	8	5
SF Superdistrict 1	Transit	6.0%		9		0		1	
41.2%	Walk	31.0%		46		0		4	
	Other	0.8%		1		0		0	
	All Modes	100.0%		150	53	1	0	14	5
	Auto	94.6%	1.76	57	32	0	0	5	3
SF Superdistrict 1	Transit	4.7%		3		0		0	
16.5%	Walk	0.0%		0		0		0	
	Other	0.7%		0		0		0	
	All Modes	100.0%		60	32	0	0	5	3
	Auto	72.8%	1.76	12	7	0	0	1	1
East Bay	Transit	27.2%		5		0		0	
4.6%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		17	7	0	0	2	1
	Auto	100.0%	1.76	4	2	0	0	0	0
North Bay	Transit	0.0%		0		0		0	
1.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		4	2	0	0	0	0
	Auto	95.3%	1.76	42	24	0	0	4	2
South Bay	Transit	4.7%		2		0		0	
12.2%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		45	24	0	0	4	2
	Auto	0.0%	1.76	0	0	0	0	0	0
Out of Region	Transit	0.0%		0		0		0	
0.0%	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
	Auto	**64.2%**	**1.76**	**234**	**133**	**1**	**1**	**21**	**12**
All Origins	**Transit**	**6.3%**		**23**		**0**		**2**	
100.0%	**Walk**	**28.4%**		**103**		**0**		**9**	
	Other	**1.1%**		**4**		**0**		**0**	
	All Modes	**100.0%**		**364**	**133**	**1**	**1**	**33**	**12**

Notes:
[1] 2019 SF Guidelines - Table 1 (General Retail)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] 85% of all retail trips ocurring before 9 AM are assumed to be work trips
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Assumes that 1/3 of the retail customers are already in the area.

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: QUICK SERVICE RESTAURANT (WORK TRIPS)

Proposed Size:		4,200 sq.ft.						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		600.0	trips/1000 sq.ft.	Person-trip Gen Rate:	13.7% [4]	82.4	13.5% [7]	81.0
Total Person Trips:		2,520	person-trips	Total Person-trips:		346		340
Work Trips [2]:	13%	336	person-trips	Work Person-trips:	13% [5]	45	13% [2]	44

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 31.7%	Auto	41.9%	1.76	45	25	6	3	6	3
	Transit	22.9%		24		3		3	
	Walk	33.9%		36		5		5	
	Other	1.3%		1		0		0	
	All Modes	100.0%		107	25	14	3	14	3
SF Superdistrict 2 9.7%	Auto	71.6%	1.76	23	13	3	2	3	2
	Transit	1.9%		1		0		0	
	Walk	22.1%		7		1		1	
	Other	4.4%		1		0		0	
	All Modes	100.0%		33	13	4	2	4	2
SF Superdistrict 3 41.9%	Auto	46.5%	1.76	65	37	9	5	9	5
	Transit	26.8%		38		5		5	
	Walk	25.7%		36		5		5	
	Other	1.0%		1		0		0	
	All Modes	100.0%		141	37	19	5	18	5
SF Superdistrict 4 1.2%	Auto	93.0%	1.76	4	2	1	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	7.0%		0		0		0	
	All Modes	100.0%		4	2	1	0	1	0
East Bay 1.1%	Auto	100.0%	1.76	4	2	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		4	2	0	0	0	0
North Bay 1.7%	Auto	100.0%	1.76	6	3	1	0	1	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		6	3	1	0	1	0
South Bay 12.7%	Auto	89.4%	1.76	38	22	5	3	5	3
	Transit	10.6%		5		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		43	22	6	3	6	3
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**55.0%**	**1.76**	**185**	**105**	**25**	**14**	**24**	**14**
	Transit	**20.0%**		**67**		**9**		**9**	
	Walk	**23.7%**		**80**		**11**		**10**	
	Other	**1.3%**		**5**		**1**		**1**	
	All Modes	**100.0%**		**336**	**105**	**45**	**14**	**44**	**14**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Work Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Work Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

LAND USE: QUICK SERVICE RESTAURANT (NON-WORK TRIPS)

Proposed Size:			4,200 sq.ft.					
DAILY	Linked trip factor:	67% [8]			AM PEAK HOUR		PM PEAK HOUR	
Person-trip rate w/ linked factor [1]:		200.0	trips/1000 sq.ft.	Person-trip Gen Rate:	13.7% [4]	27.5	13.5% [7]	27.0
Total Person Trips:		840	person-trips	Total Person-trips:		115		113
Non-Work Trips [2]:	87%	728	person-trips	Non-Work Person-trips:	87% [5]	100	87% [2]	99

Percent of Origin Distribution [3]	Mode of Travel	Percent Distribution [6]	Average Vehicle Occupancy [3]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 12.8%	Auto	18.2%	1.76	17	10	2	1	2	1
	Transit	4.7%		4		1		1	
	Walk	74.6%		70		10		9	
	Other	2.5%		2		0		0	
	All Modes	100.0%		93	10	13	1	13	1
SF Superdistrict 2 11.6%	Auto	39.8%	1.76	34	19	5	3	5	3
	Transit	5.1%		4		1		1	
	Walk	52.4%		44		6		6	
	Other	2.7%		2		0		0	
	All Modes	100.0%		84	19	12	3	11	3
SF Superdistrict 3 41.2%	Auto	62.2%	1.76	186	106	26	15	25	14
	Transit	6.0%		18		2		2	
	Walk	31.0%		93		13		13	
	Other	0.8%		2		0		0	
	All Modes	100.0%		300	106	41	15	41	14
SF Superdistrict 4 16.5%	Auto	94.6%	1.76	114	65	16	9	15	9
	Transit	4.7%		6		1		1	
	Walk	0.0%		0		0		0	
	Other	0.7%		1		0		0	
	All Modes	100.0%		120	65	17	9	16	9
East Bay 4.6%	Auto	72.8%	1.76	25	14	3	2	3	2
	Transit	27.2%		9		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		34	14	5	2	5	2
North Bay 1.0%	Auto	100.0%	1.76	8	4	1	1	1	1
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		8	4	1	1	1	1
South Bay 12.2%	Auto	95.3%	1.76	85	48	12	7	12	7
	Transit	4.7%		4		1		1	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	100.0%		89	48	12	7	12	7
Out of Region 0.0%	Auto	0.0%	1.76	0	0	0	0	0	0
	Transit	0.0%		0		0		0	
	Walk	0.0%		0		0		0	
	Other	0.0%		0		0		0	
	All Modes	0.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**64.2%**	**1.76**	**468**	**266**	**65**	**37**	**63**	**36**
	Transit	**6.3%**		**46**		**6**		**6**	
	Walk	**28.4%**		**207**		**29**		**28**	
	Other	**1.1%**		**8**		**1**		**1**	
	All Modes	**100.0%**		**728**	**266**	**100**	**37**	**99**	**36**

Notes:
[1] 2019 SF Guidelines - Table 1 (Eating Composite)
[2] 2019 SF Guidelines (Retail)
[3] 2019 SF Guidelines - Retail Other Trips, Daily (Bayshore District)
[4] Adapted from ITE Trip Generation Report, 10th Edition (2012), in combination with SF Guidelines
[5] The AM Peak Hour % of work/non-work trips are assumed to be the same as the PM Peak Hour % estimated in the 2019 SF Guidelines
[6] 2019 SF Guidelines - Retail Other Trips (Bayshore District) with adjustments: 2/3 of the "Transit" percentage has been added to "Auto".
[7] Based on ITE and SANDAG data
[8] Assumes that 2/3 of the QSR customers are already in the area.

Appendix D.8
ALTERNATIVES
COMMERCIAL VEHICLE AND PASSENGER LOADING DEMAND

D.8.1: Alternative A-No Project Alternative

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	0	1,314	430	0	0	0	0	0	1,744	49%
Non-work	0	1,490	322	0	0	0	0	0	1,812	51%
Total	**0**	**2,804**	**752**	**0**	**0**	**0**	**0**	**0**	**3,556**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	67%	50%	40%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	16%	12%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	2%	5%	10%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	0	2,060	558	0	0	0	0	0	2,618	74%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	0	492	32	0	0	0	0	0	524	15%
SU truck deliveries	0	178	130	0	0	0	0	0	308	9%
Tractor-trailer deliveri	0	74	32	0	0	0	0	0	106	3%
Total	**0**	**2,804**	**752**	**0**	**0**	**0**	**0**	**0**	**3,556**	**100%**

	AM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	0	83	51	0	0	0	0	0	134	51%
Non-work	0	115	12	0	0	0	0	0	127	49%
Total	**0**	**198**	**63**	**0**	**0**	**0**	**0**	**0**	**261**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	45%	15%	20%	86%	96%	94%	10%	13%
Buses	0%	0%	0%	0%	0%	0%	75%	85%
Vans	28%	65%	5%	7%	2%	4%	4%	1%
SU truck deliveries	26%	17%	45%	7%	2%	2%	10%	1%
Tractor-trailer deliveri	2%	3%	30%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	0	100	53	0	0	0	0	0	153	59%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	0	75	1	0	0	0	0	0	76	29%
SU truck deliveries	0	20	5	0	0	0	0	0	25	10%
Tractor-trailer deliveri	0	3	4	0	0	0	0	0	7	3%
Total	**0**	**198**	**63**	**0**	**0**	**0**	**0**	**0**	**261**	**100%**

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	0	141	58	0	0	0	0	0	199
Outbound	0	57	5	0	0	0	0	0	62
Total	**0**	**198**	**63**	**0**	**0**	**0**	**0**	**0**	**261**

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	0%	71%	92%	0%	0%	0%	0%	0%	76%
Outbound	0%	29%	8%	0%	0%	0%	0%	0%	24%
Total	**0%**	**100%**	**100%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**

	PM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	0	66	19	0	0	0	0	0	85	27%
Non-work	0	223	9	0	0	0	0	0	232	73%
Total	**0**	**289**	**28**	**0**	**0**	**0**	**0**	**0**	**317**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	50%	66%	60%	86%	95%	95%	15%	31%
Buses	0%	0%	0%	0%	0%	0%	70%	60%
Vans	5%	28%	10%	7%	0%	0%	5%	9%
SU truck deliveries	43%	5%	20%	7%	5%	5%	10%	0%
Tractor-trailer deliveri	2%	1%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	0	213	24	0	0	0	0	0	237	75%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	0	63	1	0	0	0	0	0	64	20%
SU truck deliveries	0	11	2	0	0	0	0	0	13	4%
Tractor-trailer deliveri	0	2	1	0	0	0	0	0	3	1%
Total	**0**	**289**	**28**	**0**	**0**	**0**	**0**	**0**	**317**	**100%**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	0	134	6	0	0	0	0	0	140
Outbound	0	155	22	0	0	0	0	0	177
Total	**0**	**289**	**28**	**0**	**0**	**0**	**0**	**0**	**317**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	0%	46%	21%	0%	0%	0%	0%	0%	44%
Outbound	0%	54%	79%	0%	0%	0%	0%	0%	56%
Total	**0%**	**100%**	**100%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

Daily Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	100	32	0	0	0	0	0	132	8%
Superdistrict 2	0	136	44	0	0	0	0	0	180	10%
Superdistrict 3	0	314	102	0	0	0	0	0	416	24%
Superdistrict 4	0	102	34	0	0	0	0	0	136	8%
East Bay	0	178	58	0	0	0	0	0	236	14%
North Bay	0	78	26	0	0	0	0	0	104	6%
South Bay	0	376	124	0	0	0	0	0	500	29%
Out of Region	0	30	10	0	0	0	0	0	40	2%
Total	**0**	**1,314**	**430**	**0**	**0**	**0**	**0**	**0**	**1,744**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	194	48	0	0	0	0	0	242	13%
Superdistrict 2	0	212	52	0	0	0	0	0	264	15%
Superdistrict 3	0	648	130	0	0	0	0	0	778	43%
Superdistrict 4	0	106	20	0	0	0	0	0	126	7%
East Bay	0	126	24	0	0	0	0	0	150	8%
North Bay	0	16	4	0	0	0	0	0	20	1%
South Bay	0	144	32	0	0	0	0	0	176	10%
Out of Region	0	44	12	0	0	0	0	0	56	3%
Total	**0**	**1,490**	**322**	**0**	**0**	**0**	**0**	**0**	**1,812**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
San Francisco	0%	78%	78%	0%	0%	0%	0%	0%	78%
Rest of Bay+Out of R	0%	22%	22%	0%	0%	0%	0%	0%	22%
Total	**0%**	**100%**	**100%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**

Non-Work Veh-SF	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	70%	60%	50%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	15%	7%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	0%	0%	0%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Work Veh-Othe	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	56%	15%	5%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	32%	10%	7%	2%	4%	3%	1%
SU truck deliveries	20%	31%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	9%	23%	45%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Daily Automobile Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	218	56	0	0	0	0	0	274	10%
Superdistrict 2	0	264	70	0	0	0	0	0	334	13%
Superdistrict 3	0	704	168	0	0	0	0	0	872	33%
Superdistrict 4	0	166	44	0	0	0	0	0	210	8%
East Bay	0	196	58	0	0	0	0	0	254	10%
North Bay	0	80	26	0	0	0	0	0	106	4%
South Bay	0	396	126	0	0	0	0	0	522	20%
Out of Region	0	36	10	0	0	0	0	0	46	2%
Total	**0**	**2,060**	**558**	**0**	**0**	**0**	**0**	**0**	**2,618**	**100%**

San Francisco Gateway - Alt A: No Project [November 2022]

FINAL SUMMARY OF TRIPS

Daily Bus Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	0	0	0	0	0	0	0	0	0%
North Bay	0	0	0	0	0	0	0	0	0	0%
South Bay	0	0	0	0	0	0	0	0	0	0%
Out of Region	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0%**

Daily Van Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	64	6	0	0	0	0	0	70	13%
Superdistrict 2	0	70	4	0	0	0	0	0	74	14%
Superdistrict 3	0	216	12	0	0	0	0	0	228	44%
Superdistrict 4	0	36	2	0	0	0	0	0	38	7%
East Bay	0	40	2	0	0	0	0	0	42	8%
North Bay	0	6	0	0	0	0	0	0	6	1%
South Bay	0	46	4	0	0	0	0	0	50	10%
Out of Region	0	14	2	0	0	0	0	0	16	3%
Total	**0**	**492**	**32**	**0**	**0**	**0**	**0**	**0**	**524**	**100%**

Daily SU Truck Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	12	18	0	0	0	0	0	30	10%
Superdistrict 2	0	14	22	0	0	0	0	0	36	12%
Superdistrict 3	0	42	52	0	0	0	0	0	94	31%
Superdistrict 4	0	6	8	0	0	0	0	0	14	5%
East Bay	0	40	10	0	0	0	0	0	50	16%
North Bay	0	4	2	0	0	0	0	0	6	2%
South Bay	0	46	14	0	0	0	0	0	60	19%
Out of Region	0	14	4	0	0	0	0	0	18	6%
Total	**0**	**178**	**130**	**0**	**0**	**0**	**0**	**0**	**308**	**100%**

Daily Tractor-trailer Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	28	12	0	0	0	0	0	40	38%
North Bay	0	4	2	0	0	0	0	0	6	6%
South Bay	0	32	12	0	0	0	0	0	44	42%
Out of Region	0	10	6	0	0	0	0	0	16	15%
Total	**0**	**74**	**32**	**0**	**0**	**0**	**0**	**0**	**106**	**100%**

Daily Vehicle Trips

Origin/Destination	Auto	Bus	Van	SU Truck	Trctr-trlr	Total	
Superdistrict 1	274	0	70	30	0	374	11%
Superdistrict 2	334	0	74	36	0	444	12%
Superdistrict 3	872	0	228	94	0	1,194	34%
Superdistrict 4	210	0	38	14	0	262	7%
East Bay	254	0	42	50	40	386	11%
North Bay	106	0	6	6	6	124	3%
South Bay	522	0	50	60	44	676	19%
Out of Region	46	0	16	18	16	96	3%
Total	**2,618**	**0**	**524**	**308**	**106**	**3,556**	**100%**

San Francisco Gateway - Alt A: No Project [November 2022]

VEHICLE CLASSIFICATION SUMMARY

DAILY VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	137	0	35	15	0	187	137	0	35	15	0	187	274	0	70	30	0	374
Superdistrict 2	167	0	37	18	0	222	167	0	37	18	0	222	334	0	74	36	0	444
Superdistrict 3	436	0	114	47	0	597	436	0	114	47	0	597	872	0	228	94	0	1,194
Superdistrict 4	105	0	19	7	0	131	105	0	19	7	0	131	210	0	38	14	0	262
East Bay	127	0	21	25	20	193	127	0	21	25	20	193	254	0	42	50	40	386
North Bay	53	0	3	3	3	62	53	0	3	3	3	62	106	0	6	6	6	124
South Bay	261	0	25	30	22	338	261	0	25	30	22	338	522	0	50	60	44	676
Out of Region	23	0	8	9	8	48	23	0	8	9	8	48	46	0	16	18	16	96
Total	**1,309**	**0**	**262**	**154**	**53**	**1,778**	**1,309**	**0**	**262**	**154**	**53**	**1,778**	**2,618**	**0**	**524**	**308**	**106**	**3,556**
	74%	***0%***	***15%***	***9%***	***3%***	***100%***	***74%***	***0%***	***15%***	***9%***	***3%***	***100%***	***74%***	***0%***	***15%***	***9%***	***3%***	***100%***
Check:						*1,778*						*1,778*						*3,556*

AM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	12	0	6	1	0	19	1	0	6	1	0	8	13	0	12	2	0	27
Superdistrict 2	15	0	5	2	1	23	3	0	5	1	0	9	18	0	10	3	1	32
Superdistrict 3	38	0	16	5	1	60	5	0	16	5	1	27	43	0	32	10	2	87
Superdistrict 4	11	0	3	2	0	16	0	0	3	1	0	4	11	0	6	3	0	20
East Bay	18	0	3	2	1	24	0	0	3	1	1	5	18	0	6	3	2	29
North Bay	8	0	0	0	0	8	0	0	0	0	1	1	8	0	0	0	1	9
South Bay	38	0	4	2	0	44	0	0	4	1	1	6	38	0	8	3	1	50
Out of Region	3	0	1	1	0	5	1	0	1	0	0	2	4	0	2	1	0	7
Total	**143**	**0**	**38**	**15**	**3**	**199**	**10**	**0**	**38**	**10**	**4**	**62**	**153**	**0**	**76**	**25**	**7**	**261**
	72%	***0%***	***19%***	***8%***	***2%***	***100%***	***16%***	***0%***	***61%***	***16%***	***6%***	***100%***	***59%***	***0%***	***29%***	***10%***	***3%***	***100%***
Check:						*199*						*62*						*261*

PM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	12	0	6	0	0	18	16	0	3	0	0	19	28	0	9	0	0	37
Superdistrict 2	13	0	6	1	0	20	18	0	4	0	0	22	31	0	10	1	0	42
Superdistrict 3	43	0	16	1	0	60	49	0	11	1	0	61	92	0	27	2	0	121
Superdistrict 4	6	0	3	0	1	10	11	0	2	0	0	13	17	0	5	0	1	23
East Bay	6	0	3	2	1	12	16	0	2	1	0	19	22	0	5	3	1	31
North Bay	2	0	0	0	0	2	5	0	0	0	0	5	7	0	0	0	0	7
South Bay	6	0	4	3	1	14	29	0	2	2	0	33	35	0	6	5	1	47
Out of Region	2	0	1	1	0	4	3	0	1	1	0	5	5	0	2	2	0	9
Total	**90**	**0**	**39**	**8**	**3**	**140**	**147**	**0**	**25**	**5**	**0**	**177**	**237**	**0**	**64**	**13**	**3**	**317**
	64%	***0%***	***28%***	***6%***	***2%***	***100%***	***83%***	***0%***	***14%***	***3%***	***0%***	***100%***	***75%***	***0%***	***20%***	***4%***	***1%***	***100%***
Check:						*140*						*177*						*317*

San Francisco Gateway - Alt A: No Project [November 2022]

Table A
On-street Commercial Vehicle Loading Demand

Land Use Type	No. of Commercial Vehicles				No. of equivalent 20-ft long spaces [a]	Avg. Dwell Time (minutes) [b]	Average 20-foot long Space Demand [c]	Peak Demand Factor [d]	Peak 20-foot long Space Demand	Approx. Linear Feet of Curb
	Vans	SU Trucks	Tractor Trailers	Total Commercial Vehicles						
Maker and manufacturing	-	-	-	-	0	38	0.0	1.25	0.0	0
Parcel delivery and last-mile delivery	246	89	37	372						
Wholesale and storage	16	65	16	97						
Laboratory / R&D	-	-	-	-						
General retail	-	-	-	-	0	25	0.0	1.25	0.0	0
Café/Quick service restaurant	-	-	-	-	0	25	0.0	1.25	0.0	0
Public fleet staging/ maintenance	-	-	-	-						
Private fleet staging/ maintenance	-	-	-	-						
Total Number of Commercial Vehicles	**262**	**154**	**53**	**469**			**0.0**		**0.0**	**0**

[a] Each van equals one 20-ft space, each truck equals two 20-foot spaces, and each tractor trailer equals three 20-foot spaces.
[b] Sources: AIC vehicle survey April 2018 for maker and manufacturing; 2019 SF Guidelines; Appendix F for retail.
[c] Assumes nine hours of deliveries per day (8 a.m. to 5 p.m.)
[d] Source: 2019 SF Guidelines

Table B
Retail Passenger Drop-off/Pick up

	Retail	
Size	-	gsf
Total a.m. peak hour person trips	-	
Total p.m. peak hour person trips	-	
Drop-off percentages		
Taxi/TNC	1.0%	Bayshore (Placetype 3)
Private vehicle	0.0%	Assumed 10% of Auto travel
Peak hour person-trips drop-off		
Taxi/TNC	-	
Private vehicle	-	
Total	**-**	
Average stop duration	1	minute
Peak hour demand (spaces)	-	spaces
Peak minute demand (spaces)	-	spaces

D.8.2: Alternative B-Code Compliant Alternative

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	56	1,500	562	0	16	64	0	0	2,198	47%
Non-work	84	1,700	424	0	78	158	0	0	2,444	53%
Total	**140**	**3,200**	**986**	**0**	**94**	**222**	**0**	**0**	**4,642**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	67%	50%	40%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	16%	12%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	2%	5%	10%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	112	2,350	732	0	92	212	0	0	3,498	75%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	14	560	42	0	2	6	0	0	624	13%
SU truck deliveries	12	204	170	0	0	4	0	0	390	8%
Tractor-trailer deliveri	2	86	42	0	0	0	0	0	130	3%
Total	**140**	**3,200**	**986**	**0**	**94**	**222**	**0**	**0**	**4,642**	**100%**

	AM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	4	94	66	0	2	8	0	0	174	49%
Non-work	12	131	16	0	1	22	0	0	182	51%
Total	**16**	**225**	**82**	**0**	**3**	**30**	**0**	**0**	**356**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	45%	15%	20%	86%	96%	94%	10%	13%
Buses	0%	0%	0%	0%	0%	0%	75%	85%
Vans	28%	65%	5%	7%	2%	4%	4%	1%
SU truck deliveries	26%	17%	45%	7%	2%	2%	10%	1%
Tractor-trailer deliveri	2%	3%	30%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	10	114	69	0	2	29	0	0	224	63%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	3	85	1	0	1	1	0	0	91	26%
SU truck deliveries	3	22	7	0	0	0	0	0	32	9%
Tractor-trailer deliveri	0	4	5	0	0	0	0	0	9	3%
Total	**16**	**225**	**82**	**0**	**3**	**30**	**0**	**0**	**356**	**100%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	10	160	74	0	3	19	0	0	266
Outbound	6	65	8	0	0	11	0	0	90
Total	**16**	**225**	**82**	**0**	**3**	**30**	**0**	**0**	**356**

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	63%	71%	90%	0%	100%	63%	0%	0%	75%
Outbound	38%	29%	10%	0%	0%	37%	0%	0%	25%
Total	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

	PM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	9	75	25	0	1	8	0	0	118	28%
Non-work	8	255	12	0	8	22	0	0	305	72%
Total	**17**	**330**	**37**	**0**	**9**	**30**	**0**	**0**	**423**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	50%	66%	60%	86%	95%	95%	15%	31%
Buses	0%	0%	0%	0%	0%	0%	70%	60%
Vans	5%	28%	10%	7%	0%	0%	5%	9%
SU truck deliveries	43%	5%	20%	7%	5%	5%	10%	0%
Tractor-trailer deliveri	2%	1%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	13	243	33	0	8	28	0	0	325	77%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	0	71	1	0	1	1	0	0	74	17%
SU truck deliveries	4	13	2	0	0	1	0	0	20	5%
Tractor-trailer deliveri	0	3	1	0	0	0	0	0	4	1%
Total	**17**	**330**	**37**	**0**	**9**	**30**	**0**	**0**	**423**	**100%**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	5	153	7	0	4	14	0	0	183
Outbound	12	177	30	0	5	16	0	0	240
Total	**17**	**330**	**37**	**0**	**9**	**30**	**0**	**0**	**423**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	29%	46%	19%	0%	44%	47%	0%	0%	43%
Outbound	71%	54%	81%	0%	56%	53%	0%	0%	57%
Total	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

Daily Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	4	116	44	0	4	14	0	0	182	8%
Superdistrict 2	6	152	58	0	2	8	0	0	226	10%
Superdistrict 3	12	360	134	0	6	22	0	0	534	24%
Superdistrict 4	4	116	44	0	0	2	0	0	166	8%
East Bay	8	204	76	0	0	2	0	0	290	13%
North Bay	4	88	32	0	0	2	0	0	126	6%
South Bay	16	428	162	0	4	14	0	0	624	28%
Out of Region	2	36	12	0	0	0	0	0	50	2%
Total	**56**	**1,500**	**562**	**0**	**16**	**64**	**0**	**0**	**2,198**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	12	220	62	0	2	6	0	0	302	12%
Superdistrict 2	12	244	70	0	6	10	0	0	342	14%
Superdistrict 3	36	736	170	0	32	64	0	0	1,038	42%
Superdistrict 4	6	122	28	0	18	38	0	0	212	9%
East Bay	6	144	32	0	4	8	0	0	194	8%
North Bay	2	18	4	0	2	4	0	0	30	1%
South Bay	6	166	42	0	14	28	0	0	256	10%
Out of Region	4	50	16	0	0	0	0	0	70	3%
Total	**84**	**1,700**	**424**	**0**	**78**	**158**	**0**	**0**	**2,444**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
San Francisco	79%	78%	78%	0%	74%	75%	0%	0%	77%
Rest of Bay+Out of R	21%	22%	22%	0%	26%	25%	0%	0%	23%
Total	**100%**	**100%**	**100%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

Non-Work Veh-SF	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	70%	60%	50%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	15%	7%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	0%	0%	0%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Work Veh-Othe	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	56%	15%	5%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	32%	10%	7%	2%	4%	3%	1%
SU truck deliveries	20%	31%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	9%	23%	45%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Daily Automobile Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	12	248	74	0	8	20	0	0	362	10%
Superdistrict 2	14	300	94	0	8	18	0	0	434	12%
Superdistrict 3	38	802	220	0	36	82	0	0	1,178	34%
Superdistrict 4	8	192	58	0	18	36	0	0	312	9%
East Bay	12	224	78	0	4	10	0	0	328	9%
North Bay	4	92	32	0	0	6	0	0	134	4%
South Bay	20	452	162	0	18	40	0	0	692	20%
Out of Region	4	40	14	0	0	0	0	0	58	2%
Total	**112**	**2,350**	**732**	**0**	**92**	**212**	**0**	**0**	**3,498**	**100%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

FINAL SUMMARY OF TRIPS

Daily Bus Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	0	0	0	0	0	0	0	0	0%
North Bay	0	0	0	0	0	0	0	0	0	0%
South Bay	0	0	0	0	0	0	0	0	0	0%
Out of Region	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0%**

Daily Van Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	74	6	0	0	0	0	0	82	13%
Superdistrict 2	2	80	6	0	0	0	0	0	88	14%
Superdistrict 3	6	246	18	0	2	2	0	0	274	44%
Superdistrict 4	0	40	2	0	0	2	0	0	44	7%
East Bay	2	46	2	0	0	0	0	0	50	8%
North Bay	0	6	2	0	0	0	0	0	8	1%
South Bay	2	52	4	0	0	2	0	0	60	10%
Out of Region	0	16	2	0	0	0	0	0	18	3%
Total	**14**	**560**	**42**	**0**	**2**	**6**	**0**	**0**	**624**	**100%**

Daily SU Truck Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	14	24	0	0	0	0	0	40	10%
Superdistrict 2	2	16	28	0	0	0	0	0	46	12%
Superdistrict 3	4	48	68	0	0	0	0	0	120	31%
Superdistrict 4	0	8	12	0	0	2	0	0	22	6%
East Bay	2	44	12	0	0	0	0	0	58	15%
North Bay	0	6	2	0	0	0	0	0	8	2%
South Bay	2	52	16	0	0	2	0	0	72	18%
Out of Region	0	16	8	0	0	0	0	0	24	6%
Total	**12**	**204**	**170**	**0**	**0**	**4**	**0**	**0**	**390**	**100%**

Daily Tractor-trailer Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	2	32	14	0	0	0	0	0	48	37%
North Bay	0	4	2	0	0	0	0	0	6	5%
South Bay	0	38	18	0	0	0	0	0	56	43%
Out of Region	0	12	8	0	0	0	0	0	20	15%
Total	**2**	**86**	**42**	**0**	**0**	**0**	**0**	**0**	**130**	**100%**

Daily Vehicle Trips

Origin/Destination	Auto	Bus	Van	SU Truck	Trctr-trlr	Total	
Superdistrict 1	362	0	82	40	0	484	10%
Superdistrict 2	434	0	88	46	0	568	12%
Superdistrict 3	1,178	0	274	120	0	1,572	34%
Superdistrict 4	312	0	44	22	0	378	8%
East Bay	328	0	50	58	48	484	10%
North Bay	134	0	8	8	6	156	3%
South Bay	692	0	60	72	56	880	19%
Out of Region	58	0	18	24	20	120	3%
Total	**3,498**	**0**	**624**	**390**	**130**	**4,642**	**100%**

San Francisco Gateway - Alt B: Code Compliant [November 2022]

VEHICLE CLASSIFICATION SUMMARY

DAILY VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	181	0	41	20	0	242	181	0	41	20	0	242	362	0	82	40	0	484
Superdistrict 2	217	0	44	23	0	284	217	0	44	23	0	284	434	0	88	46	0	568
Superdistrict 3	589	0	137	60	0	786	589	0	137	60	0	786	1,178	0	274	120	0	1,572
Superdistrict 4	156	0	22	11	0	189	156	0	22	11	0	189	312	0	44	22	0	378
East Bay	164	0	25	29	24	242	164	0	25	29	24	242	328	0	50	58	48	484
North Bay	67	0	4	4	3	78	67	0	4	4	3	78	134	0	8	8	6	156
South Bay	346	0	30	36	28	440	346	0	30	36	28	440	692	0	60	72	56	880
Out of Region	29	0	9	12	10	60	29	0	9	12	10	60	58	0	18	24	20	120
Total	**1,749**	**0**	**312**	**195**	**65**	**2,321**	**1,749**	**0**	**312**	**195**	**65**	**2,321**	**3,498**	**0**	**624**	**390**	**130**	**4,642**
	75%	***0%***	***13%***	***8%***	***3%***	***100%***	***75%***	***0%***	***13%***	***8%***	***3%***	***100%***	***75%***	***0%***	***13%***	***8%***	***3%***	***100%***
Check:						*2,321*						*2,321*						*4,642*

AM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	20	0	5	1	0	26	2	0	7	2	0	11	22	0	12	3	0	37
Superdistrict 2	21	0	6	3	0	30	3	0	6	3	0	12	24	0	12	6	0	42
Superdistrict 3	54	0	20	8	1	83	10	0	20	8	1	39	64	0	40	16	2	122
Superdistrict 4	16	0	4	1	0	21	3	0	3	1	1	8	19	0	7	2	1	29
East Bay	24	0	4	1	1	30	1	0	4	1	1	7	25	0	8	2	2	37
North Bay	10	0	1	0	0	11	1	0	0	0	0	1	11	0	1	0	0	12
South Bay	51	0	5	1	2	59	3	0	4	1	2	10	54	0	9	2	4	69
Out of Region	4	0	1	1	0	6	1	0	1	0	0	2	5	0	2	1	0	8
Total	**200**	**0**	**46**	**16**	**4**	**266**	**24**	**0**	**45**	**16**	**5**	**90**	**224**	**0**	**91**	**32**	**9**	**356**
	75%	***0%***	***17%***	***6%***	***2%***	***100%***	***27%***	***0%***	***50%***	***18%***	***6%***	***100%***	***63%***	***0%***	***26%***	***9%***	***3%***	***100%***
Check:						*266*						*90*						*356*

PM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	17	0	6	0	0	23	21	0	4	1	0	26	38	0	10	1	0	49
Superdistrict 2	19	0	6	0	0	25	25	0	4	1	0	30	44	0	10	1	0	55
Superdistrict 3	55	0	20	3	0	78	66	0	12	3	0	81	121	0	32	6	0	159
Superdistrict 4	12	0	3	1	0	16	17	0	2	0	0	19	29	0	5	1	0	35
East Bay	8	0	4	2	1	15	20	0	2	2	0	24	28	0	6	4	1	39
North Bay	1	0	1	0	0	2	9	0	0	0	0	9	10	0	1	0	0	11
South Bay	10	0	3	4	2	19	39	0	5	2	0	46	49	0	8	6	2	65
Out of Region	2	0	1	1	1	5	4	0	1	0	0	5	6	0	2	1	1	10
Total	**124**	**0**	**44**	**11**	**4**	**183**	**201**	**0**	**30**	**9**	**0**	**240**	**325**	**0**	**74**	**20**	**4**	**423**
	68%	***0%***	***24%***	***6%***	***2%***	***100%***	***84%***	***0%***	***13%***	***4%***	***0%***	***100%***	***77%***	***0%***	***17%***	***5%***	***1%***	***100%***
Check:						*183*						*240*						*423*

San Francisco Gateway - Alt B: Code Compliant [November 2022]

Table A
On-street Commercial Vehicle Loading Demand

Land Use Type	No. of Commercial Vehicles				No. of equivalent 20-ft long spaces [a]	Avg. Dwell Time (minutes) [b]	Average 20-foot long Space Demand [c]	Peak Demand Factor [d]	Peak 20-foot long Space Demand	Approx. Linear Feet of Curb
	Vans	SU Trucks	Tractor Trailers	Total Commercial Vehicles						
Maker and manufacturing	7	6	1	14	22	38	1.0	1.25	1.2	25
Parcel delivery and last-mile delivery	280	102	43	425						
Wholesale and storage	21	85	21	127						
Laboratory / R&D	-	-	-	-						
General retail	1	-	-	1	1	25	0.0	1.25	0.1	1
Café/Quick service restaurant	3	2	-	5	7	25	0.2	1.25	0.3	6
Public fleet staging/ maintenance	-	-	-	-						
Private fleet staging/ maintenance	-	-	-	-						
Total Number of Commercial Vehicles	**312**	**195**	**65**	**572**			**1.3**		**1.6**	**32**

[a] Each van equals one 20-ft space, each truck equals two 20-foot spaces, and each tractor trailer equals three 20-foot spaces.
[b] Sources: AIC vehicle survey April 2018 for maker and manufacturing; 2019 SF Guidelines; Appendix F for retail.
[c] Assumes nine hours of deliveries per day (8 a.m. to 5 p.m.)
[d] Source: 2019 SF Guidelines

Table B
Retail Passenger Drop-off/Pick up

	Retail		
Size	5,000	gsf	
Total a.m. peak hour person trips	93		
Total p.m. peak hour person trips	109		
Drop-off percentages			
Taxi/TNC	1.0%		Bayshore (Placetype 3)
Private vehicle	6.1%		Assumed 10% of Auto travel
Peak hour person-trips drop-off			
Taxi/TNC	1		
Private vehicle	7		
Total	**8**		
Average stop duration	1	minute	
Peak hour demand (spaces)	0.1	spaces	
Peak minute demand (spaces)	0.3	spaces	

D.8.3: Alternative C-Fleet Management Use Mix Alternative

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

	Daily Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	88	1,624	0	0	26	106	914	198	2,956	46%
Non-work	134	1,844	0	0	132	266	636	410	3,422	54%
Total	**222**	**3,468**	**0**	**0**	**158**	**372**	**1,550**	**608**	**6,378**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	67%	50%	40%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	16%	12%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	2%	5%	10%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	178	2,546	0	0	156	354	928	204	4,366	68%
Buses	0	0	0	0	0	0	578	396	974	15%
Vans	20	608	0	0	2	12	20	4	666	10%
SU truck deliveries	22	222	0	0	0	6	22	4	276	4%
Tractor-trailer deliveri	2	92	0	0	0	0	2	0	96	2%
Total	**222**	**3,468**	**0**	**0**	**158**	**372**	**1,550**	**608**	**6,378**	**100%**

	AM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	6	102	0	0	3	14	25	13	163	36%
Non-work	19	142	0	0	1	37	70	27	296	64%
Total	**25**	**244**	**0**	**0**	**4**	**51**	**95**	**40**	**459**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	45%	15%	20%	86%	96%	94%	10%	13%
Buses	0%	0%	0%	0%	0%	0%	75%	85%
Vans	28%	65%	5%	7%	2%	4%	4%	1%
SU truck deliveries	26%	17%	45%	7%	2%	2%	10%	1%
Tractor-trailer deliveri	2%	3%	30%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	15	124	0	0	4	49	31	17	240	52%
Buses	0	0	0	0	0	0	53	23	76	17%
Vans	5	92	0	0	0	1	3	0	101	22%
SU truck deliveries	5	24	0	0	0	1	7	0	37	8%
Tractor-trailer deliveri	0	4	0	0	0	0	1	0	5	1%
Total	**25**	**244**	**0**	**0**	**4**	**51**	**95**	**40**	**459**	**100%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	15	173	0	0	4	33	30	20	275
Outbound	10	71	0	0	0	18	65	20	184
Total	**25**	**244**	**0**	**0**	**4**	**51**	**95**	**40**	**459**

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	60%	71%	0%	0%	100%	65%	32%	50%	60%
Outbound	40%	29%	0%	0%	0%	35%	68%	50%	40%
Total	**100%**	**100%**	**0%**	**0%**	**100%**	**100%**	**100%**	**100%**	**100%**

	PM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	14	81	0	0	2	14	45	10	166	28%
Non-work	13	277	0	0	12	36	52	41	431	72%
Total	**27**	**358**	**0**	**0**	**14**	**50**	**97**	**51**	**597**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	50%	66%	60%	86%	95%	95%	15%	31%
Buses	0%	0%	0%	0%	0%	0%	70%	60%
Vans	5%	28%	10%	7%	0%	0%	5%	9%
SU truck deliveries	43%	5%	20%	7%	5%	5%	10%	0%
Tractor-trailer deliveri	2%	1%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	20	263	0	0	13	48	53	23	420	70%
Buses	0	0	0	0	0	0	36	24	60	10%
Vans	1	78	0	0	0	0	3	4	86	14%
SU truck deliveries	6	14	0	0	1	2	5	0	28	5%
Tractor-trailer deliveri	0	3	0	0	0	0	0	0	3	1%
Total	**27**	**358**	**0**	**0**	**14**	**50**	**97**	**51**	**597**	**100%**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	7	166	0	0	7	22	28	32	262
Outbound	20	192	0	0	7	28	69	19	335
Total	**27**	**358**	**0**	**0**	**14**	**50**	**97**	**51**	**597**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	26%	46%	0%	0%	50%	44%	29%	63%	44%
Outbound	74%	54%	0%	0%	50%	56%	71%	37%	56%
Total	**100%**	**100%**	**0%**	**0%**	**100%**	**100%**	**100%**	**100%**	**100%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

Daily Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	8	124	0	0	6	26	60	12	236	8%
Superdistrict 2	8	166	0	0	4	12	94	20	304	10%
Superdistrict 3	22	388	0	0	8	38	188	40	684	23%
Superdistrict 4	6	130	0	0	0	2	76	18	232	8%
East Bay	12	220	0	0	0	2	134	30	398	13%
North Bay	6	94	0	0	2	4	58	12	176	6%
South Bay	24	464	0	0	6	22	282	62	860	29%
Out of Region	2	38	0	0	0	0	22	4	66	2%
Total	**88**	**1,624**	**0**	**0**	**26**	**106**	**914**	**198**	**2,956**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	16	240	0	0	4	10	160	20	450	13%
Superdistrict 2	20	262	0	0	10	18	160	22	492	14%
Superdistrict 3	58	802	0	0	52	106	158	20	1,196	35%
Superdistrict 4	10	128	0	0	32	66	158	20	414	12%
East Bay	12	156	0	0	8	14	0	122	312	9%
North Bay	0	20	0	0	2	4	0	84	110	3%
South Bay	14	180	0	0	24	48	0	122	388	11%
Out of Region	4	56	0	0	0	0	0	0	60	2%
Total	**134**	**1,844**	**0**	**0**	**132**	**266**	**636**	**410**	**3,422**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
San Francisco	78%	78%	0%	0%	74%	75%	100%	20%	75%
Rest of Bay+Out of R	22%	22%	0%	0%	26%	25%	0%	80%	25%
Total	**100%**	**100%**	**0%**	**0%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Work Veh-SF	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	70%	60%	50%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	15%	7%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	0%	0%	0%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Work Veh-Othe	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	56%	15%	5%	86%	97%	94%	2%	2%
Buses	0%	0%	0%	0%	0%	0%	91%	97%
Vans	15%	32%	10%	7%	2%	4%	3%	1%
SU truck deliveries	20%	31%	40%	7%	1%	2%	4%	1%
Tractor-trailer deliveri	9%	23%	45%	0%	0%	0%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Daily Automobile Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	20	268	0	0	12	34	62	12	408	9%
Superdistrict 2	22	328	0	0	12	30	96	20	508	12%
Superdistrict 3	62	868	0	0	60	138	192	40	1,360	31%
Superdistrict 4	14	206	0	0	32	64	80	16	412	9%
East Bay	18	244	0	0	8	14	136	32	452	10%
North Bay	6	100	0	0	4	6	58	14	188	4%
South Bay	32	488	0	0	28	68	282	64	962	22%
Out of Region	4	44	0	0	0	0	22	6	76	2%
Total	**178**	**2,546**	**0**	**0**	**156**	**354**	**928**	**204**	**4,366**	**100%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

FINAL SUMMARY OF TRIPS

Daily Bus Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	146	20	166	17%
Superdistrict 2	0	0	0	0	0	0	144	20	164	17%
Superdistrict 3	0	0	0	0	0	0	144	20	164	17%
Superdistrict 4	0	0	0	0	0	0	144	20	164	17%
East Bay	0	0	0	0	0	0	0	118	118	12%
North Bay	0	0	0	0	0	0	0	78	78	8%
South Bay	0	0	0	0	0	0	0	120	120	12%
Out of Region	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**0**	**578**	**396**	**974**	**100%**

Daily Van Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	80	0	0	0	0	6	0	88	13%
Superdistrict 2	2	88	0	0	0	2	4	2	98	15%
Superdistrict 3	8	268	0	0	0	4	6	0	286	43%
Superdistrict 4	2	44	0	0	2	2	4	0	54	8%
East Bay	2	48	0	0	0	2	0	0	52	8%
North Bay	0	6	0	0	0	0	0	2	8	1%
South Bay	2	56	0	0	0	2	0	0	60	9%
Out of Region	2	18	0	0	0	0	0	0	20	3%
Total	**20**	**608**	**0**	**0**	**2**	**12**	**20**	**4**	**666**	**100%**

Daily SU Truck Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	16	0	0	0	0	6	0	24	9%
Superdistrict 2	4	16	0	0	0	0	6	0	26	9%
Superdistrict 3	10	52	0	0	0	2	6	0	70	25%
Superdistrict 4	0	8	0	0	0	2	4	0	14	5%
East Bay	2	50	0	0	0	0	0	0	52	19%
North Bay	0	6	0	0	0	0	0	2	8	3%
South Bay	4	56	0	0	0	2	0	2	64	23%
Out of Region	0	18	0	0	0	0	0	0	18	7%
Total	**22**	**222**	**0**	**0**	**0**	**6**	**22**	**4**	**276**	**100%**

Daily Tractor-trailer Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	2	0	2	2%
East Bay	0	36	0	0	0	0	0	0	36	38%
North Bay	0	4	0	0	0	0	0	0	4	4%
South Bay	2	40	0	0	0	0	0	0	42	44%
Out of Region	0	12	0	0	0	0	0	0	12	13%
Total	**2**	**92**	**0**	**0**	**0**	**0**	**2**	**0**	**96**	**100%**

Daily Vehicle Trips

Origin/Destination	Auto	Bus	Van	SU Truck	Trctr-trlr	Total	
Superdistrict 1	408	166	88	24	0	686	11%
Superdistrict 2	508	164	98	26	0	796	12%
Superdistrict 3	1,360	164	286	70	0	1,880	29%
Superdistrict 4	412	164	54	14	2	646	10%
East Bay	452	118	52	52	36	710	11%
North Bay	188	78	8	8	4	286	4%
South Bay	962	120	60	64	42	1,248	20%
Out of Region	76	0	20	18	12	126	2%
Total	**4,366**	**974**	**666**	**276**	**96**	**6,378**	**100%**

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

VEHICLE CLASSIFICATION SUMMARY

DAILY VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	204	83	44	12	0	343	204	83	44	12	0	343	408	166	88	24	0	686
Superdistrict 2	254	82	49	13	0	398	254	82	49	13	0	398	508	164	98	26	0	796
Superdistrict 3	680	82	143	35	0	940	680	82	143	35	0	940	1,360	164	286	70	0	1,880
Superdistrict 4	206	82	27	7	1	323	206	82	27	7	1	323	412	164	54	14	2	646
East Bay	226	59	26	26	18	355	226	59	26	26	18	355	452	118	52	52	36	710
North Bay	94	39	4	4	2	143	94	39	4	4	2	143	188	78	8	8	4	286
South Bay	481	60	30	32	21	624	481	60	30	32	21	624	962	120	60	64	42	1,248
Out of Region	38	0	10	9	6	63	38	0	10	9	6	63	76	0	20	18	12	126
Total	**2,183**	**487**	**333**	**138**	**48**	**3,189**	**2,183**	**487**	**333**	**138**	**48**	**3,189**	**4,366**	**974**	**666**	**276**	**96**	**6,378**
	68%	***15%***	***10%***	***4%***	***2%***	***100%***	***68%***	***15%***	***10%***	***4%***	***2%***	***100%***	***68%***	***15%***	***10%***	***4%***	***2%***	***100%***
Check:						*3,189*						*3,189*						*6,378*

AM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	16	3	8	2	0	29	4	11	7	3	0	25	20	14	15	5	0	54
Superdistrict 2	20	4	7	3	0	34	6	11	8	3	0	28	26	15	15	6	0	62
Superdistrict 3	55	3	20	7	0	85	19	11	22	7	0	59	74	14	42	14	0	144
Superdistrict 4	16	6	3	1	0	26	9	9	3	3	1	25	25	15	6	4	1	51
East Bay	20	2	4	2	0	28	4	5	4	2	1	16	24	7	8	4	1	44
North Bay	9	1	2	0	0	12	2	3	1	0	0	6	11	4	3	0	0	18
South Bay	45	2	6	1	1	55	9	5	4	1	2	21	54	7	10	2	3	76
Out of Region	4	0	1	1	0	6	2	0	1	1	0	4	6	0	2	2	0	10
Total	**185**	**21**	**51**	**17**	**1**	**275**	**55**	**55**	**50**	**20**	**4**	**184**	**240**	**76**	**101**	**37**	**5**	**459**
	67%	***8%***	***19%***	***6%***	***0%***	***100%***	***30%***	***30%***	***27%***	***11%***	***2%***	***100%***	***52%***	***17%***	***22%***	***8%***	***1%***	***100%***
Check:						*275*						*184*						*459*

PM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	19	5	7	1	0	32	26	5	5	2	0	38	45	10	12	3	0	70
Superdistrict 2	22	4	8	2	0	36	30	6	4	0	0	40	52	10	12	2	0	76
Superdistrict 3	66	6	21	3	0	96	81	5	13	4	0	103	147	11	34	7	0	199
Superdistrict 4	17	6	4	1	0	28	24	4	2	2	0	32	41	10	6	3	0	60
East Bay	12	4	6	2	1	25	28	3	3	3	0	37	40	7	9	5	1	62
North Bay	5	2	1	0	0	8	11	2	0	1	0	14	16	4	1	1	0	22
South Bay	16	5	7	3	1	32	56	3	3	2	0	64	72	8	10	5	1	96
Out of Region	2	0	1	1	1	5	5	0	1	1	0	7	7	0	2	2	1	12
Total	**159**	**32**	**55**	**13**	**3**	**262**	**261**	**28**	**31**	**15**	**0**	**335**	**420**	**60**	**86**	**28**	**3**	**597**
	61%	***12%***	***21%***	***5%***	***1%***	***100%***	***78%***	***8%***	***9%***	***4%***	***0%***	***100%***	***70%***	***10%***	***14%***	***5%***	***1%***	***100%***
Check:						*262*						*335*						*597*

San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]

Table A
On-street Commercial Vehicle Loading Demand

Land Use Type	No. of Commercial Vehicles				No. of equivalent 20-ft long spaces [a]	Avg. Dwell Time (minutes) [b]	Average 20-foot long Space Demand [c]	Peak Demand Factor [d]	Peak 20-foot long Space Demand	Approx. Linear Feet of Curb
	Vans	SU Trucks	Tractor Trailers	Total Commercial Vehicles						
Maker and manufacturing	10	11	1	22	35	38	1.5	1.25	1.9	39
Parcel delivery and last-mile delivery	304	111	46	461						
Wholesale and storage	-	-	-	-						
Laboratory / R&D	-	-	-	-						
General retail	1	-	-	1	1	25	0.0	1.25	0.1	1
Café/Quick service restaurant	6	3	-	9	12	25	0.4	1.25	0.5	10
Public fleet staging/ maintenance	10	11	1	22						
Private fleet staging/ maintenance	2	2	-	4						
Total Number of Commercial Vehicles	**333**	**138**	**48**	**519**			**2.0**		**2.5**	**50**

[a] Each van equals one 20-ft space, each truck equals two 20-foot spaces, and each tractor trailer equals three 20-foot spaces.
[b] Sources: AIC vehicle survey April 2018 for maker and manufacturing; 2019 SF Guidelines; Appendix F for retail.
[c] Assumes nine hours of deliveries per day (8 a.m. to 5 p.m.)
[d] Source: 2019 SF Guidelines

Table B
Retail Passenger Drop-off/Pick up

	Retail	
Size	8,400	gsf
Total a.m. peak hour person trips	157	
Total p.m. peak hour person trips	184	
Drop-off percentages		
Taxi/TNC	1.0%	Bayshore (Placetype 3)
Private vehicle	6.1%	Assumed 10% of Auto travel
Peak hour person-trips drop-off		
Taxi/TNC	2	
Private vehicle	11	
Total	**13**	
Average stop duration	1	minute
Peak hour demand (spaces)	0.2	spaces
Peak minute demand (spaces)	0.4	spaces

D.8.4: Alternative D-Expanded Parcel Delivery Use Alternative

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

Daily Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	88	2,882	0	0	26	106	0	0	3,102	45%
Non-work	134	3,272	0	0	132	266	0	0	3,804	55%
Total	**222**	**6,154**	**0**	**0**	**158**	**372**	**0**	**0**	**6,906**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	67%	50%	40%	86%	97%	94%	1%	0%
Buses	0%	0%	0%	0%	0%	0%	93%	98%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	16%	12%	40%	7%	1%	2%	3%	1%
Tractor-trailer deliveri	2%	5%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	178	4,518	0	0	156	354	0	0	5,206	75%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	20	1,080	0	0	2	12	0	0	1,114	16%
SU truck deliveries	22	392	0	0	0	6	0	0	420	6%
Tractor-trailer deliveri	2	164	0	0	0	0	0	0	166	2%
Total	**222**	**6,154**	**0**	**0**	**158**	**372**	**0**	**0**	**6,906**	**100%**

AM Peak Hour Vehicle Trips

Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	6	182	0	0	3	14	0	0	205	40%
Non-work	19	251	0	0	1	37	0	0	308	60%
Total	**25**	**433**	**0**	**0**	**4**	**51**	**0**	**0**	**513**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	45%	15%	20%	86%	96%	94%	4%	0%
Buses	0%	0%	0%	0%	0%	0%	82%	98%
Vans	28%	65%	5%	7%	2%	4%	4%	1%
SU truck deliveries	26%	17%	45%	7%	2%	2%	10%	1%
Tractor-trailer deliveri	2%	3%	30%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	15	219	0	0	4	49	0	0	287	56%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	5	163	0	0	0	1	0	0	169	33%
SU truck deliveries	5	43	0	0	0	1	0	0	49	10%
Tractor-trailer deliveri	0	8	0	0	0	0	0	0	8	2%
Total	**25**	**433**	**0**	**0**	**4**	**51**	**0**	**0**	**513**	**100%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	15	307	0	0	4	33	0	0	359
Outbound	10	126	0	0	0	18	0	0	154
Total	**25**	**433**	**0**	**0**	**4**	**51**	**0**	**0**	**513**

	AM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	60%	71%	0%	0%	100%	65%	0%	0%	70%
Outbound	40%	29%	0%	0%	0%	35%	0%	0%	30%
Total	**100%**	**100%**	**0%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

	PM Peak Hour Vehicle Trips									
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Work	14	144	0	0	2	14	0	0	174	24%
Non-work	13	491	0	0	12	36	0	0	552	76%
Total	**27**	**635**	**0**	**0**	**14**	**50**	**0**	**0**	**726**	**100%**

Non-Work Vehicles	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	50%	66%	60%	86%	95%	95%	5%	0%
Buses	0%	0%	0%	0%	0%	0%	90%	95%
Vans	5%	28%	10%	7%	0%	0%	3%	5%
SU truck deliveries	43%	5%	20%	7%	5%	5%	2%	0%
Tractor-trailer deliveri	2%	1%	10%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Veh Trips by Type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Automobiles	20	468	0	0	13	48	0	0	549	76%
Buses	0	0	0	0	0	0	0	0	0	0%
Vans	1	137	0	0	0	0	0	0	138	19%
SU truck deliveries	6	25	0	0	1	2	0	0	34	5%
Tractor-trailer deliveri	0	5	0	0	0	0	0	0	5	1%
Total	**27**	**635**	**0**	**0**	**14**	**50**	**0**	**0**	**726**	**100%**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	8	294	0	0	7	22	0	0	331
Outbound	19	341	0	0	7	28	0	0	395
Total	**27**	**635**	**0**	**0**	**14**	**50**	**0**	**0**	**726**

	PM Peak Hour Vehicle Trips								
Trip type	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
Inbound	30%	46%	0%	0%	50%	44%	0%	0%	46%
Outbound	70%	54%	0%	0%	50%	56%	0%	0%	54%
Total	**100%**	**100%**	**0%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

Daily Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	8	224	0	0	6	26	0	0	264	9%
Superdistrict 2	8	294	0	0	4	12	0	0	318	10%
Superdistrict 3	22	686	0	0	8	38	0	0	754	24%
Superdistrict 4	6	226	0	0	0	2	0	0	234	8%
East Bay	12	390	0	0	0	2	0	0	404	13%
North Bay	6	170	0	0	2	4	0	0	182	6%
South Bay	24	824	0	0	6	22	0	0	876	28%
Out of Region	2	68	0	0	0	0	0	0	70	2%
Total	**88**	**2,882**	**0**	**0**	**26**	**106**	**0**	**0**	**3,102**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	16	424	0	0	4	10	0	0	454	12%
Superdistrict 2	20	470	0	0	10	18	0	0	518	14%
Superdistrict 3	58	1,418	0	0	52	106	0	0	1,634	43%
Superdistrict 4	10	232	0	0	32	66	0	0	340	9%
East Bay	12	276	0	0	8	14	0	0	310	8%
North Bay	0	36	0	0	2	4	0	0	42	1%
South Bay	14	320	0	0	24	48	0	0	406	11%
Out of Region	4	96	0	0	0	0	0	0	100	3%
Total	**134**	**3,272**	**0**	**0**	**132**	**266**	**0**	**0**	**3,804**	**100%**

Daily Non-Work Vehicle Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total
San Francisco	78%	78%	0%	0%	74%	75%	0%	0%	77%
Rest of Bay+Out of R	22%	22%	0%	0%	26%	25%	0%	0%	23%
Total	**100%**	**100%**	**0%**	**0%**	**100%**	**100%**	**0%**	**0%**	**100%**

Non-Work Veh-SF	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	70%	60%	50%	86%	97%	94%	1%	0%
Buses	0%	0%	0%	0%	0%	0%	93%	98%
Vans	15%	33%	10%	7%	2%	4%	3%	1%
SU truck deliveries	15%	7%	40%	7%	1%	2%	3%	1%
Tractor-trailer deliveri	0%	0%	0%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Work Veh-Othe	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet
Automobiles	56%	15%	5%	86%	97%	94%	1%	0%
Buses	0%	0%	0%	0%	0%	0%	93%	98%
Vans	15%	32%	10%	7%	2%	4%	3%	1%
SU truck deliveries	20%	31%	40%	7%	1%	2%	3%	1%
Tractor-trailer deliveri	9%	23%	45%	0%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Daily Automobile Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	20	478	0	0	12	34	0	0	544	10%
Superdistrict 2	22	578	0	0	12	30	0	0	642	12%
Superdistrict 3	62	1,540	0	0	60	138	0	0	1,800	35%
Superdistrict 4	14	366	0	0	32	64	0	0	476	9%
East Bay	18	432	0	0	8	14	0	0	472	9%
North Bay	6	174	0	0	4	6	0	0	190	4%
South Bay	32	870	0	0	28	68	0	0	998	19%
Out of Region	4	80	0	0	0	0	0	0	84	2%
Total	**178**	**4,518**	**0**	**0**	**156**	**354**	**0**	**0**	**5,206**	**100%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

FINAL SUMMARY OF TRIPS

Daily Bus Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	0	0	0	0	0	0	0	0	0%
North Bay	0	0	0	0	0	0	0	0	0	0%
South Bay	0	0	0	0	0	0	0	0	0	0%
Out of Region	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0%**

Daily Van Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	142	0	0	0	0	0	0	144	13%
Superdistrict 2	2	156	0	0	0	2	0	0	160	14%
Superdistrict 3	8	472	0	0	0	4	0	0	484	43%
Superdistrict 4	2	76	0	0	2	2	0	0	82	7%
East Bay	2	88	0	0	0	2	0	0	92	8%
North Bay	0	14	0	0	0	0	0	0	14	1%
South Bay	2	100	0	0	0	2	0	0	104	9%
Out of Region	2	32	0	0	0	0	0	0	34	3%
Total	**20**	**1,080**	**0**	**0**	**2**	**12**	**0**	**0**	**1,114**	**100%**

Daily SU Truck Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	2	28	0	0	0	0	0	0	30	7%
Superdistrict 2	4	30	0	0	0	0	0	0	34	8%
Superdistrict 3	10	92	0	0	0	2	0	0	104	25%
Superdistrict 4	0	14	0	0	0	2	0	0	16	4%
East Bay	2	86	0	0	0	0	0	0	88	21%
North Bay	0	12	0	0	0	0	0	0	12	3%
South Bay	4	100	0	0	0	2	0	0	106	25%
Out of Region	0	30	0	0	0	0	0	0	30	7%
Total	**22**	**392**	**0**	**0**	**0**	**6**	**0**	**0**	**420**	**100%**

Daily Tractor-trailer Trips

Origin/Destination	Manufact.	Parcel Deliv.	Wholesale	Lab/R&D	Retail	QSR	Public Fleet	Private Fleet	Total	
Superdistrict 1	0	0	0	0	0	0	0	0	0	0%
Superdistrict 2	0	0	0	0	0	0	0	0	0	0%
Superdistrict 3	0	0	0	0	0	0	0	0	0	0%
Superdistrict 4	0	0	0	0	0	0	0	0	0	0%
East Bay	0	62	0	0	0	0	0	0	62	37%
North Bay	0	8	0	0	0	0	0	0	8	5%
South Bay	2	72	0	0	0	0	0	0	74	45%
Out of Region	0	22	0	0	0	0	0	0	22	13%
Total	**2**	**164**	**0**	**0**	**0**	**0**	**0**	**0**	**166**	**100%**

Daily Vehicle Trips

Origin/Destination	Auto	Bus	Van	SU Truck	Trctr-trlr	Total	
Superdistrict 1	544	0	144	30	0	718	10%
Superdistrict 2	642	0	160	34	0	836	12%
Superdistrict 3	1,800	0	484	104	0	2,388	35%
Superdistrict 4	476	0	82	16	0	574	8%
East Bay	472	0	92	88	62	714	10%
North Bay	190	0	14	12	8	224	3%
South Bay	998	0	104	106	74	1,282	19%
Out of Region	84	0	34	30	22	170	2%
Total	**5,206**	**0**	**1,114**	**420**	**166**	**6,906**	**100%**

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

VEHICLE CLASSIFICATION SUMMARY

DAILY VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	272	0	72	15	0	359	272	0	72	15	0	359	544	0	144	30	0	718
Superdistrict 2	321	0	80	17	0	418	321	0	80	17	0	418	642	0	160	34	0	836
Superdistrict 3	900	0	242	52	0	1,194	900	0	242	52	0	1,194	1,800	0	484	104	0	2,388
Superdistrict 4	238	0	41	8	0	287	238	0	41	8	0	287	476	0	82	16	0	574
East Bay	236	0	46	44	31	357	236	0	46	44	31	357	472	0	92	88	62	714
North Bay	95	0	7	6	4	112	95	0	7	6	4	112	190	0	14	12	8	224
South Bay	499	0	52	53	37	641	499	0	52	53	37	641	998	0	104	106	74	1,282
Out of Region	42	0	17	15	11	85	42	0	17	15	11	85	84	0	34	30	22	170
Total	**2,603**	**0**	**557**	**210**	**83**	**3,453**	**2,603**	**0**	**557**	**210**	**83**	**3,453**	**5,206**	**0**	**1,114**	**420**	**166**	**6,906**
	75%	***0%***	***16%***	***6%***	***2%***	***100%***	***75%***	***0%***	***16%***	***6%***	***2%***	***100%***	***75%***	***0%***	***16%***	***6%***	***2%***	***100%***
Check:						*3,453*						*3,453*						*6,906*

AM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	20	0	13	3	0	36	4	0	11	3	0	18	24	0	24	6	0	54
Superdistrict 2	26	0	12	4	0	42	6	0	12	3	0	21	32	0	24	7	0	63
Superdistrict 3	72	0	36	10	0	118	20	0	36	10	0	66	92	0	72	20	0	184
Superdistrict 4	21	0	6	2	0	29	6	0	6	2	0	14	27	0	12	4	0	43
East Bay	28	0	7	2	1	38	1	0	7	3	1	12	29	0	14	5	2	50
North Bay	11	0	2	0	0	13	1	0	1	0	0	2	12	0	3	0	0	15
South Bay	61	0	9	2	2	74	4	0	8	3	2	17	65	0	17	5	4	91
Out of Region	5	0	2	2	0	9	1	0	1	0	2	4	6	0	3	2	2	13
Total	**244**	**0**	**87**	**25**	**3**	**359**	**43**	**0**	**82**	**24**	**5**	**154**	**287**	**0**	**169**	**49**	**8**	**513**
	68%	***0%***	***24%***	***7%***	***1%***	***100%***	***28%***	***0%***	***53%***	***16%***	***3%***	***100%***	***56%***	***0%***	***33%***	***10%***	***2%***	***100%***
Check:						*359*						*154*						*513*

PM PEAK HOUR VEHICLE TRIPS

	Inbound						Outbound						Inbound + Outbound					
Origin/Destination	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh	Automobile	Bus	Van	SU Truck	Trct Trlr	All Veh
Superdistrict 1	28	0	11	1	0	40	34	0	7	3	0	44	62	0	18	4	0	84
Superdistrict 2	32	0	12	1	0	45	39	0	8	1	0	48	71	0	20	2	0	93
Superdistrict 3	103	0	36	4	0	143	110	0	23	4	0	137	213	0	59	8	0	280
Superdistrict 4	22	0	6	0	0	28	27	0	4	1	0	32	49	0	10	1	0	60
East Bay	15	0	7	4	1	27	31	0	4	5	1	41	46	0	11	9	2	68
North Bay	3	0	1	0	0	4	11	0	1	0	0	12	14	0	2	0	0	16
South Bay	22	0	8	4	1	35	62	0	5	3	1	71	84	0	13	7	2	106
Out of Region	4	0	3	1	1	9	6	0	2	2	0	10	10	0	5	3	1	19
Total	**229**	**0**	**84**	**15**	**3**	**331**	**320**	**0**	**54**	**19**	**2**	**395**	**549**	**0**	**138**	**34**	**5**	**726**
	69%	***0%***	***25%***	***5%***	***1%***	***100%***	***81%***	***0%***	***14%***	***5%***	***1%***	***100%***	***76%***	***0%***	***19%***	***5%***	***1%***	***100%***
Check:						*331*						*395*						*726*

San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]

Table A
On-street Commercial Vehicle Loading Demand

Land Use Type	No. of Commercial Vehicles				No. of equivalent 20-ft long spaces [a]	Avg. Dwell Time (minutes) [b]	Average 20-foot long Space Demand [c]	Peak Demand Factor [d]	Peak 20-foot long Space Demand	Approx. Linear Feet of Curb
	Vans	SU Trucks	Tractor Trailers	Total Commercial Vehicles						
Maker and manufacturing	10	11	1	22	35	38	1.5	1.25	1.9	39
Parcel delivery and last-mile delivery	540	196	82	818						
Wholesale and storage	-	-	-	-						
Laboratory / R&D	-	-	-	-						
General retail	1	-	-	1	1	25	0.0	1.25	0.1	1
Café/Quick service restaurant	6	3	-	9	12	25	0.4	1.25	0.5	10
Public fleet staging/ maintenance	-	-	-	-						
Private fleet staging/ maintenance	-	-	-	-						
Total Number of Commercial Vehicles	**557**	**210**	**83**	**850**			**2.0**		**2.5**	**50**

[a] Each van equals one 20-ft space, each truck equals two 20-foot spaces, and each tractor trailer equals three 20-foot spaces.
[b] Sources: AIC vehicle survey April 2018 for maker and manufacturing; 2019 SF Guidelines; Appendix F for retail.
[c] Assumes nine hours of deliveries per day (8 a.m. to 5 p.m.)
[d] Source: 2019 SF Guidelines

Table B
Retail Passenger Drop-off/Pick up

	Retail	
Size	8,400	gsf
Total a.m. peak hour person trips	157	
Total p.m. peak hour person trips	184	
Drop-off percentages		
Taxi/TNC	1.0%	Bayshore (Placetype 3)
Private vehicle	6.1%	Assumed 10% of Auto travel
Peak hour person-trips drop-off		
Taxi/TNC	2	
Private vehicle	11	
Total	**13**	
Average stop duration	1	minute
Peak hour demand (spaces)	0.2	spaces
Peak minute demand (spaces)	0.4	spaces

Appendix D.9
ALTERNATIVES
COMMERCIAL VEHICLE MILES OF TRAVEL

D.9.1: Alternative A-No Project Alternative

Table VMT-1
San Francisco Gateway - Alt A: No Project [November 2022]
Daily Vehicle Trip Generation by Place of Origin/Destination and Land Use

Place of Trip Origin or Destination	Proposed Project										
	Maker & Manufact	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	General Retail	Quick Service Restrnt.	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Subtotal PDR	Total	
Commuter Vehicle Trips											
SF Superdistrict 1	-	100	32	-	-	-	-	-	132	132	8%
SF Superdistrict 2	-	136	44	-	-	-	-	-	180	180	10%
SF Superdistrict 3	-	314	102	-	-	-	-	-	416	416	24%
SF Superdistrict 4	-	102	34	-	-	-	-	-	136	136	8%
East Bay	-	178	58	-	-	-	-	-	236	236	14%
North Bay	-	78	26	-	-	-	-	-	104	104	6%
Peninsula/South Bay	-	376	124	-	-	-	-	-	500	500	29%
Outside of Bay Area	-	30	10	-	-	-	-	-	40	40	2%
Total commuter veh trips	**-**	**1,314**	**430**	**-**	**-**	**-**	**-**	**-**	**1,744**	**1,744**	**49%**
Non-commuter Vehicle Trips											
Automobiles	-	746	128	-	-	-	-	-	874	874	48%
Buses	-	-	-	-	-	-	-	-	-	-	0%
Vans	-	492	32	-	-	-	-	-	524	524	29%
SU trucks	-	178	130	-	-	-	-	-	308	308	17%
Tractor-trailers	-	74	32	-	-	-	-	-	106	106	6%
Total non-comm veh trips	**-**	**1,490**	**322**	**-**	**-**	**-**	**-**	**-**	**1,812**	**1,812**	**51%**
Total Project Veh Trips	**-**	**2,804**	**752**	**-**	**-**	**-**	**-**	**-**	**3,556**	**3,556**	**100%**
Check:	-	*2,804*	*752*	-	-	-	-	-	*3,556*	*3,556*	

Table VMT-2
San Francisco Gateway - Alt A: No Project [November 2022]
Employee Estimates

Land Use Type	Average Employees [1]	% Empl. who drive	Employees who drive
PDR	750 [1]	90%	674
Retail / Café / QSR	- [1]	55%	-
Total	**750**	**90%**	**674**

[1] Jillian Betro, Project Manager, AECOM - Written communication, May 17, 2021.

Daily Workers in Commuting Flow to San Francisco
Source: ACS 2011-2015

Table VMT-3.1

PLACE OF RESIDENCE	WORKPLACE - San Francisco: Workers on veh [a]	%	Miles to site [b]	Workers x Distance	Location
Alameda County	35,095	11.5%	25	877,375	*San Lorenzo*
Contra Costa County	27,164	8.9%	28	760,592	*Walnut Creek*
Marin County	18,785	6.2%	22	413,270	*San Rafael*
Napa County	1,335	0.4%	50	66,750	*Napa*
San Francisco County	127,255	41.9%	3.5	445,393	
San Mateo County	59,140	19.5%	18	1,064,520	*San Mateo*
Santa Clara County	8,715	2.9%	46	400,890	*San Jose*
Solano County	7,760	2.6%	42	325,920	*Amer Cany*
Sonoma County	5,125	1.7%	43	220,375	*Petaluma*
Other CA	9,202	3.0%	90	828,180	*Sacramento*
Outside CA	4,450	1.5%	12	53,400	*SFO*
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**	

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Based on 2010 US Census center of population by county

Table VMT-3.2

PLACE OF RESIDENCE	WORKPLACE - San Francisco: Workers on veh.	%	Miles to site [a]	Workers x Distance
San Francisco	127,255	41.9%		445,393
SD1 - Broadway / Columbus			5.0	
SD2 - Geary / Arguello			6.0	
SD3 - Guerrero / C. Chávez			2.0	
SD4 - Taraval / 30th Av			7.0	
East Bay	70,019	23.0%	28	1,963,887
North Bay	25,245	8.3%	28	700,395
South Bay	67,855	22.3%	22	1,465,410
Outside Bay Area	13,652	4.5%	65	881,580
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Weighted average based on 2010 US Census center of population by county

Table VMT-4
San Francisco Gateway - Alt A: No Project [November 2022]
Daily VMT for PDR Uses

Place of Trip Origin or Destination	Daily Miles (one-way)		Proposed Project (PDR Uses): Maker & Manufact.	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Total Project PDR	Existing Uses (Field Counts): Daily Vehicle Trips	Daily VMT	Total Net PDR VMT
Commuter VMT												
SD1 Broadway / Columbus	5		0	500	160	0	0	0	660	15	75	585
SD2 Geary / Arguello	6		0	816	264	0	0	0	1,080	21	126	954
SD3 Guerrero / C. Chávez	2		0	628	204	0	0	0	832	48	96	736
SD4 Taraval / 30th Av	7		0	714	238	0	0	0	952	15	108	844
East Bay	28		0	4,993	1,627	0	0	0	6,619	27	755	5,864
North Bay	28		0	2,164	721	0	0	0	2,885	12	332	2,553
South Bay	22		0	8,120	2,678	0	0	0	10,798	57	1,239	9,559
Outside Bay Area	65		0	1,937	646	0	0	0	2,583	4	290	2,293
Total Commuter VMT			**0**	**19,872**	**6,538**	**0**	**0**	**0**	**26,410**	**200**	**3,021**	**23,389**
	Total Miles (one-way)	**Net Miles**										
Non-Commuter VMT												
Automobiles	20	-7.5	0	-5,595	2,560	0	0	0	-3,035	200	4,000	-7,035
Buses public fleet	5.0						0		0		0	0
Buses private fleet	40							0	0	18	720	-720
Vans	30	-7.5	0	-3,690	960	0	0	0	-2,730	154	4,610	-7,340
SU trucks	40	-7.5	0	-1,335	5,200	0	0	0	3,865	132	5,293	-1,428
Tractor-trailers	110	7.5	0	555	3,520	0	0	0	4,075	14	1,503	2,572
Total Non-commuter VMT			**0**	**-10,065**	**12,240**	**0**	**0**	**0**	**2,175**	**518**	**16,127**	**-13,952**
Total PDR Daily VMT			**0**	**9,807**	**18,778**	**0**	**0**	**0**	**28,585**	**718**	**19,147**	**9,438**
Onsite PDR Workers on a typical day												750
Average Daily PDR VMT per Worker												12.6

D.9.2: Alternative B-Code Compliant Alternative

Table VMT-1
San Francisco Gateway - Alt B: Code Compliant [November 2022]
Daily Vehicle Trip Generation by Place of Origin/Destination and Land Use

Place of Trip Origin or Destination	Proposed Project										
	Maker & Manufact	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	General Retail	Quick Service Restrnt.	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Subtotal PDR	Total	
Commuter Vehicle Trips											
SF Superdistrict 1	4	116	44	-	4	14	-	-	164	182	8%
SF Superdistrict 2	6	152	58	-	2	8	-	-	216	226	10%
SF Superdistrict 3	12	360	134	-	6	22	-	-	506	534	24%
SF Superdistrict 4	4	116	44	-	-	2	-	-	164	166	8%
East Bay	8	204	76	-	-	2	-	-	288	290	13%
North Bay	4	88	32	-	-	2	-	-	124	126	6%
Peninsula/South Bay	16	428	162	-	4	14	-	-	606	624	28%
Outside of Bay Area	2	36	12	-	-	-	-	-	50	50	2%
Total commuter veh trips	**56**	**1,500**	**562**	**-**	**16**	**64**	**-**	**-**	**2,118**	**2,198**	**47%**
Non-commuter Vehicle Trips											
Automobiles	56	850	170	-	76	148	-	-	1,076	1,300	53%
Buses	-	-	-	-	-	-	-	-	-	-	0%
Vans	14	560	42	-	2	6	-	-	616	624	26%
SU trucks	12	204	170	-	-	4	-	-	386	390	16%
Tractor-trailers	2	86	42	-	-	-	-	-	130	130	5%
Total non-comm veh trips	**84**	**1,700**	**424**	**-**	**78**	**158**	**-**	**-**	**2,208**	**2,444**	**53%**
Total Project Veh Trips	**140**	**3,200**	**986**	**-**	**94**	**222**	**-**	**-**	**4,326**	**4,642**	**100%**
Check:	*140*	*3,200*	*986*	-	*94*	*222*	-	-	*4,326*	*4,642*	

Table VMT-2
San Francisco Gateway - Alt B: Code Compliant [November 2022]
Employee Estimates

Land Use Type	Average Employees [1]	% Empl. who drive	Employees who drive
PDR	1,230 [1]	90%	1,105
Retail / Café / QSR	15 [1]	55%	8
Total	**1,245**	**89%**	**1,113**

[1] Jillian Betro, Project Manager, AECOM - Written communication, May 17, 2021.

Daily Workers in Commuting Flow to San Francisco
Source: ACS 2011-2015

Table VMT-3.1

PLACE OF RESIDENCE	WORKPLACE - San Francisco Workers on veh [a]	%	Miles to site [b]	Workers x Distance	Location
Alameda County	35,095	11.5%	25	877,375	*San Lorenzo*
Contra Costa County	27,164	8.9%	28	760,592	*Walnut Creek*
Marin County	18,785	6.2%	22	413,270	*San Rafael*
Napa County	1,335	0.4%	50	66,750	*Napa*
San Francisco County	127,255	41.9%	3.5	445,393	
San Mateo County	59,140	19.5%	18	1,064,520	*San Mateo*
Santa Clara County	8,715	2.9%	46	400,890	*San Jose*
Solano County	7,760	2.6%	42	325,920	*Amer Cany*
Sonoma County	5,125	1.7%	43	220,375	*Petaluma*
Other CA	9,202	3.0%	90	828,180	*Sacramento*
Outside CA	4,450	1.5%	12	53,400	*SFO*
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**	

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Based on 2010 US Census center of population by county

Table VMT-3.2

PLACE OF RESIDENCE	WORKPLACE - San Francisco Workers on veh.	%	Miles to site [a]	Workers x Distance
San Francisco	127,255	41.9%		445,393
SD1 - Broadway / Columbus			5.0	
SD2 - Geary / Arguello			6.0	
SD3 - Guerrero / C. Chávez			2.0	
SD4 - Taraval / 30th Av			7.0	
East Bay	70,019	23.0%	28	1,963,887
North Bay	25,245	8.3%	28	700,395
South Bay	67,855	22.3%	22	1,465,410
Outside Bay Area	13,652	4.5%	65	881,580
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Weighted average based on 2010 US Census center of population by county

Table VMT-4
San Francisco Gateway - Alt B: Code Compliant [November 2022]
Daily VMT for PDR Uses

Place of Trip Origin or Destination	Daily Miles (one-way)		Proposed Project (PDR Uses) Maker & Manufact.	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Total Project PDR	Existing Uses (Field Counts) Daily Vehicle Trips	Daily VMT	Total Net PDR VMT
Commuter VMT												
SD1 Broadway / Columbus	5		20	580	220	0	0	0	820	15	75	745
SD2 Geary / Arguello	6		36	912	348	0	0	0	1,296	21	126	1,170
SD3 Guerrero / C. Chávez	2		24	720	268	0	0	0	1,012	48	96	916
SD4 Taraval / 30th Av	7		28	812	308	0	0	0	1,148	15	108	1,040
East Bay	28		224	5,722	2,132	0	0	0	8,078	27	755	7,322
North Bay	28		111	2,441	888	0	0	0	3,440	12	332	3,108
South Bay	22		346	9,243	3,499	0	0	0	13,087	57	1,239	11,849
Outside Bay Area	65		129	2,325	775	0	0	0	3,229	4	290	2,939
Total Commuter VMT			**918**	**22,755**	**8,437**	**0**	**0**	**0**	**32,110**	**200**	**3,021**	**29,090**
	Total Miles (one-way)	**Net Miles**										
Non-Commuter VMT												
Automobiles	20	-7.5	1,120	-6,375	3,400	0	0	0	-1,855	200	4,000	-5,855
Buses public fleet	5.0						0		0		0	0
Buses private fleet	40							0	0	18	720	-720
Vans	30	-7.5	420	-4,200	1,260	0	0	0	-2,520	154	4,610	-7,130
SU trucks	40	-7.5	480	-1,530	6,800	0	0	0	5,750	132	5,293	457
Tractor-trailers	110	7.5	220	645	4,620	0	0	0	5,485	14	1,503	3,982
Total Non-commuter VMT			**2,240**	**-11,460**	**16,080**	**0**	**0**	**0**	**6,860**	**518**	**16,127**	**-9,267**
Total PDR Daily VMT			**3,158**	**11,295**	**24,517**	**0**	**0**	**0**	**38,970**	**718**	**19,147**	**19,823**
Onsite PDR Workers on a typical day												1,230
Average Daily PDR VMT per Worker												16.1

D.9.3: Alternative C-Fleet Management Use Mix Alternative

Table VMT-1
San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]
Daily Vehicle Trip Generation by Place of Origin/Destination and Land Use

Place of Trip Origin or Destination	Proposed Project										
	Maker & Manufact	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	General Retail	Quick Service Restrnt.	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Subtotal PDR	Total	
Commuter Vehicle Trips											
SF Superdistrict 1	8	124	-	-	6	26	60	12	204	236	8%
SF Superdistrict 2	8	166	-	-	4	12	94	20	288	304	10%
SF Superdistrict 3	22	388	-	-	8	38	188	40	638	684	23%
SF Superdistrict 4	6	130	-	-	-	2	76	18	230	232	8%
East Bay	12	220	-	-	-	2	134	30	396	398	13%
North Bay	6	94	-	-	2	4	58	12	170	176	6%
Peninsula/South Bay	24	464	-	-	6	22	282	62	832	860	29%
Outside of Bay Area	2	38	-	-	-	-	22	4	66	66	2%
Total commuter veh trips	**88**	**1,624**	**-**	**-**	**26**	**106**	**914**	**198**	**2,824**	**2,956**	**46%**
Non-commuter Vehicle Trips											
Automobiles	90	922	-	-	130	248	14	6	1,032	1,410	41%
Buses	-	-	-	-	-	-	578	396	974	974	28%
Vans	20	608	-	-	2	12	20	4	652	666	19%
SU trucks	22	222	-	-	-	6	22	4	270	276	8%
Tractor-trailers	2	92	-	-	-	-	2	-	96	96	3%
Total non-comm veh trips	**134**	**1,844**	**-**	**-**	**132**	**266**	**636**	**410**	**3,024**	**3,422**	**54%**
Total Project Veh Trips	**222**	**3,468**	**-**	**-**	**158**	**372**	**1,550**	**608**	**5,848**	**6,378**	**100%**
Check:	*222*	*3,468*	-	-	*158*	*372*	*1,550*	*608*	*5,848*	*6,378*	

Table VMT-2
ı Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]
Employee Estimates

Land Use Type	Average Employees [1]	% Empl. who drive	Employees who drive
PDR	1,955 [1]	90%	1,757
Retail / Café / QSR	25 [1]	55%	14
Total	**1,980**	**89%**	**1,771**

[1] Jillian Betro, Project Manager, AECOM - Written communication, May 17, 2021.

Daily Workers in Commuting Flow to San Francisco
Source: ACS 2011-2015

Table VMT-3.1

PLACE OF RESIDENCE	WORKPLACE - San Francisco Workers on veh [a]	%	Miles to site [b]	Workers x Distance	Location
Alameda County	35,095	11.5%	25	877,375	*San Lorenzo*
Contra Costa County	27,164	8.9%	28	760,592	*Walnut Creek*
Marin County	18,785	6.2%	22	413,270	*San Rafael*
Napa County	1,335	0.4%	50	66,750	*Napa*
San Francisco County	127,255	41.9%	3.5	445,393	
San Mateo County	59,140	19.5%	18	1,064,520	*San Mateo*
Santa Clara County	8,715	2.9%	46	400,890	*San Jose*
Solano County	7,760	2.6%	42	325,920	*Amer Cany*
Sonoma County	5,125	1.7%	43	220,375	*Petaluma*
Other CA	9,202	3.0%	90	828,180	*Sacramento*
Outside CA	4,450	1.5%	12	53,400	*SFO*
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**	

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Based on 2010 US Census center of population by county

Table VMT-3.2

PLACE OF RESIDENCE	WORKPLACE - San Francisco Workers on veh.	%	Miles to site [a]	Workers x Distance
San Francisco	127,255	41.9%		445,393
SD1 - Broadway / Columbus			5.0	
SD2 - Geary / Arguello			6.0	
SD3 - Guerrero / C. Chávez			2.0	
SD4 - Taraval / 30th Av			7.0	
East Bay	70,019	23.0%	28	1,963,887
North Bay	25,245	8.3%	28	700,395
South Bay	67,855	22.3%	22	1,465,410
Outside Bay Area	13,652	4.5%	65	881,580
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Weighted average based on 2010 US Census center of population by county

Table VMT-4
San Francisco Gateway - Alt C: Fleet Management Use Mix [November 2022]
Daily VMT for PDR Uses

Place of Trip Origin or Destination	Daily Miles (one-way)		Proposed Project (PDR Uses) Maker & Manufact.	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Total Project PDR	Existing Uses (Field Counts) Daily Vehicle Trips	Daily VMT	Total Net PDR VMT
Commuter VMT												
SD1 Broadway / Columbus	5		40	620	0	0	300	60	1,020	15	75	945
SD2 Geary / Arguello	6		48	996	0	0	564	120	1,728	21	126	1,602
SD3 Guerrero / C. Chávez	2		44	776	0	0	376	80	1,276	48	96	1,180
SD4 Taraval / 30th Av	7		42	910	0	0	532	126	1,610	15	108	1,502
East Bay	28		337	6,171	0	0	3,758	841	11,107	27	755	10,352
North Bay	28		166	2,608	0	0	1,609	333	4,716	12	332	4,384
South Bay	22		518	10,021	0	0	6,090	1,339	17,968	57	1,239	16,729
Outside Bay Area	65		129	2,454	0	0	1,421	258	4,262	4	290	3,972
Total Commuter VMT			**1,324**	**24,555**	**0**	**0**	**14,650**	**3,158**	**43,687**	**200**	**3,021**	**40,667**
	Total Miles (one-way)	**Net Miles**										
Non-Commuter VMT												
Automobiles	20	-7.5	1,800	-6,915	0	0	280	120	-4,715	200	4,000	-8,715
Buses public fleet	5.0						2,890		2,890		0	2,890
Buses private fleet	40							15,840	15,840	18	720	15,120
Vans	30	-7.5	600	-4,560	0	0	600	120	-3,240	154	4,610	-7,850
SU trucks	40	-7.5	880	-1,665	0	0	880	160	255	132	5,293	-5,038
Tractor-trailers	110	7.5	220	690	0	0	220	0	1,130	14	1,503	-373
Total Non-commuter VMT			**3,500**	**-12,450**	**0**	**0**	**4,870**	**16,240**	**12,160**	**518**	**16,127**	**-3,967**
Total PDR Daily VMT			**4,824**	**12,105**	**0**	**0**	**19,520**	**19,398**	**55,847**	**718**	**19,147**	**36,700**
Onsite PDR Workers on a typical day												1,955
Average Daily PDR VMT per Worker												18.8

D.9.4: Alternative D-Expanded Parcel Delivery Use Alternative

Table VMT-1
San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]
Daily Vehicle Trip Generation by Place of Origin/Destination and Land Use

Place of Trip Origin or Destination	Proposed Project										
	Maker & Manufact	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	General Retail	Quick Service Restrnt.	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Subtotal PDR	Total	
Commuter Vehicle Trips											
SF Superdistrict 1	8	224	-	-	6	26	-	-	232	264	9%
SF Superdistrict 2	8	294	-	-	4	12	-	-	302	318	10%
SF Superdistrict 3	22	686	-	-	8	38	-	-	708	754	24%
SF Superdistrict 4	6	226	-	-	-	2	-	-	232	234	8%
East Bay	12	390	-	-	-	2	-	-	402	404	13%
North Bay	6	170	-	-	2	4	-	-	176	182	6%
Peninsula/South Bay	24	824	-	-	6	22	-	-	848	876	28%
Outside of Bay Area	2	68	-	-	-	-	-	-	70	70	2%
Total commuter veh trips	**88**	**2,882**	**-**	**-**	**26**	**106**	**-**	**-**	**2,970**	**3,102**	**45%**
Non-commuter Vehicle Trips											
Automobiles	90	1,636	-	-	130	248	-	-	1,726	2,104	55%
Buses	-	-	-	-	-	-	-	-	-	-	0%
Vans	20	1,080	-	-	2	12	-	-	1,100	1,114	29%
SU trucks	22	392	-	-	-	6	-	-	414	420	11%
Tractor-trailers	2	164	-	-	-	-	-	-	166	166	4%
Total non-comm veh trips	**134**	**3,272**	**-**	**-**	**132**	**266**	**-**	**-**	**3,406**	**3,804**	**55%**
Total Project Veh Trips	**222**	**6,154**	**-**	**-**	**158**	**372**	**-**	**-**	**6,376**	**6,906**	**100%**
Check:	*222*	*6,154*	-	-	*158*	*372*	-	-	*6,376*	*6,906*	

Table VMT-2
an Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]
Employee Estimates

Land Use Type	Average Employees [1]	% Empl. who drive	Employees who drive
PDR	1,955 [1]	90%	1,757
Retail / Café / QSR	25 [1]	55%	14
Total	**1,980**	**89%**	**1,771**

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Daily Workers in Commuting Flow to San Francisco
Source: ACS 2011-2015

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Contra Costa County	27,164	8.9%	28	760,592	*Walnut Creek*
Marin County	18,785	6.2%	22	413,270	*San Rafael*
Napa County	1,335	0.4%	50	66,750	*Napa*
San Francisco County	127,255	41.9%	3.5	445,393	
San Mateo County	59,140	19.5%	18	1,064,520	*San Mateo*
Santa Clara County	8,715	2.9%	46	400,890	*San Jose*
Solano County	7,760	2.6%	42	325,920	*Amer Cany*
Sonoma County	5,125	1.7%	43	220,375	*Petaluma*
Other CA	9,202	3.0%	90	828,180	*Sacramento*
Outside CA	4,450	1.5%	12	53,400	*SFO*
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**	

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Based on 2010 US Census center of population by county

Table VMT-3.2

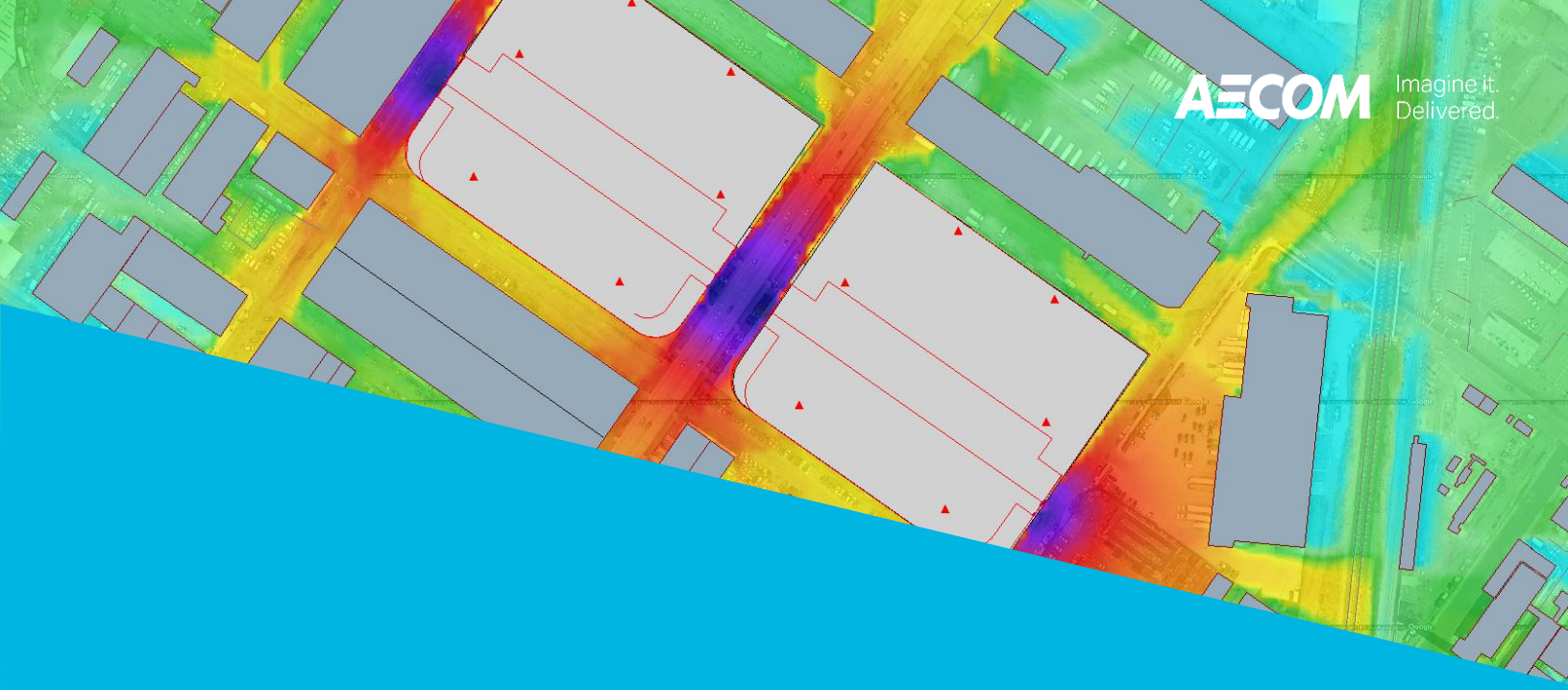
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San Francisco	127,255	41.9%		445,393
SD1 - Broadway / Columbus			5.0	
SD2 - Geary / Arguello			6.0	
SD3 - Guerrero / C. Chávez			2.0	
SD4 - Taraval / 30th Av			7.0	
East Bay	70,019	23.0%	28	1,963,887
North Bay	25,245	8.3%	28	700,395
South Bay	67,855	22.3%	22	1,465,410
Outside Bay Area	13,652	4.5%	65	881,580
TOTAL	**304,026**	**100.0%**	**18**	**5,456,665**

[a] 2016 Vehicle Commuting flow to San Francisco [MTC - CTPP_A302103_5YR_2016]
[b] Weighted average based on 2010 US Census center of population by county

Table VMT-4
San Francisco Gateway - Alt D: Expanded Parcel Delivery Use [February 2023]
Daily VMT for PDR Uses

Place of Trip Origin or Destination	Daily Miles (one-way)		Proposed Project (PDR Uses): Maker & Manufact.	Parcel & Last-mile delivery	Wholesale & Storage	Lab. / R&D	Public Fleet Mngmnt.	Private Fleet Mngmnt.	Total Project PDR	Existing Uses (Field Counts): Daily Vehicle Trips	Daily VMT	Total Net PDR VMT
Commuter VMT												
SD1 Broadway / Columbus	5		40	1,120	0	0	0	0	1,160	15	75	1,085
SD2 Geary / Arguello	6		48	1,764	0	0	0	0	1,812	21	126	1,686
SD3 Guerrero / C. Chávez	2		44	1,372	0	0	0	0	1,416	48	96	1,320
SD4 Taraval / 30th Av	7		42	1,582	0	0	0	0	1,624	15	108	1,516
East Bay	28		337	10,939	0	0	0	0	11,275	27	755	10,520
North Bay	28		166	4,716	0	0	0	0	4,883	12	332	4,551
South Bay	22		518	17,795	0	0	0	0	18,314	57	1,239	17,075
Outside Bay Area	65		129	4,391	0	0	0	0	4,520	4	290	4,230
Total Commuter VMT			**1,324**	**43,680**	**0**	**0**	**0**	**0**	**45,004**	**200**	**3,021**	**41,983**
	Total Miles (one-way)	**Net Miles**										
Non-Commuter VMT												
Automobiles	20	-7.5	1,800	-12,270	0	0	0	0	-10,470	200	4,000	-14,470
Buses	40	7.5	0	0	0	0	0	0	0	18	720	-720
Vans	30	-7.5	600	-8,100	0	0	0	0	-7,500	154	4,610	-12,110
SU trucks	40	-7.5	880	-2,940	0	0	0	0	-2,060	132	5,293	-7,353
Tractor-trailers	110	7.5	220	1,230	0	0	0	0	1,450	14	1,503	-53
Total Non-commuter VMT			**3,500**	**-22,080**	**0**	**0**	**0**	**0**	**-18,580**	**518**	**16,127**	**-34,707**
Total PDR Daily VMT			**4,824**	**21,600**	**0**	**0**	**0**	**0**	**26,424**	**718**	**19,147**	**7,277**
Onsite PDR Workers on a typical day												1,955
Average Daily PDR VMT per Worker												3.7

APPENDIX E
SAN FRANCISCO GATEWAY NOISE TECHNICAL REPORT



San Francisco Gateway Project
Noise Technical Report

August 2023

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Acronyms

AC	air conditioning
ADT	average daily traffic
ANSI	American National Standards Institute
article 29 guidelines	San Francisco Department of Public Health Guidelines for Noise Control Ordinance Monitoring and Enforcement
Caltrans	California Department of Transportation
city	City and County of San Francisco
CNEA	common noise equivalent area
CNEL	community noise equivalent level
dB	decibel(s)
dBA	A-weighted decibel(s)
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
gsf	gross square feet
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I-	Interstate
ID	identification
IL	insertion loss
in/sec	inches per second
ISO	International Organization for Standardization
kVA	kilovolt-ampere
L_{dn}	day-night sound level
L_{eq}	energy-average sound level during a measured time interval
L_{max}	maximum sound level
L_{min}	minimum sound level
mph	miles per hour
OAK	Oakland International Airport
PDR	production, distribution, and repair
PPV	peak particle velocity
proposed project	San Francisco Gateway Project
RMS	root-mean-square
SFO	San Francisco International Airport
TL	sound transmission loss
USEPA	United States Environmental Protection Agency
VdB	vibration decibel(s)
WHO	World Health Organization

1. Introduction

1.1 Project Overview

The San Francisco Gateway Project (proposed project) would construct two new multi-story buildings that would provide new production, distribution, and repair (PDR) space for the City and County of San Francisco (city). The project sponsor, Prologis Inc., proposes to redevelop two parcels in a core industrial area of the city.

As shown in Figure 1-1, the approximately 743,800-square-foot (17.1 gross total acres), rectangular project site is in the Bayview neighborhood of the city. The project site is bounded by Kirkwood Avenue to the north, Rankin Street to the east, McKinnon Avenue to the south, and Toland Street to the west. An elevated portion of Interstate 280 (I-280) bisects the project site, running in a north-south direction above the existing Selby Street right-of-way; the uppermost roadbed deck is approximately 55 feet above grade.

The street addresses of the existing buildings are 749 Toland Street and 2000 McKinnon Avenue. The project site consists of Assessor's Block 5284A, Lot 008, and Block 5287, Lot 002, which are occupied by four single-story buildings, encompassing approximately 448,000 square feet. These warehouse buildings were built by the U.S. military circa 1943, and were transferred to private ownership sometime in the 1970s. Since then, the project site has contained a functional PDR complex, providing mostly wholesale and storage, vehicle storage, and fleet management spaces.

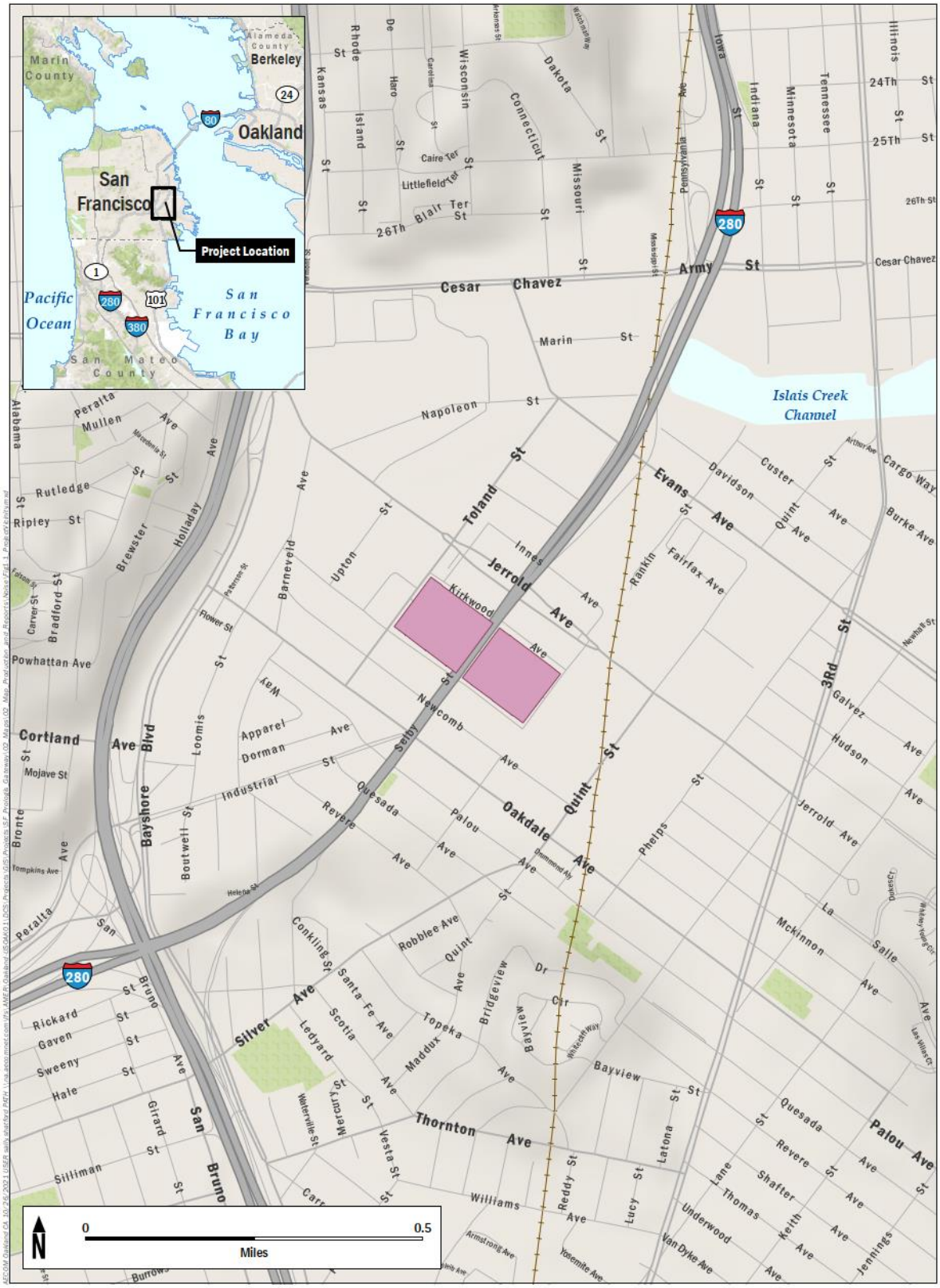
The proposed project would demolish the existing four single-story, metal-clad buildings that currently occupy the project site, replacing them with two three-story buildings (plus active roofs), allowing large trucks to access fully functional, upper-level PDR spaces. Each new building would be approximately 97 feet tall, with a maximum height of 115 feet, including rooftop appurtenances. The two new buildings (including PDR space, logistics yard, vehicular systems, and ground-floor retail spaces) would encompass approximately 2,160,000 gross square feet (gsf).

The proposed building west of I-280 at 749 Toland Street is "building A," and the proposed building east of I-280 at 2000 McKinnon Street is "building B." As shown in Figure 1-1, buildings A and B would be approximately the same size, shape, and dimensions, and would be oriented similarly on site.

The surrounding land in the project vicinity includes predominantly PDR and light industrial uses. The San Francisco Market is adjacent to the project site to the north along Kirkwood Avenue; wholesale flooring, art supply, and shipping services are in the vicinity; and taxicab companies are northwest of the site along Toland Street. A warehouse space for crafts and art supplies, a door supplier, a pet supply store, a van storage company, and several fleet management uses are south of the project site along McKinnon Avenue. San Francisco Public Utilities Commission offices and the San Francisco Wholesale Produce Market are along Rankin Street east of the project site.

The proposed project would provide space for several main types of PDR uses—manufacturing and maker space, parcel delivery and last-mile delivery, and wholesale and storage. The buildings are intended to accommodate a variety of users, including any combination of the uses shown in Table 1-1; it is anticipated that the assortment of PDR tenants would change over time. Given that there are no identified tenants at this time, the draft EIR describes and analyzes a mix of PDR uses that are likely to occur based on the project sponsor's familiarity with leasing trends for PDR facilities in San Francisco and the Bay Area. This noise study evaluates the physical environmental effects associated with the use mix of PDR uses shown in Table 1-1. The different land uses by building level are also identified.

Each building would include a combination of enclosed and partially enclosed spaces, with a multi-level vehicular system (i.e., staging, circulation, and logistic yard areas) serving each level. In both buildings, all three levels of the PDR space would have direct vehicular access via a one-way ramp system, designed to provide full-service, upper-level truck access for vehicles as large as tractor-trailers, and PDR spaces for its tenants. The roof level would provide a solar array and a screened, open-air multi-purpose deck that could be used for parking and/or material and vehicle staging. In total, the proposed project would have approximately 35,000 gsf of maker space and 8,400 gsf of ground-floor retail space. Figure 1-2 shows an axonometric view of the proposed building design (representing both buildings A and B).



Source: Compiled by AECOM

Figure 1-1 Project Location Overview

Table 1-1 SF Gateway Analyzed Tenant Use Mix – Combination of Buildings A and B

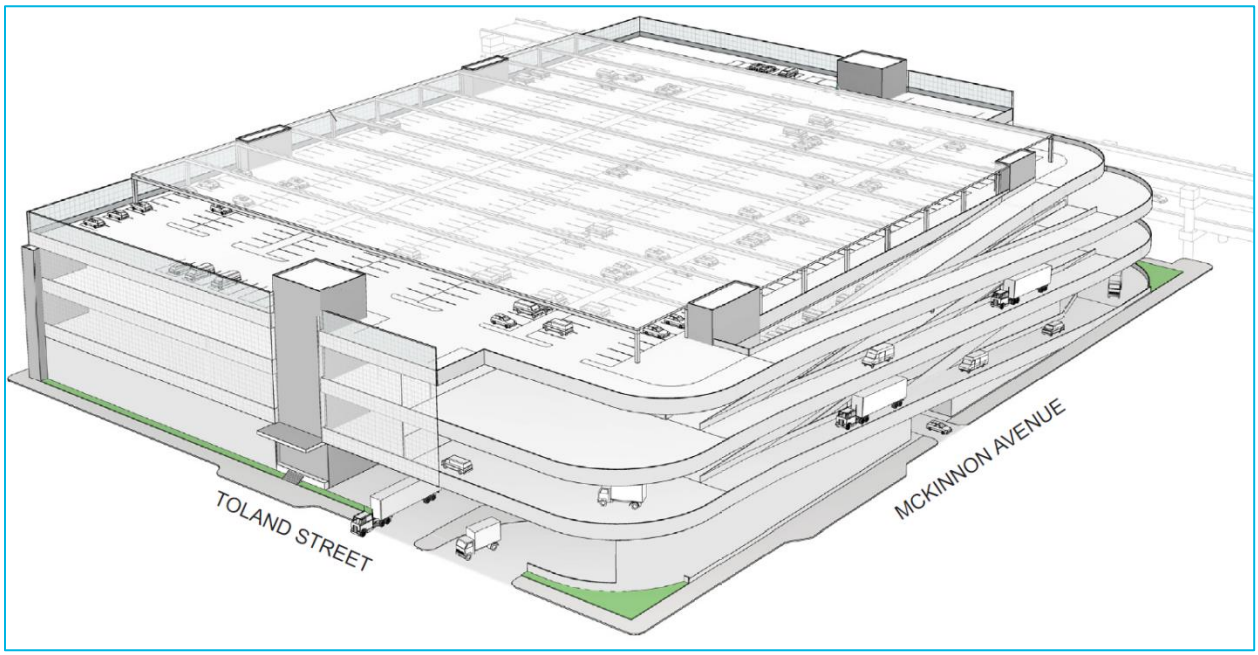
Use	Level 1	Level 2	Level 3	Roof	Project Total
PDR Uses					
Light Manufacturing/Maker	35,000	0	0	0	35,000
Parcel Delivery/Last Mile	0	381,000	369,600	8,800	759,400
Wholesale and Storage	372,400	0	0	0	372,400
Fleet Management[1]	0	0	0	0	0
PDR Support Spaces					
Logistics Yard	0	72,400	73,400	0	145,800
Vehicle Circulation	13,800	112,800	95,400	17,600	239,600
Parking	111,800	0	0	487,600	599,400
Laboratory[2]	0	0	0	0	0
Retail	8,400	0	0	0	8,400
Total					2,160,000

Notes:

1. Fleet management is not a component of the analyzed tenant use mix for this environmental analysis. This is because the manufacturing and maker, parcel delivery and last mile, and wholesale and storage uses would result in higher vehicle trip rates (and corresponding noise and air quality impacts associated with vehicle trip rates) compared to fleet management uses. Therefore, if the project sponsor elects to have a fleet management component as part of the project in the future, the environmental analysis will have adequately evaluated the transportation (and related air quality and noise) impacts from this use.
2. Laboratory is not a component of the analyzed tenant use mix for this environmental analysis. However, PDR-2 zoning districts allow specific laboratory uses.

PDR = production, distribution, and repair

Source: San Francisco Planning Department, San Francisco Gateway Project Initial Study, March 2022.



Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/ 2000 McKinnon, 2019 (October).

Figure 1-2 Proposed Project Building Design (Building A)

1.1.1 Project Construction

Construction activities would be staggered between the building A and building B plots, beginning with demolition of the existing warehouse buildings on the building A plot. Project construction would be organized across the following six construction phases in the approximate time frames indicated (total for both buildings).

- Phase 1 – Demolition and Site Preparation (8 weeks)
- Phase 2 – Grading and Ground Improvements (16 weeks)
- Phase 3 – Building Construction (61 weeks)
- Phase 4 – Building Envelope and Interior Buildout (60 weeks)
- Phase 5 – Site Work (25 weeks)
- Phase 6 – Startup and Commissioning (7 weeks)

Each of the new buildings would be constructed over an approximately 27-month construction period. However, because construction of one building would start approximately 4 months ahead of the second building, the overall construction period would be approximately 31 months. Because of the staggered construction starts, an overlap of various phases would occur, including the Building Construction, Building Envelope and Interior Buildout, and Site Work phases.

1.1.2 Project Operations

The proposed project's analyzed tenant use mix includes the following PDR uses: manufacturing and maker spaces, parcel delivery and last-mile delivery uses, and wholesale and storage spaces; non-PDR retail spaces also would also be included on the ground floor. When operating, potential noise sources related to project activity are expected to be the following:

- **vehicular noise** from traffic on local roadways
- **vehicular noise** from traffic using the vehicle ramps and logistics yards in each building
- **fixed-source noise** associated with heating, ventilation, and air conditioning (HVAC) units on the building rooftops
- **fixed-source noise** associated with ventilation units in the logistics yards
- **fixed-source noise** associated with emergency generator testing

1.2 Technical Background

1.2.1 Glossary of Common Acoustical Terminology

The following glossary of acoustical terms is intended to frame discussion of project-generated noises and their potential effects on neighboring communities.

Noise: Whether something is perceived as a noise event is influenced by the type of sound, the perceived importance of the sound, and its appropriateness in the setting, the time of day, and the type of activity during which the noise occurs, and the sensitivity of the listener.

Sound: For this analysis, sound is a physical phenomenon generated by vibrations that result in waves that travel through a medium, such as air, and result in auditory perception by the human brain.

Frequency: Sound frequency or "pitch" is measured in hertz (Hz), which is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. When the drum skin vibrates 100 times per second, it generates a sound pressure wave oscillating at 100 Hz, and this pressure oscillation is perceived by the brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of a young and healthy human ear.

Amplitude or Level: Sound levels are measured in decibels (dB) using a logarithmic scale. A sound level of zero dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above approximately 110 dB begin to be felt inside the human ear as discomfort, and eventually as pain, at 120 dB and higher. The minimum change in the sound

level of individual events that the average human ear can detect is about 1 to 2 dB. A 3 to 5 dB change is readily perceived. A change in sound level of about 10 dB usually is perceived by the average person as a doubling (or if decreasing by 10 dB, halving) of the sound's loudness. Figure 1-3 shows typical indoor and outdoor sounds and their corresponding dB levels, arranged on what often is dubbed to be an "acoustic thermometer" to show relative loudness.

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

Note:

dBA = A-weighted decibels

Source: California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, Division of Environmental Analysis, 2013 (September).

Figure 1-3 Typical Noise Levels

Sound pressure: Sound level usually is expressed by reference to a known standard. This report refers to sound pressure level, which is expressed on a logarithmic scale with respect to a reference value of 20 microPascals. Sound pressure level depends not only on the power of the source, but also on the distance from the source and the acoustical characteristics of the space surrounding the source.

Sound power: Unlike sound pressure, which varies with distance from a source, sound power (and its counterpart sound power level) is the acoustic power of a source, typically expressed in watts.

A-weighting: Sound from a tuning fork contains a single frequency (a pure tone), but most sounds heard in the environment do not consist of a single frequency and instead are composed of a broad band of frequencies, differing in sound levels. The method commonly used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that reflects the typical frequency-dependent sensitivity of average

healthy human hearing. This is called “A-weighting,” and the measured decibel level is referred to as A-weighted decibel (dBA).

Equivalent sound level: Environmental noise levels vary continuously and include a mixture of noise from near and distant sources. A single descriptor, L_{eq}, may be used to describe such sound that is changing in level from one moment to another. L_{eq} is the energy-average sound level during a measured time interval. It is the “equivalent” constant sound level that would have to be produced by a single, steady source to equal the acoustic energy contained in the fluctuating sound level measured.

Maximum or minimum sound level (L_{max} or L_{min}): These values are indicators that represent the root-mean-square (RMS) maximum and minimum noise levels during a given monitoring interval. The L_{min} value obtained for a particular monitoring location often is called the “noise floor.”

Day-night sound level (L_{dn}): The L_{dn} is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to A-weighted sound levels occurring between 10 p.m. and 7 a.m. (nighttime).

Community noise equivalent level (CNEL): The CNEL is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7 p.m. and 10 p.m., and 10 dB added to the A-weighted sound levels occurring between 10 p.m. and 7 a.m.

Sound transmission loss (TL): The TL is a value representing 10 times the base-10 logarithm of the ratio of sound power incident on one side of a partition to the sound power transmitted through and subsequently emitting from the other side of the partition into an adjoining space (separated from the sound in the “source” space by the partition).

Insertion loss (IL): The IL is the reduction in noise level at a location from noise abatement means, placed in the sound path between that location and a sound source.

1.2.2 Acoustical Concepts

1.2.2.1 Sound Propagation

Atmospheric conditions (e.g., wind, temperature gradients, humidity) can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound traveling over an acoustically absorptive surface (e.g., grass) attenuates at a greater rate than sound traveling over a hard surface (e.g., pavement, expanses of open water). When located near either the sound source or the listener position, physical barriers (e.g., naturally occurring ridgelines or buildings, and other topography that block the line-of-sight between a source and receiver) also increase the attenuation of sound over distance.

1.2.2.2 Multiple Sound Sources

Because sound pressure levels in decibels are based on a logarithmic scale, they cannot be added or subtracted in an arithmetic fashion. Therefore, sound pressure level dB are added logarithmically on an energy summation basis. In other words, adding a new noise source to an existing noise source, both producing noise at the same level, does not double the noise level. Instead, if the difference between two noise sources is 10 dBA or more, the louder noise source dominates, and the resultant noise level is equal to the noise level of the louder source. In general, if the difference between two noise sources is 0 to 1 dBA, the resultant noise level is 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2 to 3 dBA, the resultant noise level is 2 dBA above the louder noise source. If the difference between two noise sources is 4 to 10 dBA, the resultant noise level is 1 dBA higher than the louder noise source.

1.2.2.3 Health Effects of Environmental Noise

According to the World Health Organization (WHO), sleep disturbance can occur when continuous outdoor noise levels exceed 42 dBA L_{eq}, or when intermittent interior noise levels reach 42 dBA L_{max}, but these thresholds may vary greatly, depending on existing noise exposure and characteristics of the noise event(s).[1] Studies with a “moderate” or greater level of evidence suggest additional potential health effects, such as annoyance (10 percent relative risk of

[1] World Health Organization (WHO), Night Noise Guidelines for Europe, 2009.

incidence occurring at 53.3 dBA, CNEL) and ischemic heart disease (5 percent relative risk of incidence occurring at an exposure of 59.3 dBA, CNEL).[2]

1.2.3 Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves, having a frequency measured in cycles per second (Hz). Most environmental vibrations consist of a composite of many frequencies and generally are classified as broadband or random vibrations. The normal frequency range of most groundborne vibration that can be perceived generally ranges between 1 and 200 Hz.

Vibration energy dissipates geometrically as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. Soil properties also affect the propagation of vibration, with stiffer soils, clays, and rock strata enabling more efficient transmission of vibrational energy. On interaction with a building foundation, usually a ground-to-foundation coupling loss occurs; however, the transmitted vibration also can be amplified by structural conditions of the walls and floors, allowing resonance. Vibration in buildings typically is perceived as the rattling of windows or items on shelves, or the motion of building surfaces. At sufficiently high levels and depending on the loudness of the background airborne noise level, the vibration of interior building surfaces can be heard as a low-frequency rumbling sound, also known as groundborne noise.

The peak particle velocity (PPV) and RMS velocity normally are described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is the metric often used to describe blasting vibration and other vibration sources that may result in structural stresses in buildings.[3]

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response to ground vibrations. The human body takes some time to respond to vibration signals; therefore, average vibration amplitude (i.e., the RMS velocity) is the most appropriate descriptor for gauging human response to the typical ground vibration. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over 1 second. As with airborne sound, the RMS velocity often is expressed in dB notation as vibration dB (VdB), which serves to compress the range of numbers required to describe vibration.[4] This VdB scale is based on a reference value of 1 micro-inch per second. The background vibration-velocity level typical of residential areas is approximately 50 VdB.[5]

According to Federal Transit Administration (FTA) guidance,[6] groundborne vibration normally is perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels.

2. Noise and Vibration Regulatory Framework

The following discussions summarize the federal, state, and local noise regulations, ordinances, standards, and guidance that are relevant to the assessment of potential noise and vibration impacts from the proposed project on the existing ambient environment.

2.1 Federal

2.1.1 Noise Control Act

The Noise Control Act of 1972 directed the United States Environmental Protection Agency to develop noise level guidelines that would protect the population from the adverse effects of environmental noise. Subsequently, the agency published the "Levels Document"[7] that contained recommendations for 55 dBA L_{dn} at the exterior and 45 dBA L_{dn} for the interior of noise-sensitive receivers, such as residences. The United States Department of Housing and

[2] World Health Organization (WHO), Environmental Noise Guidelines for the European Region, 2018.
[3] Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, FTA Report No. 0123, 2018.
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] United States Environmental Protection Agency (USEPA). Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. USEPA 550/9-74-004, 1974.

Urban Development standards define L_{dn} levels below 65 dBA outdoors as acceptable for residential use. The Federal Highway Administration (FHWA), the Federal Interagency Committee on Urban Noise, and the Federal Aviation Administration also have developed standards and guidance.

2.1.2 Occupational Safety and Health Act

Onsite occupational noise exposure levels set by the Occupational Safety and Health Act of 1970 are regulated by the Occupational Safety and Health Administration and in California by the California Occupational Safety and Health Administration. The maximum time-weighted average noise exposure level of workers is 90 dBA, over an 8-hour work shift, and 115 dBA for periods of 15 minutes or less (29 Code of Federal Regulations section 1910.95).

2.2 State

The California Department of Transportation's (Caltrans) Transportation and Construction Vibration Guidance Manual[8] provides guidance for the analysis of vibratory impacts generated by transportation and construction projects, stating the criteria for structural damage and human perception/annoyance. Table 2-1 shows a curated list of damage and annoyance criteria compiled from the Caltrans and FTA manuals, as applicable to various receiver and vibratory source types.

Table 2-1 Maximum Vibration Levels for Construction Equipment for Potential Damage and Sleep Interference

	Potential Damage Criteria (PPV in/sec)		Groundborne Vibration Interference Levels for Residences and Buildings where People Normally Sleep (VdB)		
Structure Type	Transient Sources	Frequent Events	Frequent Events	Occasional Events	Infrequent Events
Historic and some old buildings	0.5	0.25	72	75	80
Older residential structures	0.5	0.3			
New residential structures	1.0	0.5			
Modern industrial and commercial buildings	2.0	0.5			

Notes:

Transient sources generate a single vibratory event, such as blasting.

Infrequent Events: Fewer than 30 events per day.
Occasional Events: 30 to 70 events per day.
Frequent Events: More than 70 events per day.

PPV in/sec = Peak particle velocity in inches per second.
VdB = Vibration velocity level in decibels.

Sources: California Department of Transportation (Caltrans), Transportation and Construction Vibration Guidance Manual. Division of Environmental Analysis, 2020 (April).

Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, FTA Report No. 0123, 2018.

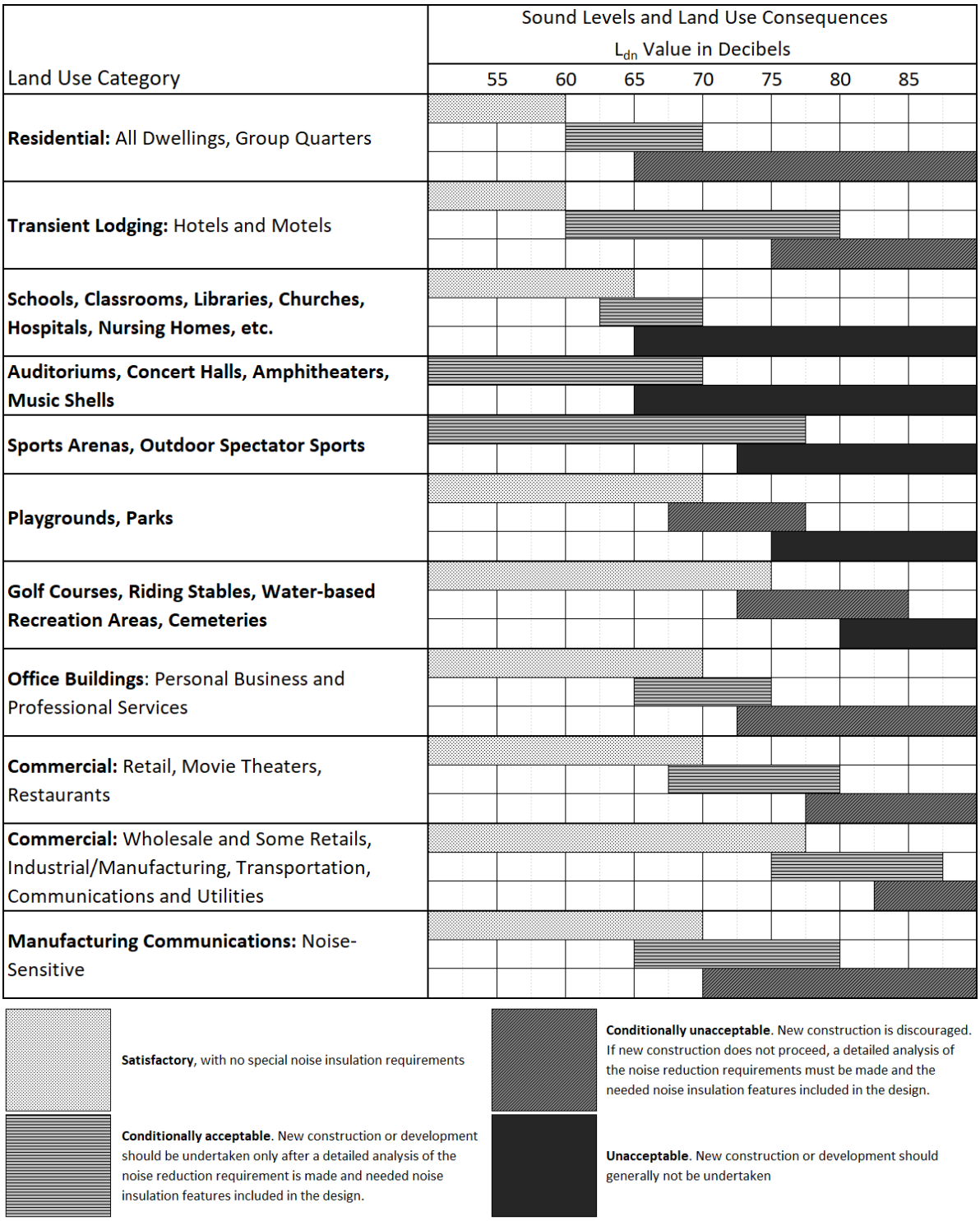
As shown in Table 2-1, vibratory activities have the potential to result in structural damage when vibration levels exceed 0.25 to 2 PPV in/sec, as applicable to the source type and receiver characterization; and the potential for sleep interference when vibration levels exceed 72 to 80 VdB, as applicable to the source type.

2.3 Local

2.3.1 San Francisco General Plan

The San Francisco General Plan generally is focused on the effects of transportation-related noise on the health and welfare of people in their everyday activities. The plan provides officials and developers with a land-use compatibility chart that serves to inform the consideration of new land uses in areas where existing traffic noise may be considered unacceptable. Figure 2-1 shows the ranges of traffic noise-level acceptability for various land uses.

[8] California Department of Transportation (Caltrans), Transportation and Construction Vibration Guidance Manual, Division of Environmental Analysis, 2020 (April).



Source: City of San Francisco, General Plan Environmental Protection Element, 2004. Compiled by AECOM

Figure 2-1 City of San Francisco Land Use Compatibility Chart for Community Noise

2.3.2 San Francisco Noise Control Ordinance

Article 29 of the San Francisco Police Code regulates noise generated by a variety of noise source types. The San Francisco Department of Public Health is jointly responsible for implementation of this police code; thus, the Department of Public Health develops and maintains the Guidelines for Noise Control Ordinance Monitoring and Enforcement (article 29 guidelines), which provides both definitions for and guidance on the interpretation of the police code.[9] The following summary of article 29 and the article 29 guidelines applies to the assessment of noise anticipated to be generated by project construction and implementation:

Construction Equipment (article 29, section 2907): Noise generated by any construction equipment on a permitted construction site, except for impact tools such as jackhammers, shall not exceed 80 dBA when measured at a distance of 100 feet from the equipment or the construction site boundary.

Construction Work at Night (article 29, section 2908): The operation of construction equipment located on a permitted construction site during the nighttime hours, defined as 8 p.m. to 7 a.m., shall not increase ambient measured noise levels at the nearest property plane by greater than 5 dBA. Noise permits may be granted that allow exceedance of the noise standards by the San Francisco Department of Building Inspection or San Francisco Department of Public Works. Construction projects with night noise permits are subject to the limits detailed by the enforcing departments in the permit.

Commercial and Industrial Property Noise Limits (article 29, section 2909[b]): Combined operation of machines or devices (such as fixed or stationary mechanical devices), music, or entertainment located on a commercial or industrial property shall not increase ambient noise levels by greater than 8 dBA at any point outside of the property plane.

Fixed Residential Interior Noise Limits (article 29, section 2909[d]): No fixed noise source may cause the noise levels measured in a sleeping or living room in any dwelling unit to exceed 45 dBA between the hours of 10 p.m. and 7 a.m., and 55 dBA between the hours of 7 a.m. and 10 p.m., with windows open—except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

Exceptions (article 29 guidelines, Appendix C): Certain noise sources do not violate local law and will not be investigated by any City of San Francisco department. Those specific to this noise analysis include but are not limited to emergency generators, delivery and service trucks, vehicle and traffic noise, and public roadways.

3. Existing Noise Environment

3.1 Existing Noise Sources

The dominant noise source in the project area is vehicular traffic along I-280, a two-level viaduct freeway that bisects the project site and area and generates nearly continuous traffic noise throughout the day and night. Vehicular traffic on Oakdale Avenue, a four-lane arterial roadway southwest of the project site, also is a notable noise source, but similar to other local roadways, traffic volumes drop precipitously in the late evening hours.

The project site is in a heavily developed urban area that is zoned PDR-2. In addition to the freeway, existing noise also is generated by adjacent land uses that may include delivery vehicle loading/unloading, forklift operation and back-up alarms, noise generated by HVAC units, and operation of power tools and other production-related machinery. The property immediately northeast of the project site is a major wholesale produce distribution facility, with the majority of its noise-generating operations occurring between approximately 12 a.m. and 9 a.m.

The project site is approximately 7.7 miles north of San Francisco International Airport (SFO) and 8.6 miles west-northwest of Oakland International Airport (OAK). The neighborhood surrounding the project site falls outside all predicted 65 dBA CNEL contours, in both the 2019 SFO and 2010 OAK noise exposure maps.

[9] City of San Francisco, San Francisco Police Code Article 29: Regulation of Noise Guidelines for Noise Control Ordinance Monitoring and Enforcement [Article 29 Guidelines], Department of Public Health, 2014.

3.2 Noise-Sensitive Land Uses

The area surrounding the project site primarily consists of PDR land uses. The nearest noise-sensitive land use is a place of worship approximately 350 feet southwest of the nearest project property boundary. The next nearest noise-sensitive land uses are residential uses along Oakdale Avenue, approximately 440 feet southwest of the nearest project property boundary. Figure 3-1 shows the small groups of existing noise-sensitive receptors in the greater project vicinity.

3.2.1 Common Noise Equivalent Areas

To assess the effects of project-generated noise on the greater project vicinity, the surrounding land uses were grouped into discrete assessment areas. Common noise equivalent areas (CNEAs) were established by grouping land uses considered to experience a similar range of existing noise levels, based on their exposure to existing major noise sources (e.g., vehicular traffic on I-280 and Oakdale Avenue). Each CNEA also contains a representative existing noise level measurement that serves as the basis for establishing existing traffic noise exposure for land uses within the CNEA. The 11 delineated CNEAs are described below.

- **CNEA 1:** This CNEA includes commercial and warehouse land uses northwest of the project site. No noise-sensitive receptors were identified in this area. Existing noise levels within this CNEA are represented by measurement M1.
- **CNEA 2:** This CNEA includes primarily commercial and warehouse land uses northwest of the project site, spanning both sides of Toland Street. No noise-sensitive receptors were identified in this area; however, an office building is at 2095 Jerrold Avenue. Existing noise levels within this CNEA are represented by measurement M2.
- **CNEA 3:** This CNEA includes primarily commercial and warehouse land uses west and southwest of the project site. This CNEA features a single church (Grace Good Samaritan Worship Center). Existing noise levels within this CNEA are represented by measurement M3.
- **CNEA 4:** This CNEA includes single-family homes, a park, and commercial/warehouse land uses southwest of the project site. Residential land uses are on both sides of Palou Avenue. Existing noise levels within this CNEA are represented by measurement M4.
- **CNEA 5:** This CNEA includes primarily commercial and warehouse land uses southwest of the project site. A small tract of residential land uses is on Oakdale Avenue near the southeastern boundary of the CNEA. Existing noise levels within this CNEA are represented by measurement M5.
- **CNEA 6:** This CNEA includes commercial and warehouse land uses immediately southwest of the project site. No noise-sensitive receptors were identified in this area. Existing noise levels within this CNEA are represented by measurement M6.
- **CNEA 7:** This CNEA includes single-family homes and commercial/warehouse land uses south of the project site. Residential land uses are along Oakdale Avenue and Palou Avenue. Existing noise levels within this CNEA are represented by measurement M7.
- **CNEA 8:** This CNEA includes commercial and warehouse land uses immediately northeast of the project site. No noise-sensitive receptors were identified in this area. Existing noise levels within this CNEA are represented by measurement M8.
- **CNEA 9:** This CNEA includes single-family homes, a church (Galilee Missionary Baptist Church), and commercial/warehouse land uses south of the project site. Residential land uses are along Oakdale Avenue and Palou Avenue. Existing noise levels within this CNEA are represented by measurement M9.
- **CNEA 10:** This CNEA includes commercial and warehouse land uses immediately southeast of the project site. No noise-sensitive receptors were identified in this area. Existing noise levels within this CNEA are represented by measurement M10.

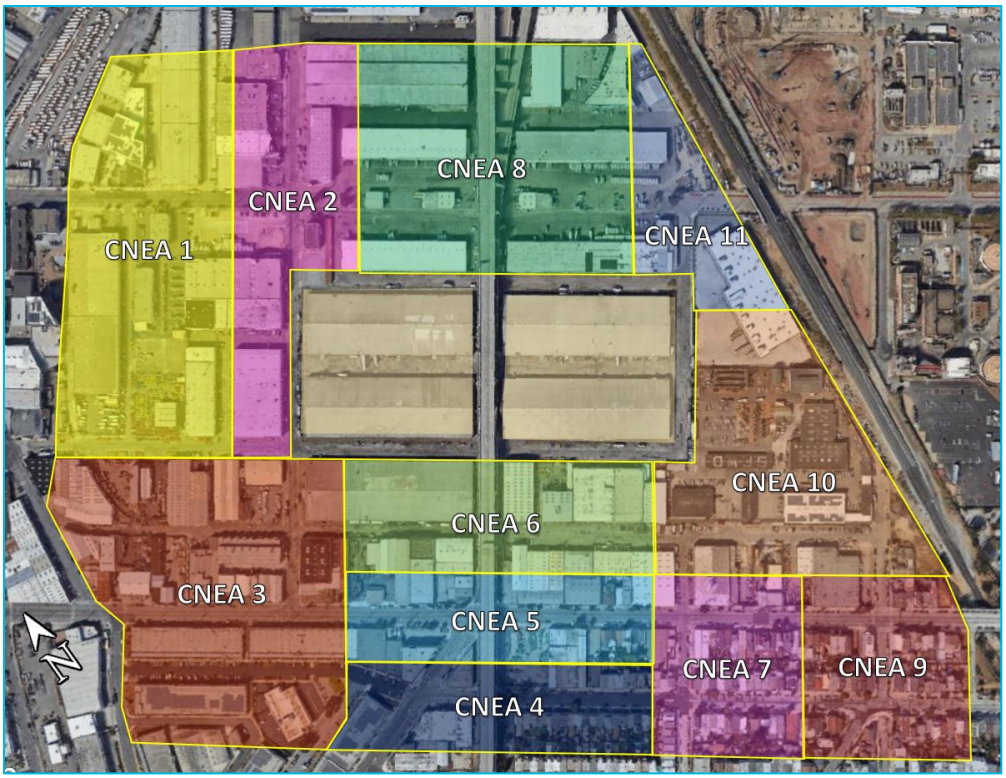


Sources: Map data from Google Imagery © 2020; compiled by AECOM

Figure 3-1 Noise-Sensitive Land Uses Surrounding the Project Area

- **CNEA 11:** This CNEA includes commercial and warehouse land uses immediately east of the project site. No noise-sensitive receptors were identified in this area. Existing noise levels within this CNEA are represented by measurement M11.

The 11 delineated CNEAs are shown in Figure 3-2.



Sources: Map data from Google Imagery © 2020; compiled by AECOM

Figure 3-2 Common Noise Equivalent Areas for Project Traffic Noise Assessment

3.3 Vibration-Sensitive Receptors

The commercial buildings surrounding the project site generally were built between the 1960s and 1980s; however, buildings to the southwest and west have earlier construction dates. The warehouse structures at 801 and 834 Toland Street, approximately 67 feet southwest and 97 feet west of the project site, respectively, match the architectural styles of the four existing warehouse structures that would be removed from the project site. The project site warehouse buildings were constructed by the U.S. military between 1940 and 1943, to support production needs during World War II, and although construction dates were not available for 801 and 834 Toland Street, this analysis assumes that their construction dates are similar if not identical to those of the existing project site warehouses.

There are no known structures featuring vibration-sensitive activities (e.g., research or medical laboratories) in the project vicinity. The nearest structure within which people may sleep is the residential property approximately 440 feet from the edge of the project construction area.

3.4 Existing Noise Conditions Survey Details

After a preliminary review of online aerial imagery and other literature, multiple sound level measurement location candidates were identified in the project vicinity for long-term and short-term sound pressure level measurements. For long-term deployments, a field investigator set up each of the three long-term noise monitors and performed premeasurement instrument calibration checks before the start of monitoring. Secured to existing fixed man-made or natural features, these long-term monitors were left unattended until revisited by the investigator to check instrument function, remaining on-board memory, and power supply.

In addition to long-term monitoring, short-term measurements also were conducted in the project vicinity at additional nearest noise-sensitive land uses and property boundaries to the north, south, and east. All short-term measurements were conducted with an investigator attending the sound level meter and making simultaneous observations of perceived sound sources and environmental conditions.

All sound measurements were conducted with wind-screened microphones. Short-term measurements were performed with the sound level meter mounted atop a camera tripod, with the microphone approximately 5 feet above-grade. The calibration status of sound level meters used for short-term measurements was checked in the field before and after each measurement. Each short-term and long-term sound level meter was set to record L_{eq}, L_{max}, L_{min}, and statistical distributions of sound level (L_{10}, L_{50}, and L_{90}) for each measurement period.

Sound pressure level monitoring was performed with Larson Davis Model 831 and 820 sound level meters, rated by the American National Standards Institute (ANSI) as Class 1, per ANSI S1.4-2014 and Type 1 per ANSI S1.4-1983, respectively. The sound level meter microphones were fitted with standard open-cell foam windscreens and positioned approximately 5 to 6 feet above-grade where practicable. The sound level meters were set using slow time-response and the A-weighting scale. Sound level meter calibration was field-checked before and after each measurement period with a LD Model CAL200 acoustic calibrator, and all meters were factory-calibrated earlier that same year. Where not already described, sound level measurements performed for this field survey were conducted in a manner based on guidance from applicable portions of International Organization for Standardization (ISO) 1996-1, 1996-2, and 1996-3 standards.[10] [11] [12]

A Kestrel Model 3500 handheld weather meter was used to determine or measure average wind speed, temperature, barometric pressure, and relative humidity at each of the long-term and short-term noise measurement locations.

3.5 Existing Noise Conditions Survey Results

Sound level measurements were conducted from July 31 through August 2, 2018,[13] to collect sound pressure level data in the project vicinity. A total of three long-term (48-hour) and 23 short-term (10 to 15-minute) measurements were conducted at representative noise-sensitive land uses and adjacent property boundaries. Short-term measurements were conducted at eight locations during both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods.

Observed meteorological data during sound level meter setups showed temperatures ranging from 56 to 72 degrees Fahrenheit, humidity ranging from 60 to 69 percent, and wind speeds ranging from 1 to 8 miles per hour (mph). Sound pressure level measurements were conducted at a series of locations throughout the project vicinity. These locations are shown in Figure 3-3 and are described as follows:

- **M1:** Long-term measurement location on Toland Place, approximately 288 feet northwest of the nearest project property boundary and approximately 915 feet northwest of I-280. The dominant noise source during the measurement period was distant vehicular traffic from I-280 and local roadways.
- **M2:** Short-term measurement location on Toland Street, abutting the northwest project property boundary and approximately 630 feet northwest of I-280. During the daytime hours, the dominant noise sources during the measurement periods were vehicular traffic on Toland Street, distant produce delivery truck idling, and distant vehicular traffic on I-280. During the nighttime period, vehicular traffic on Toland Street decreased but contributions from traffic on I-280 were sustained.

[10] International Organization for Standardization (ISO), Description and Measurement of Environmental Noise, Basic Quantities and Procedures Part 1, ISO 1996/1, 1982.
[11] ISO, Description and Measurement of Environmental Noise, Basic Quantities, and Procedures, Acquisition of Data Pertinent to Land Use, Part 2, ISO 1996/2, 1987a.
[12] ISO, Description and Measurement of Environmental Noise, Basic Quantities and Procedures, Application to Noise Limits, Part 3, ISO 1996/3, 1987b.
[13] In the three years since the existing noise condition survey was conducted, surrounding land uses in the survey area have not changed in a manner that would result in notable changes to existing noise levels. Therefore, existing noise conditions measured and reported herein are expected to be representative of the current ambient acoustic environment.



Sources: Map data from Google Imagery © 2020; compiled by AECOM

Figure 3-3 Overview of Baseline Monitoring Locations

- **M3:** Short-term measurement location on the north corner of the intersection of Newcomb Avenue and Toland Street, approximately 285 feet southwest of the nearest project property boundary and approximately 680 feet northwest of I-280. During the daytime hours, the dominant noise sources during the measurement periods were vehicular traffic on Toland Street and Newcomb Avenue, intermittent truck loading at a nearby hardware store, and distant vehicular traffic on I-280. During the nighttime period, vehicular traffic on Toland Street and Newcomb Avenue decreased, but contributions from traffic on I-280 were sustained.

- **M4:** Long-term measurement location on the south side of Palou Avenue, approximately 900 feet southwest of the nearest project property boundary and approximately 100 feet southeast of I-280. The dominant noise source during the measurement period was vehicular traffic on I-280 during all observed hours, with secondary contributions from traffic on Oakdale Avenue and Palou Avenue.

- **M5:** Short-term measurement location on the south side of Oakdale Avenue, approximately 615 feet southwest of the nearest project property boundary and approximately 85 feet southeast of I-280. The dominant noise source during the measurement period was vehicular traffic on I-280 during all observed hours, with secondary contributions from traffic on Oakdale Avenue.

- **M6:** Short-term measurement location on the northern corner of the intersection of McKinnon Avenue and Selby Avenue, approximately 48 feet southwest of the nearest project property boundary and approximately 45 feet northwest of I-280. The dominant noise source during the measurement period was vehicular traffic on I-280, with secondary contributions from intermittent traffic on McKinnon Avenue and intermittent truck loading at nearby warehouses.

- **M7:** Short-term measurement location on the southern corner of the intersection of Oakdale Avenue and Rankin Street, approximately 611 feet south of the nearest project property boundary and approximately 690 feet southeast of I-280. The dominant noise sources during the measurement period were distant vehicular traffic on I-280 and intermittent traffic on McKinnon Avenue.

- **M8:** Short-term measurement location on the southern corner of the intersection of Oakdale Avenue and Rankin Street, approximately 254 feet northeast of the nearest project property boundary and approximately 85 feet southeast of I-280. The dominant noise sources during the measurement period were vehicular traffic on I-280 and intermittent traffic on Jerrold Avenue.

- **M9:** Long-term measurement location near the western corner of the intersection of Oakdale Avenue and Quint Street, approximately 880 feet south-southeast of the nearest project property boundary and approximately 1,255 feet southeast of I-280. The dominant noise sources during the measurement period were vehicular traffic on Oakdale Avenue and distant traffic on I-280.

- **M10:** Short-term measurement location on Rankin Street, abutting the southwest project property line and approximately 645 feet southeast of I-280. The dominant noise sources during the measurement period were continuous vehicular traffic on I-280 and intermittent traffic on Rankin Street.

- **M11:** Short-term measurement location on the southern corner of the intersection of Rankin Street and Jerrold Avenue, approximately 270 feet northeast of the nearest project property boundary and approximately 705 feet southeast of I-280. The dominant noise sources during the measurement period were vehicular traffic on I-280 and intermittent traffic on Jerrold Avenue.

Each short-term measurement location can be compared with specific long-term measurement location data on the basis of shared existing exposure to noise sources. This comparison can then reasonably estimate the existing sound environment at short-term locations during times when short-term measurements were no longer being conducted but long-term measurements continued.

For example, consider two hypothetical measurement locations next to a major freeway that is the dominant source of noise in the vicinity. If a 15-minute short-term measurement conducted at 2 p.m. at location A equals 51 dBA, L_{eq}, and during that same period, the noise level at long-term monitor B is equal to 49 dBA, L_{eq}, a difference of +2 dBA is established between the measurement locations for that period. Therefore, if the full daytime period (i.e., 7 a.m. to 7 p.m.) at location B is calculated to be 56 dBA, L_{eq}, the resulting full daytime period at location A can be estimated as 58 dBA, L_{eq}. This process was performed for the daytime and nighttime short-term measurements at each short-term

measurement location based on their shared exposure to specific traffic noise sources at the adjacent long-term deployment used for 24-hour data extrapolation. Using this technique, the existing 24-hour CNEL and lowest 15-minute L_{90} (using the calculated delta between L_{90} values) were derived for each short-term position based on empirical data collected from both the short-term and long-term survey locations.[14]

Table 3-1 summarizes the calculated daytime, evening (7 p.m. to 10 p.m.), nighttime, and CNEL values as indexed by measurement location identification (ID). Detailed data for long-term and short-term measurements, including referenced times and detailed calculations, are provided in Appendix A.

Table 3-1 Summary of Baseline Sound Pressure Level Measurements

Measurement Location ID	Reference LT Measurement Location ID	Calculated Sound Pressure Level (dBA)				
		Daytime L_{eq} (0700–1900)	Evening L_{eq} (1900–2200)	Nighttime L_{eq} (2200–0700)	Calculated CNEL	Lowest 15-Minute L_{90}
M1 (LT)	-	65	59	58	66	50
M2	M1	71	64	61	71	51
M3	M1	70	63	60	70	50
M4 (LT)	-	77	75	72	80	51
M5	M4	79	77	73	81	55
M6	M4	77	77	75	82	51
M7	M9	71	68	65	73	52
M8	M4	78	77	72	80	52
M9 (LT)	-	66	62	59	68	48
M10	M1	68	62	61	69	50
M11	M1	72	67	67	75	57

Notes:

CNEL = community noise equivalent level
dBA: A-weighted decibels
LT: Long-term measurement
L_{eq}: Energy-average sound level (1-hour)
L_{90}: Sound level exceeded for 90 percent of measurement period

Source: AECOM field measurements recorded in 2018

4. Methodology

4.1 Project Construction

4.1.1 Onsite Construction Noise

Project construction noise was estimated by considering the main noise-generating sound sources, calculating their aggregate sound propagation to the project property boundary, and studying the closest receptor locations.

The onsite construction noise analysis approach relies on the FTA “General Assessment” quantitative construction noise estimation guidance. The key assumptions for this analysis include:

- For a given construction phase or combination of phases, the two loudest pieces of equipment or vehicles are assumed to operate on average from the geographic centroid of the closest building A or building B work site.

[14] This is a valid method for extrapolating long-term noise levels from short-term noise measurements when acoustics of the noise monitoring location environment is dominated by the same source throughout the monitoring period, and the measurements are conducted simultaneously, as was the case for the noise measurements conducted for this analysis.

- Each piece of equipment or vehicle is assigned a reference L_{max} value at a reference distance (e.g., 50 feet), and an "acoustical usage factor" that the FHWA Roadway Construction Noise Model User's Guide[15] describes as an estimated portion of a construction operation period when the L_{max} value can be expected. The reference sound level and acoustical usage factor values for each construction phase are provided in Appendix B.

- Free-field conditions and no sound reduction from the ground surface are expected to occur.

- A standard acoustic energy attenuation rate of -6 dBA per doubling of distance from the assumed construction noise sources is assumed.

4.1.2 Construction Traffic Noise

Noise levels generated by construction traffic on local roadways were modeled using the FHWA's Traffic Noise Model Version 2.5. The screening-level analysis assumed a vehicle speed of 30 mph on Oakdale Avenue and Toland Street and 25 mph on smaller roadways. Although the model has the capability to account roadway gradients and shielding effects from terrain and buildings/barriers, this analysis assumed flat topography between the roadways and noise assessment locations, and omitted existing structures that may offer additional shielding. Therefore, the results are conservative (worst-case). Project construction traffic would fall into one of the following three categories:

- **Haul Route**: Would be used by heavy trucks transporting deliveries and debris to and from the construction site. All traffic associated with the haul route would use Toland Street from the project site, travel southwest to Oakdale Avenue, and Oakdale Avenue northwest from Toland Street to Bayshore Boulevard.

- **Concrete Route**: Would be used by heavy trucks transporting concrete to and from the construction site. All traffic associated with the concrete route would use Toland Street from the project site and travel northeast to Evans Avenue.

- **Worker Route**: Would be used by construction workers and fleet vehicles traveling to and from the construction site. To conservatively estimate the various routes by which construction workers would be arriving and departing from the construction site, the construction traffic noise analysis assumed that all roadways in the project vicinity, including the haul and concrete routes, would carry 75 percent of worker traffic.

4.1.3 Construction Vibration

Construction activities can generate groundborne vibration of varying degrees, based on the construction activity and equipment. Vibration associated with project construction activities would occur most notably during major ground-disturbing activities, such as site grading and drilling operations. The Caltrans manual[16] provides an equation for vibration level prediction at a receiver location, which is expressed as:

$$PPV\ (in/sec) = PPV_{ref}(\frac{25}{D})^{n}$$

Where:

PPV_{ref} = reference level of a vibration source at 25 feet

D = distance of the receiver from the vibration-generating activity in feet

n = value related to the vibration attenuation rate through the subject soil type

The reference vibration level for large bulldozers, hoe rams, and caisson drilling is the same for all three of these types of construction equipment. Thus, construction vibration levels were predicted using the shared reference level as reported in the Caltrans manual, 0.089 PPV in/sec at 25 feet and an "n" value of 1.1, which is representative of the

[15] Federal Highway Administration (FHWA), FHWA Roadway Construction Noise Model User's Guide, FHWA-HEP-05-054, 2006.
[16] California Department of Transportation (Caltrans), Transportation and Construction Vibration Guidance Manual, Division of Environmental Analysis, 2020 (April).

compacted alluvial soil type surrounding the project site. This expression provides means for the assessment of compliance with structural damage criteria and human receptor annoyance levels at any given receptor distance.

4.2 Project Operation

4.2.1 Existing Traffic Noise Determination

Vehicular traffic on local roadways and I-280 dominate the existing ambient environment. Thus, the existing noise levels collected at the 11 noise monitoring locations are reasonably representative of the existing traffic noise conditions at nearby land uses (shown in Table 3-1). The traffic noise analysis assesses the increase of project-only contributions to the existing, measured noise levels throughout the project area. This relative increase can be calculated using the expression:

$$(TNL_e + TNL_p) - TNL_e = Relative\ Increase\ in\ Ambient\ Noise\ Level$$

Where:

TNLe = measured existing traffic noise level
TNLp = predicted project-only traffic noise level

4.2.2 Offsite Traffic Noise

Project operation would result in an addition of vehicles to local roadways in the project vicinity. Offsite traffic noise was modeled with FHWA Traffic Noise Model Version 2.5, using the same modeling methodology discussed for the construction traffic noise analysis.

4.2.3 Onsite Traffic Noise

Appendix C of the article 29 guidelines lists vehicle and traffic noise as exceptions from local noise control laws and investigation. Because onsite traffic noise would be characteristic of the existing noise exposure already experienced throughout the studied CNEAs, onsite traffic noise levels were combined logarithmically with the project offsite traffic noise predictions to arrive at an aggregate, future traffic noise level with implementation of the proposed project for each CNEA. The traffic noise generated onsite would occur at onsite vehicle ramps and as a result of idling vehicles, as detailed next.

4.2.4 Vehicle Ramps

The project design includes vehicle ramps that would provide access to the three building levels above-grade. Determination of traffic volumes, vehicle mixes, and 24-hour distributions are based on the offsite traffic noise analysis assumptions and traffic distributions based on the land use type per gsf on each building level.

4.2.5 Logistics Yards

Logistics yards would be located on levels one through three of both buildings. The dominant noise generated by the logistics yards would be the movements and engine idling of medium and heavy trucks after arriving and before departing from each building. The logistics yards were modeled as area sources, matching the dimensions and locations of each logistics yard, and are representative of daytime, evening, and nighttime medium and heavy truck volumes on each level.

The CadnaA® Noise Prediction Model (Version 2020)[17] was used to estimate the propagation of sound from onsite building ramp traffic and logistics yard vehicle idling. Model configuration settings and assumptions are as follows:

- **Outdoor temperature**: 50 degrees Fahrenheit

[17] CadnaA is a Windows-based software program that predicts and assesses noise levels near industrial noise sources based on ISO 9613-2 algorithms for noise propagation calculations (ISO 1996). The software can accept sound power levels (in dB referenced to 1 picoWatt) in octave-band center frequency resolution to describe the multiple sound propagation sources of the site processes or activity to be modeled. The calculations account classical sound wave divergence plus attenuation factors resulting from air absorption, basic ground effects, and barrier/shielding. CadnaA can model the three-dimensional sound propagation complexity of considering realistic, intervening natural and human-made barrier effects, including those resulting from terrain features and structures such as major buildings.

- **Relative humidity**: 70 percent
- **Average ground absorption**: 0.2 (representative of primarily hard ground surfaces)
- **Terrain**: topography of the project site and the immediate vicinity (modeled using terrain data with 1-meter resolution elevation steps)
- **Roadway calculation standard**: replication of FHWA TNM Version 2.5, with Fresnel-zone correction activated (applied to moving ramp traffic only)
- **Reflection order**: 2
- **Ancillary area structures**: building structures beyond those immediately surrounding the project area (imported into the model space using open-source height and locational data, provided by OpenStreetMap (2020)

Because onsite traffic noise would be generated from a central location, modeled receiver points were placed at the closest land use edge of each CNEA to assume the maximum noise contribution to the studied CNEAs.

4.2.6 Fixed-Source Operations Noise

The CadnaA Noise Prediction Model (Version 2021 MR2) also was used to estimate the propagation of sound from aggregate fixed-source project operations, including HVAC and emergency generators. This analysis used the same configuration settings and assumptions as noted above.

4.2.6.1 HVAC

The project configuration was imported into the CadnaA model from available project drawing files, provided by the project sponsor[18] and was modeled using the same configuration settings and assumptions noted above.

5. Project Noise Analysis

5.1 Project Construction

5.1.1 Onsite Construction Noise

Table 5-1 summarizes the two noise-dominant pieces of construction equipment for each construction phase. In several cases, more than one of each are the loudest pieces of equipment; thus, some equipment repeats within a phase. A detailed list of anticipated equipment types and quantities for each construction phase is provided in Appendix B.

The construction scenario with the highest potential for noise effects, Phases 4 and 5 – Building Envelope and Interior Buildout and Sitework, considers the two loudest pieces of equipment during any construction phase. Therefore, overlapping of construction phases between the two building sites is not expected to generate noise levels in excess of what already has been assessed for this phase.

The estimated aggregate sound pressure level from concurrent construction activities was predicted at the following assessment locations:

- The boundary of the construction site (approximately 255 feet from the center of the nearest project building construction site)
- The nearest residential noise-sensitive land use (approximately 440 feet from the nearest project property boundary and 745 feet from the center of the nearest project building construction site)
- The nearest other noise-sensitive land use (a church, approximately 350 feet from the nearest project property boundary and 725 feet from the center of the nearest project building construction site)

[18] Based on drawings provided by Jackson Liles Architecture in a January 10, 2020, response to a request for information.

Table 5-1 Loudest Anticipated Construction Equipment per Phase

Phase	Phase Detail	Duration (weeks)	Loudest Piece of Equipment per Phase	Hourly L_{eq} at 50 feet (dBA)	Combined Hourly L_{eq} at 50 feet (dBA)
1	Demolition and Site Preparation	8	Concrete/Industrial Saw	85	88
			Mounted Impact Hammer	85	
2	Grading and Ground Improvements	16	Grader	83	86
			Grader	83	
3[a]	Building Construction	61	Water Truck	82	85
			Generator Set	81	
4[a]	Building Envelope and Interior Buildout	60	Paver	84	87
			Paver	84	
5[a]	Sitework	25	Concrete/Industrial Saw	85	88
			Concrete/Industrial Saw	85	
6	Startup and Commissioning	7	Aerial Lift	80	82
			Rubber Tired Loaders	78	

Notes:

a. Construction phase may include nighttime work for certain time-dependent tasks, such as concrete pours.

dBA = A-weighted decibels
L_{eq} = energy-average sound level (1-hour)

Source: Data compiled by AECOM

Table 5-2 summarizes predicted hourly noise levels at the three studied assessment locations during the most noise-intensive construction phase and the resulting relative noise increase above the existing noise level.[19] Predicted onsite construction noise levels for all studied construction phases are provided in Appendix B.

Table 5-2 Predicted Onsite Construction Noise Levels

Worst-Case Construction Phase	Assessment Location	Existing Daytime L_{eq}, dBA	Scenario	Predicted Hourly L_{eq}, dBA
Phase 1 Demolition and Site Prep/Phase 5 Sitework[1]	Construction Boundary	68 (M10[2])	Construction-Only Noise Level	74
			Construction Noise Level + Existing	75
			Increase over Existing	7
	Nearest Noise-Sensitive Land Use (Church)	70 (M3[2])	Construction-Only Noise Level	65
			Construction Noise Level + Existing	71
			Increase over Existing	1
	Nearest Residential Noise-Sensitive Land Use	70 (M3[2])	Construction-Only Noise Level	65
			Construction Noise Level + Existing	71
			Increase over Existing	1

Notes:

1. Construction phases 1 and 5 share the same predicted worst-case construction noise levels.
2. Indicates the baseline noise measurement location used to define the existing daytime noise level at the assessment location.

Decibel values presented in this table are rounded to the nearest whole decibel. Therefore, the differences calculated in the "Increase over Existing" rows may be inconsistent with basic arithmetic expectations.

dBA = A-weighted decibels
L_{eq} = energy-average sound level (1-hour)

Source: Compiled by AECOM

[19] Decibel values presented in all report tables are rounded to the nearest whole decibel. Therefore, the differences calculated may be inconsistent with basic arithmetic expectations.

For the most intensive construction period, predicted onsite construction noise levels would not exceed 90 dBA, nor would they result in an increase over existing noise levels of greater than 10 dBA at any noise-sensitive land uses. Thus, the five other construction phases (discussed in detail in Appendix B) similarly would not exceed any of these noise levels.

5.1.2 Nighttime Onsite Construction Noise

Nighttime construction activities, defined by article 29 as construction activities occurring between 8 p.m. and 7 a.m., are expected during specific phases of building construction—the building envelope and interior buildout phase, and the sitework phase. The project sponsor would be required to obtain a permit from the San Francisco Department of Public Works or the Department of Building Inspection to extend construction activities beyond the typical allowable construction hours. Such permits are only granted for activities that are required to occur during nighttime periods, such as concrete pours and/or crane deliveries. Interior noise levels anticipated to be generated by nighttime construction at the closest residential noise-sensitive land use (440 feet from the nearest project site boundary) are shown in Table 5-3.

Table 5-3 Predicted Nighttime Construction Noise Levels at Nearest Residential Receptor

Construction Phase	Equipment Assumed	Predicted Exterior Construction Noise Level (L_{eq}, dBA)	Predicted Interior Construction Noise Level (L_{eq}, dBA)[1]
Building Construction	Two Concrete Pump Trucks	57	32
Building Envelope and Interior Buildout	One Flatbed Truck	56	31
Sitework	One Flatbed Truck	56	31

Note:

1. An exterior to interior transmission loss of 25 dBA was assumed for the studied closest receptor, which is representative of typical residential building construction with windows closed (United States Environmental Protection Agency (USEPA), Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, USEPA 550/9-74-004), 1974.

dBA = A-weighted decibels

L_{eq} = energy-average sound level (1-hour)

Source: Compiled by AECOM

The nighttime construction noise levels at the interior of the nearest residential noise-sensitive land use would range from 31 to 32 dBA, L_{eq}. Depending on the siting of concrete pump trucks and/or flatbed trucks used for crane deliveries, nighttime construction noise levels at the project property plane could be more than 5 dBA greater than ambient noise levels, which were measured to range between 50 and 52 dBA as shown in Table 3-1. Therefore, a nighttime construction work permit is likely to be required.

5.1.3 Construction Traffic Noise

The construction traffic noise analysis considered three peak-traffic scenarios, made up of the peak-traffic periods when each specified route would experience its maximum daily traffic volume. These scenarios and associated traffic volumes per route are shown in Table 5-4. Nighttime construction traffic routes would have fewer vehicles; thus, this analysis assumed all vehicles would travel on these routes during daytime hours.

Table 5-4 Construction Traffic Noise Scenarios

	Daily Traffic Volumes per Route (ADT)		
Studied Scenario	Haul Route	Concrete Route	Worker Route
Maximum Haul Route Traffic	155 heavy trucks	53 heavy trucks	38 cars
Maximum Concrete Route Traffic	94 heavy trucks	120 heavy trucks	51 cars
Maximum Worker Route Traffic	33 heavy trucks	43 heavy trucks	149 cars

Notes:

ADT = average daily traffic
Cars = vehicles with two axles, four wheels
Heavy Trucks = vehicles with three or more axles

Source: Data compiled by AECOM

Construction traffic noise levels were predicted within each CNEA for each of the three worst-case construction traffic scenarios, shown in Table 5-4 and summarized as follows:

- Maximum Haul Route Traffic Volumes (during “Building Construction” phase for building A and “Demolition and Site Preparation” and “Grading and Ground Improvements” phases for building B)
- Maximum Concrete Route Traffic Volumes (during “Building Construction” phase for building A and “Grading and Ground Improvements” and “Building Construction” phases for building B)
- Maximum Worker Route Traffic Volumes (during “Sitework” phase for building B and “Building Envelope and Interior Buildout” phase for both buildings.)

Using the highest predicted noise levels generated by any of the three studied scenarios, Table 5-5 shows predicted construction traffic noise levels within each CNEA, along with the relative increase in existing noise levels, and shows that construction traffic would not cause a measurable increase in overall traffic noise levels in the project vicinity.

Table 5-5 Construction Traffic Noise Prediction and Comparison

CNEA ID	Measured Daytime L_{eq} (dBA)	Worst-Case Construction Traffic Daytime L_{eq} (dBA)	Aggregate Daytime L_{eq} (dBA)	Difference
1	65	45	65	0
2	71	58	71	0
3	70	58	71	0[1]
4	77	35	77	0
5	79	43	79	0
6	77	44	77	0
7	71	42	71	0
8	78	46	78	0
9	66	40	66	0
10	68	42	68	0
11	72	43	72	0

Notes:

[1] Decibel values presented in this table are rounded to the nearest whole decibel. The actual value for Measured Daytime L_{eq} is 70.3 and Aggregate Daytime L_{eq} is 70.6, resulting in a difference of 0.3 dBA.

CNEA = common noise equivalent area
CNEL = community noise equivalent level
dBA = A-weighted decibels;

Source: Compiled by AECOM

5.1.4 Construction Vibration

Pavement and concrete breaking, grading, and drilling activities would generate groundborne vibration levels and would be the primary concern for vibratory impacts on structures and human receptors. As discussed in Section 2.2, vibratory potential damage criteria for frequent vibration events range from 0.25 PPV in/sec for historic buildings to 0.5 PPV in/sec for modern industrial/commercial buildings. In addition, residences and buildings where people normally sleep could experience sleep interference with vibration levels between 72 and 80 VdB.

The nearest existing structures to project grading or drilling activities would be approximately 70 feet from the closest project building façade. At this distance, the worst-case construction vibration level, which would be generated by the operation of a hoe ram during existing foundation demolition, is estimated to be approximately 0.029 PPV in/sec, which would be below any potential structural damage criterion.

No establishments featuring vibration-sensitive activities (e.g., medical laboratories) were identified in the project area. The closest structure within which people would sleep is approximately 440 feet from the closest edge of the

project construction boundary. Due to nighttime construction activity restrictions, the only notable nighttime vibration sources would be loaded trucks used for transporting cement and/or cranes. A loaded truck at a distance of 440 feet from the nearest residential receptor would generate a vibration level of approximately 49 VdB, approximately 23 VdB below the minimum level that could result in sleep interference (72 VdB).

5.2 Project Operation

5.2.1 Traffic Noise

The following data were used to characterize and quantify the daytime, evening, and nighttime traffic data that were used as inputs for the traffic noise model.

5.2.1.1 Project Total Vehicle Volumes (Daily Average)

Peak-hour PM traffic data per roadway was converted to an average daily traffic (ADT) volume using the common peak-hour conversion multiplier of 10. The studied roadway segments and associated ADT values are shown in Table 5-6.

Table 5-6 Studied Roadway Segments with Existing and Future (with Project) ADT Volumes

Roadway Segment	Existing ADT	Existing with Project ADT	ADT Increase because of Project Traffic
Jerrold Avenue, east of Toland Street westbound	2,125	2,470	345
Jerrold Avenue, east of Toland Street eastbound	2,125	2,470	345
Jerrold Avenue, west of Toland Street	4,510	6,430	1,920
Kirkwood Avenue, Selby Street to Rankin Street	360	780	420
Kirkwood Avenue/Toland Street to Selby Street	270	1,180	910
McKinnon Avenue, Selby Street to Rankin Street	720	1,330	610
McKinnon Avenue, Toland Street to Selby Street	570	1,580	1,010
McKinnon Avenue, west of Toland Street	830	830	0
Oakdale Avenue, east of Toland Street	8,700	9,290	590
Oakdale Avenue, west of Toland Street	9,630	9,880	250
Rankin Street, entrance at Rankin Street to Kirkwood Avenue	720	1,920	1,200
Rankin Street, McKinnon Avenue to entrance at Rankin Street	720	1,330	610
Rankin Street, Kirkwood Avenue to Jerrold Avenue	1,060	2,640	1,580
Selby Street, entrance at Selby Street to Kirkwood Avenue	-	930	930
Selby Street, McKinnon Avenue to entrance at Selby Street	-	2,190	2,190
Selby Street, north of Kirkwood Avenue	90	90	0
Selby Street, south of McKinnon Avenue	250	1,550	1,300
Toland Street, entrance at Toland Street to Kirkwood Avenue	3,260	5,500	2,240
Toland Street, Jerrold Avenue to Evans Avenue	3,450	4,970	1,520
Toland Street, Kirkwood Avenue to Jerrold Avenue	3,530	6,290	2,760
Toland Street, McKinnon Avenue to entrance at Toland Street	3,260	4,770	1,510
Toland Street, Oakdale Avenue to McKinnon Avenue	3,100	3,610	510

Notes:

ADT = average daily traffic

Source: Adavant Consulting/LCW Consulting (Adavant), 2021, 749 Toland Street and 2000 McKinnon Avenue Project Estimation of Project Travel Demand, December.

5.2.1.2 Project Vehicle Classification

Project vehicles would vary in type and quantity, with each discrete project tenant and/or use. The Final Estimation of Project Travel Demand, prepared by Adavant Consulting/LCW Consulting[20] provides a distribution of vehicle classifications for each specified use and a subsequent total distribution of vehicle types, as summarized in Table 5-7.

Table 5-7 Overall Project Average Daily Traffic Vehicle Volumes and Classifications per Project Land Use

Project Use Type	Autos (including vans)	Medium Trucks	Heavy Trucks	Total
Onsite Workers	3,030	0	0	3,030
Maker and Manufacturing	110	22	2	134
Parcel Delivery and Last-Mile Delivery	2,016	292	120	2,428
Wholesale and Storage	302	242	60	604
General Retail/Café/Quick Service	524	6	0	530
Total Project Vehicle Trips (ADT)	**5,982**	**556**	**182**	**6,196**
Traffic from Existing Uses Removed by Project	554	132	14	700
Net New Vehicle Trips (ADT)	**5,428**	**424**	**168**	**5,496**

Note:

ADT = Average Daily Traffic
Medium Trucks = Vehicles with two axles and six tires (e.g., box trucks)
Heavy Trucks = Vehicles with three or more axles

Source: Adavant 2021, Travel Demand Memorandum, Appendix F – Table 1, Appendix D – Existing Site Total Warehouse Summary

5.2.1.3 Project Vehicle Distribution by Time and Vehicle Type

As discussed previously in this section, the daily traffic volumes for each vehicle classification do not consider the late-night/early-morning operations by medium and heavy trucks that could occur from project parcel delivery and last-mile delivery uses. These data serve to establish discrete ratios of vehicle classification volumes across the daytime, evening, and nighttime periods, which are weighted conservatively toward nighttime heavy truck operation. Table 5-8 summarizes these data, which are calculated averages between the two facilities. Detailed tables and vehicle breakdowns are provided in Appendix B.

Table 5-8 Summary of 24-Hour Vehicle Distribution Data

	Percent Distribution Across 24-Hour Period per Vehicle Class		
Vehicle Class	Daytime (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Autos (including vans)	76.1%	9.6%	14.3%
Medium Trucks	84.6%	9.9%	5.5%
Heavy Trucks	22.1%	13.5%	64.4%

Source: Adavant Consulting/LCW Consulting (Adavant), 749 Toland Street and 2000 McKinnon Avenue Project Estimation of Project Travel Demand, 2021 (December).

The majority of heavy truck traffic activity would occur during the nighttime period for parcel delivery/last-mile delivery facility operations. Although traffic associated with project operation would include non-parcel delivery/last-mile delivery uses that would follow normal business hours, the percentages shown above were incorporated into the traffic noise model inputs, to ensure a conservatively representative assessment of traffic noise, weighted toward nighttime heavy truck operation.

Table 5-9 summarizes the 24-hour traffic volume, auto mix, and truck mix inputs for each modeled building ramp pair. A detailed, step-by-step description of how these volumes were determined is provided in Appendix B.

[20] Adavant Consulting/LCW Consulting (Adavant), 749 Toland Street and 2000 McKinnon Avenue Project Estimation of Project Travel Demand, 2021 (December).

Table 5-9 Project Building Internal Ramp Traffic Volume Inputs per Building

	Daytime (hourly)	Evening (hourly)	Nighttime (hourly)
Circulating through Level 1			
Hourly Average Volume	211	109	56
Auto Mix	90%	88%	85%
Medium Truck Mix	10%	8%	3%
Heavy Truck Mix	1%	4%	12%
Ramps between L1 and L2			
Hourly Average Volume	176	90	46
Auto Mix	90%	89%	88%
Medium Trucks	9%	8%	3%
Heavy Trucks	1%	3%	9%
Ramps between L2 and L3			
Hourly Average Volume	138	70	36
Auto Mix	91%	90%	91%
Medium Trucks	9%	8%	3%
Heavy Trucks	0%	2%	6%
Ramps between L3 and L4			
Hourly Average Volume	101	51	25
Auto Mix	100%	100%	100%
Medium Trucks	0%	0%	0%
Heavy Trucks	0%	0%	0%

Source: Data compiled by AECOM

The modeling for traffic noise on the vehicle ramps assumed that vehicles were traveling approximately 6 mph. Vehicles assigned to ascending ramps were assigned a full-throttle engine status, increasing their noise emission by approximately 9 dBA.

Using the traffic volumes, mix, and 24-hour distributions from the building ramp analyses, Table 5-10 summarizes the inputs assigned to each area source.

Table 5-10 Logistics Yard Medium and Heavy Truck Volumes and Distributions

Logistics Yard	Vehicle Type	Daytime Total Volume	Evening Total Volume	Nighttime Total Volume
Level 1	Medium Trucks	57	7	4
	Heavy Trucks	3	2	10
Level 2	Medium Trucks	31	4	2
	Heavy Trucks	3	2	10
Level 3	Medium Trucks	30	4	2
	Heavy Trucks	3	2	9

Notes:

Automobiles (e.g., cars and vans) were not assumed in the area source determinations within logistics yard levels because they are presumed to be using each level primarily for the purpose of parking; and also because their acoustic contributions, relative to medium and heavy truck engine idling, are negligible.

Source: Compiled by AECOM

5.2.1.4 Project Vehicle Noise Levels on Studied CNEAs

Onsite and offsite traffic noise would vary by both vehicle trips and vehicle type throughout each 24-hour operating period. Project-only traffic noise levels within each studied CNEA are shown in Table 5-11.

CNEAs would experience project traffic noise levels ranging from 59 to 71 dBA, CNEL. Table 5-12 shows potential project-related traffic noise compared with existing traffic noise levels for each studied area.

Table 5-11 Summary of Predicted Project Traffic Noise Levels

CNEA ID	Onsite Traffic Noise (CNEL, dBA)	Offsite Traffic Noise (CNEL, dBA)	Combined Total Project-Only Traffic Noise (CNEL, dBA)
CNEA 1	53	51	55
CNEA 2	65	62	67
CNEA 3	61	56	62
CNEA 4	52	45	52
CNEA 5	55	57	59
CNEA 6	66	61	67
CNEA 7	53	55	57
CNEA 8	46	58	58
CNEA 9	52	53	56
CNEA 10	65	59	66
CNEA 11	49	59	60

Notes:

CNEA = common noise equivalent area
CNEL = community noise equivalent level
dBA = A-weighted decibels

Source: Compiled by AECOM

Table 5-12 Predicted Project Traffic Noise Level Increase over Existing Noise Level

CNEA ID	CNEA Contains Noise-Sensitive Land Uses?	Existing Traffic Noise Level within CNEA (CNEL, dBA)	Predicted Project Traffic Noise Level (CNEL, dBA)	Existing + Project Traffic Noise Level (CNEL, dBA)	Relative Increase over Existing Traffic Noise Level (dBA)
CNEA 1	No	66	55	67	0
CNEA 2	No	71	67	72	+1
CNEA 3	Yes	70	62	71	+1
CNEA 4	Yes	80	52	80	0
CNEA 5	Yes	81	59	81	0
CNEA 6	No	82	67	82	0
CNEA 7	Yes	73	57	73	0
CNEA 8	No	80	58	80	0
CNEA 9	Yes	68	56	68	0
CNEA 10	No	69	66	71	+2
CNEA 11	No	75	60	75	0

Notes:

Decibel values presented in this table are rounded to the nearest whole decibel. Therefore, the logarithmic and arithmetic calculations may be inconsistent with expectations.

CNEA = common noise equivalent area
CNEL = community noise equivalent level
dBA = A-weighted decibels

Source: Compiled by AECOM

All CNEAs containing noise-sensitive land uses experience existing traffic noise levels in excess of conditionally acceptable criteria pursuant to the general plan. Table 5-10 shows that traffic noise levels at CNEAs containing noise-sensitive land uses would increase by a maximum of 1 dBA.

CNEA 10, the area surrounding the project site to the southeast and east (made up of warehouse, storage, distribution, and San Francisco Public Utilities Commission land uses), would experience the largest traffic noise increase of 2 dBA.

5.2.2 Fixed-Source Operations

Fixed-source operations associated with typical project operations would include the HVAC systems and testing of the emergency power generator systems.

5.2.2.1 Heating, Ventilation, and Air Conditioning

The project structures would require the following three discrete mechanical systems:

- **Logistics yard ventilation:** Non-ducted system of ceiling-mounted ventilation fans to exhaust air from the logistics yards; these units would be on the proposed buildings' northwestern and southeastern façades, at building levels one through three.
- **Interior space ventilation:** Ducted ventilation systems serving interior PDR spaces within the buildings; these units would be on the proposed buildings' rooftops.
- **Interior space air conditioning:** Ducted split air conditioning (AC) systems serving interior accessory office and retail spaces in the buildings; condenser units associated with the split AC systems would be on the proposed buildings' rooftops.

To ensure a worst-case operational scenario for these systems, the stationary operational noise analysis assumed an event during which carbon dioxide detection systems on all three project logistics yard levels would reach ventilation system activation levels. This would result in full-power, simultaneous operation of logistics yard ventilation units throughout both project buildings. Considering rooftop ventilation unit operation, this unlikely worst-case scenario would generate a combined ventilation flow rate of more than 1 million cubic feet per minute. Table 5-13 lists the units assumed for each HVAC source and their relative unweighted sound power levels.

Table 5-13 Project HVAC Sound-Generating Sources

System Association	Type	Quantity per Project Building	Unweighted Sound Power Levels
Logistics Yard Ventilation System	Ceiling-Mounted Ventilation Fan	10	98
PDR Ventilation System	Rooftop Ventilation Fan	8	101
PDR Accessory Office Split AC System	Rooftop Condenser Fan Array	3	89
Retail Split AC System	Rooftop Condenser Fan Array	1	87

Notes:

Manufacturer reference sound level data and conversions are provided in Appendix B. Each building features six discrete rooftop HVAC areas. To model the 12 rooftop units of this table (i.e., the sum of ventilation and condenser fan arrays), each of the six rooftop areas was modeled assuming one condenser fan array and two ventilation fans. This generated a worst-case scenario for each of the six rooftop areas

AC = air conditioning

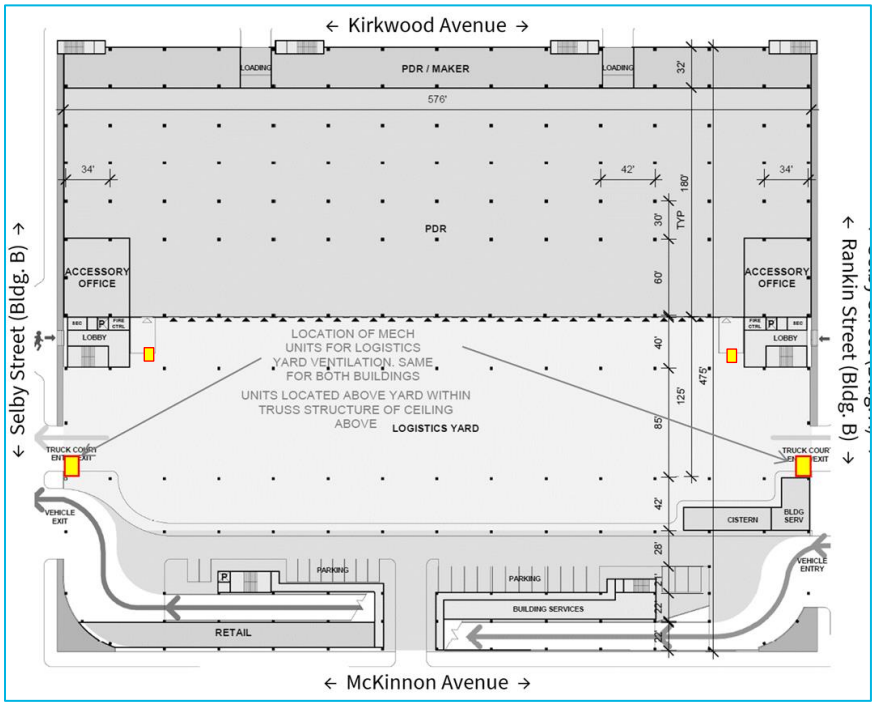
dB = decibel

HVAC = heating, ventilation, and air conditioning

PDR = production, distribution, and repair

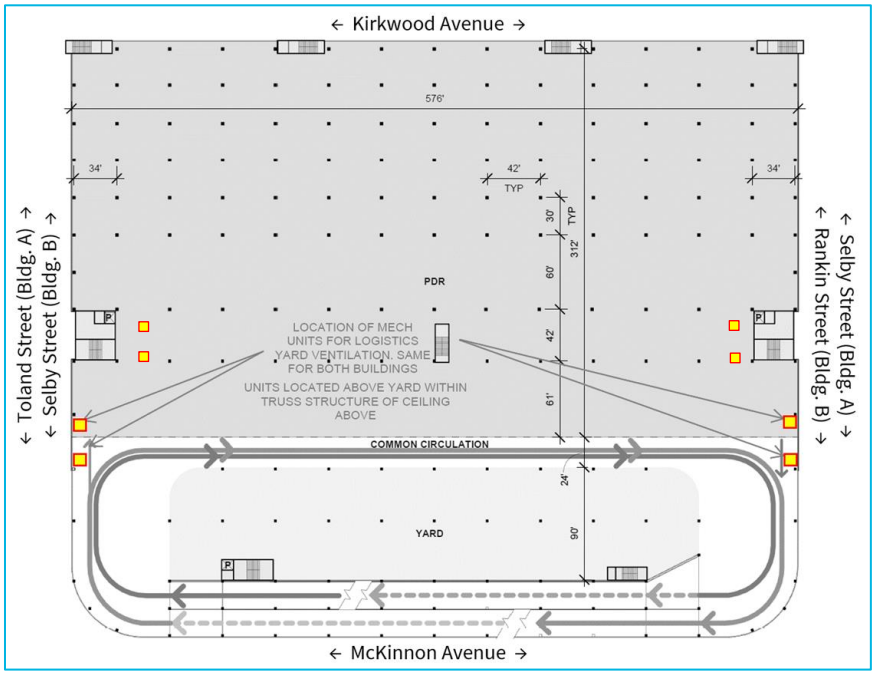
Source: Compiled by AECOM

Figure 5-1, Figure 5-2, and Figure 5-3 show the proposed locations of these units on each project building level, which would be the same for both buildings. Logistics yard ventilation fan locations shown in Figure 5-1 and Figure 5-2 may represent multiple ceiling-mounted ventilation fan units.



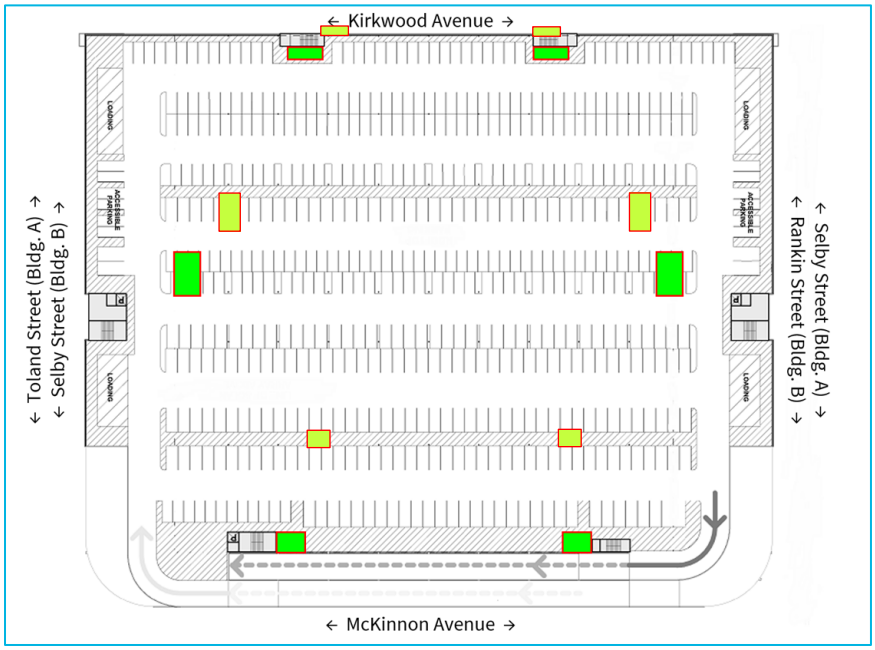
Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/2000 McKinnon, 2019 (October). Adapted by AECOM.

Figure 5-1 Locations of Logistics Yard Ventilation Units on Level 1



Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/2000 McKinnon, 2019 (October). Adapted by AECOM.

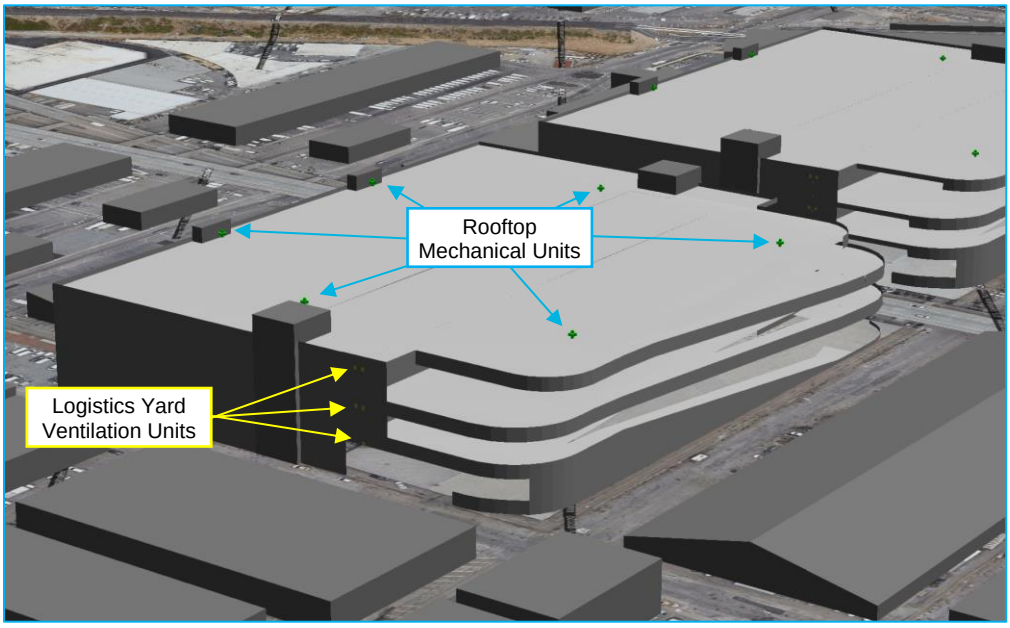
Figure 5-2 Locations of Logistics Yard Ventilation Units on Levels 2 and 3



Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/2000 McKinnon, 2019 (October). Adapted by AECOM.

Figure 5-3 Locations of Rooftop Ventilation and Condenser Units

Façade ventilation units for the logistics yards were modeled as vertical area sources at an elevation of the ceiling height for each building level. Rooftop mechanical equipment were modeled as individual point sources at each of the six locations shown in Figure 5-3, at 5 feet above the rooftop elevation. Discrete locations of individual rooftop mechanical units have yet to be defined; thus, this analysis assumed an even distribution of HVAC equipment across the six rooftop mechanical areas for each building, resulting in a combined equipment unweighted noise level of approximately 102 dB sound power level at each location. Figure 5-4 shows a three-dimensional axonometric view of the stationary operations prediction model with equipment call-outs.



Source: Compiled by AECOM

Figure 5-4 Axonometric View of the Stationary Operations Noise Prediction Model from West

Determination of Article 29 2909(b) Criteria

Article 2909(b) limits noise from the combination of all project stationary sources to an 8 dBA or lower increase over ambient noise levels along the project property plane. Table 5-14 summarizes existing ambient noise levels along each property plane and the resulting project stationary source noise limits.

Table 5-14 Ambient Noise Levels at Property Planes and Stationary Noise Source Limits

Project Property Boundary	Associated Adjacent CNEA ID[1]	Lowest Measured Existing 10-minute L_{90} (dBA)	Stationary Noise Source Requirement (for Section 2909(b) compliance) (L_{90} + 8 dBA)
Northwest (Toland Street)	CNEA 2	51	59
Southeast (Rankin Street)	CNEA 10	50	58
Central (I-280/Selby Street)	CNEA 6	51	59
Southwest (McKinnon Avenue)	CNEA 6	51	59
Northeast (Kirkwood Avenue)	CNEA 8	52	60

Notes:

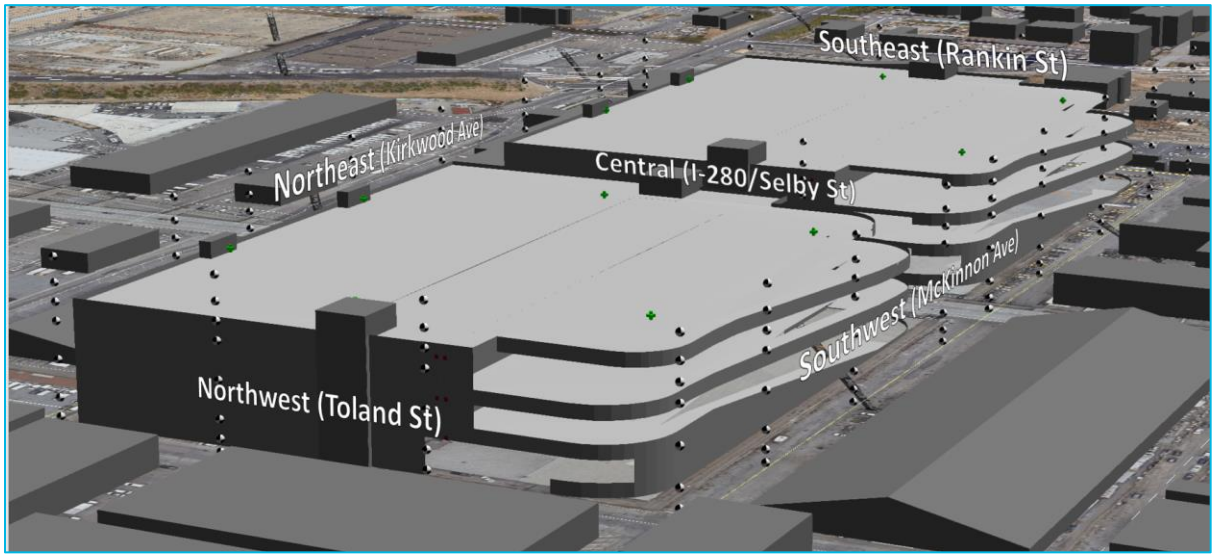
1. Although CNEAs are not drawn to meet the actual project property plane on map figures, they are being used in this table to delineate the side of the project property plane at which the existing L_{90} values are assigned to determine compliance criteria.

CNEA = common noise equivalent area
dBA = A-weighted decibels
L_{90} = sound level exceeded for 90 percent of measurement period

Source: Compiled by AECOM

Assessment of Article 29 2909(b) Compliance

To assess project fixed-source operation noise levels consistent with the article 29 (2909[b]) requirements, receiver points were modeled along multiple property boundary locations, at elevations of 5, 15, 30, 60, 90, 105, 120, and 140 feet. These elevations aligned the modeled receiver points with project fixed-source heights and elevations, where lines-of-sight to rooftop sources were maximized for a worst-case analysis. Figure 5-5 shows a three-dimensional view of these vertical receiver arrays.



Source: Compiled by AECOM

Figure 5-5 Axonometric View of Modeled Vertical Receiver Arrays at the Property Plane

Table 5-15 shows the maximum predicted noise levels generated from onsite project operation at each project property plane. Predicted operation noise levels were compared with calculated noise level limits associated with these property boundaries.

Table 5-15 Predicted Project Fixed-Source Operation Noise Levels at Property Planes

Project Property Boundary	Fixed-Source Noise Limit (measured L_{90} + 8 dBA)	Highest Predicted Fixed-Source Noise Level along Property Plane (L_{eq}, dBA)	Elevation of Highest Noise Level along Property Plane (feet)	Exceeds Noise Limit?	Noise Reduction Required for Article 29 Compliance (dBA)
Northwest (Toland Street)	59	77	30	Yes	-16
Southeast (Rankin Street)	58	74	60	Yes	-16
Central (I-280/Selby Street)	59	74	30	Yes	-15
Southwest (McKinnon Avenue)	59	64	30	Yes	-4
Northeast (Kirkwood Avenue)	60	62	60	Yes	-2

Notes:

Decibel values presented in this table are rounded to the nearest whole decibel. Therefore, the logarithmic and arithmetic calculations may be inconsistent with expectations.

Article 29 refers to Section 2909(b)

dBA = A-weighted decibels
I-280 – Interstate 280
L_{eq} = equivalent-energy sound pressure level
L_{90} = sound level exceeded for 90 percent of measurement period

Source: Compiled by AECOM

Predicted fixed-source noise levels that are expected to be generated by the proposed project would exceed the article 29 requirement (8 dBA above ambient) at all project property boundaries by 2 to 18 dBA. Implementation of noise reduction measures would be required for fixed-source noise sources, to achieve compliance with the article 29 requirements (section 2909[b]).

Assessment of Article 29 2909(d) Compliance

Table 5-16 shows predicted noise levels generated from onsite project operation at the nearest residential receptors. Predicted operation noise levels were compared with the article 29 section 2909(d) requirements to establish a maximum allowable interior noise level rating.

Predicted fixed-source noise levels expected to be generated by the proposed project would range from 15 to 23 dBA at the interior locations of the nearest residential structures. These values would not exceed the lowest article 29 (Section 2909[d]) interior noise level limit of 45 dBA.

5.2.2.2 Emergency Generators

The proposed project would install two emergency generator units to prevent operational restrictions during periods of grid failure. Each building would be outfitted with one 400-horsepower, 400-kilovolt-ampere (kVA) generator. The Bay Area Air Quality Management District permit requirements would limit the number of allowable testing hours to 50 hours per year per generator unit.

Consistent with the air quality model, the noise analysis assumed that these units would be at ground level along the northeastern perimeter of the project site along Kirkwood Avenue, with an exhaust stack height of 12 feet. The reference noise source level input into the model for each of the two units was 69.9 dBA at 23 feet (Caterpillar 2020).[21] This level is representative of the 75 percent-load reference sound level of a slightly larger 450 kVA emergency generator.

[21] Caterpillar, 2020, Specification Sheet: LEHX0031-06 Model XQP500 500 kVA Generator.

Table 5-16 Predicted Project Fixed-Source Operation Noise Levels at Residential Receptors

Receiver Point	Approximate Distance from Project Site Boundary (feet)	Predicted Fixed-Source Noise Level at Residential Façade (Exterior) (L_{eq}, dBA)	Interior Noise Level Assuming 10 dBA[1] Open-Window Noise Reduction (L_{eq}, dBA)	Nighttime Interior Noise Level Limit for Article 29 Compliance (dBA)	Exceeds Noise Limit?
2018-2022 Oakdale Avenue, 1st Floor	445	41	31	45	No
2018-2022 Oakdale Avenue, 2nd Floor	445	44	34	45	No
2039 Oakdale Avenue, 1st Floor	600	40	30	45	No
2039 Oakdale Avenue, 2nd Floor	600	42	32	45	No
1987 Oakdale Avenue, 1st Floor	600	41	31	45	No
1987 Oakdale Avenue, 2nd Floor	600	44	34	45	No
1996 Palou Avenue, 1st Floor	745	46	36	45	No
1996 Palou Avenue, 2nd Floor	745	47[2]	37	45	No

Notes:

1. An exterior to interior transmission loss of 10 dBA was assumed for the studied receptors, which is representative of typical residential building construction with windows open. Federal Highway Administration (FHWA), Highway Traffic Noise: Analysis and Abatement Guidance, 2011 (December).
2. Counter to typical expectations, predicted operational noise levels show a pattern of increasing with distance from the project noise sources. This is a result of vicinity terrain sloping upward with distance. The closest homes benefit from notable line-of-sight shielding from project noise sources due to adjacent multi-story buildings. However, at greater distances from the project, homes at higher elevations on the hillside are afforded a direct line-of-sight to project noise sources, resulting in higher predicted noise levels. The noise level predicted at the second story of 1996 Palou Avenue (a single-family home) represents the highest predicted fixed-source noise level calculated at any residential receptor in the study area (i.e., including homes farther up the slope that also experience a direct line-of-sight to project noise sources).

Article 29 refers to Section 2909(d).

dBA = A-weighted decibels
L_{eq} = equivalent-energy sound pressure level

Source: Compiled by AECOM

Emergency generator testing typically would need to occur once per month, during daytime hours, to help ensure that the equipment was working properly and could be relied on to operate during actual emergencies. Because of the location of the generator units on the northwest side of the project buildings (along McKinnon Avenue), generator operational noise at the nearest noise-sensitive receptors would be reduced substantially by the shielding effects of project and non-project structures. Emergency generator noise at the nearest noise-sensitive receptor would be approximately 21 dBA, L_{eq}, a noise level that would be wholly inaudible in the existing urban acoustic environment during both daytime and nighttime hours. For reference, a whisper is approximately 20 to 25 dBA to a listener. Considering a 10 dBA reduction from the residential building shell with open windows, interior noise levels would be below the 55 dBA, L_{eq} daytime noise limit in article 29, section 2909(d).

To assess project fixed-source operation noise levels at the property plane, receiver points were modeled along the northeastern property boundary along Kirkwood Avenue, matching those used in the fixed-source model. The maximum predicted noise level generated from emergency generator testing and emergency operation at the northeastern property plane was 68 dBA.

6. Recommended Noise Attenuation Measures

6.1 Limitations on Recommendations

The recommendations described herein are based on noise source assumptions determined to be representatively appropriate in the absence of project-specific mechanical designs and equipment. As project mechanical system designs progress, specific recommendations may be further refined and updated based on the available information.

6.2 Project Ventilation System

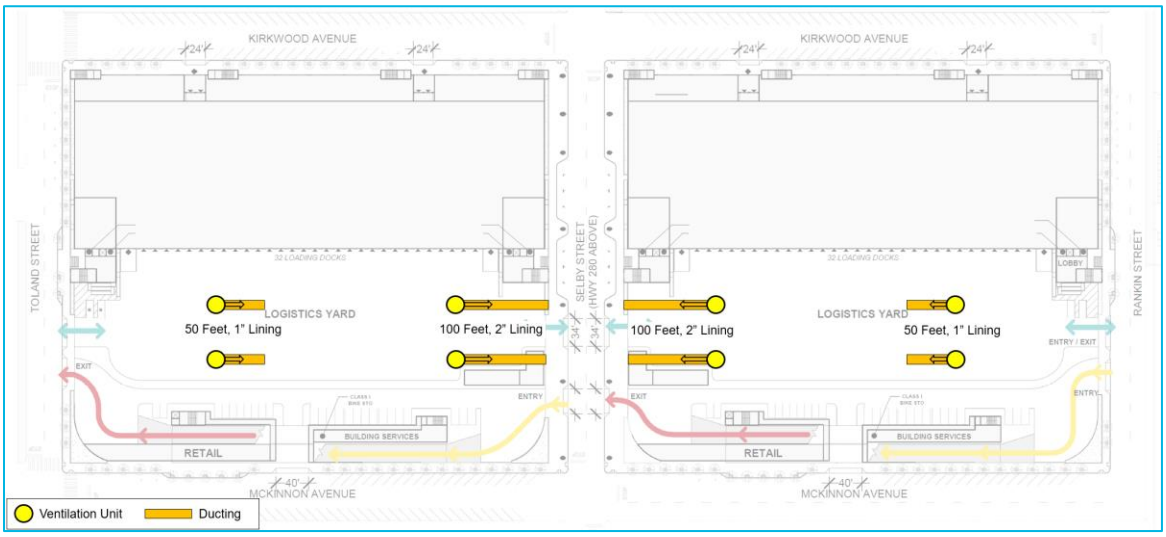
Noise expected to be generated by the logistics yard ventilation system is the primary cause of predicted non-compliance with the article 29 requirements at elevations below the project buildings' rooftop heights. The current location of these units, exhausting outward from the building façades, would result in exceedances of the article 29 requirements for stationary noise sources at the project property boundary. Implementation of the following two measures, or equivalent or more effective measures, would achieve compliance with the property plane requirements in section 2909(b) of article 29.

6.2.1 Ventilation Routing

Routing or directing the ventilation units to exhaust away from the adjacent land uses (i.e., outside the property planes) would reduce project operational noise levels at the property planes. Although the two project buildings would be bisected by Selby Street and I-280, the legal property lines of the two properties are adjoined at the center of this public right-of-way. Rerouting the ventilation units to exhaust inward toward this shared property line (i.e., toward the opposing project building on either side) would reduce project-generated noise at the surrounding noise-sensitive and non-noise-sensitive land uses. Although this adjustment would greatly reduce operational noise levels by up to 27 dBA at the northwestern and southeastern property planes, the redirection of ventilation units toward the shared, central property line would increase noise levels by up to 7 dBA along Selby Street and along portions of McKinnon Avenue and Kirkwood Avenue. Therefore, additional attenuation measures would be required to achieve compliance with the article 29 requirements at these specified locations, as described below.

6.2.2 Acoustically Treated Ducting

To address noise levels at the southwestern and northeastern property line intersections with Selby Street and I-280, a scenario was modeled that assumed approximately 100 feet of 2-inch-thick, acoustically lined ducting and 50 feet of 1-inch-thick, acoustically lined ducting from a more centralized ventilation unit arrangement on each building level. Figure 6-1 shows a graphic representation of the assumed ventilation system measures.



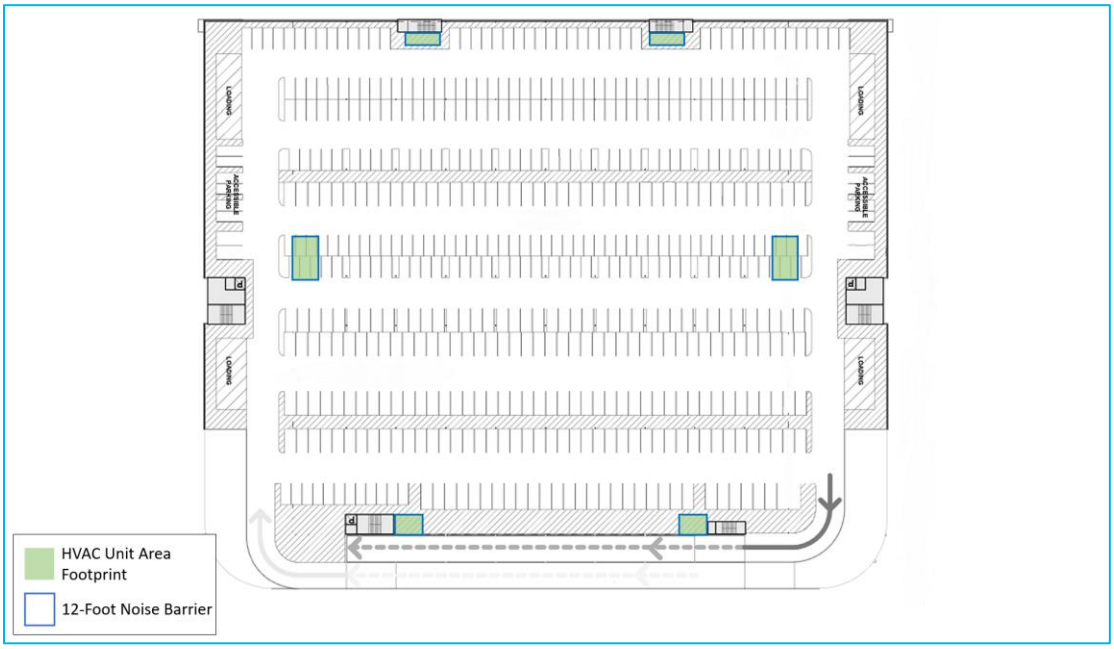
Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/ 2000 McKinnon, 2019 (October). Adapted by AECOM.

Figure 6-1 Approximate Ventilation System Rerouting and Minimum Ducting Specifications per Building Level

The project sponsor also may implement quieter ventilation fan units, duct silencers, or acoustical louvers at the outlets of the ventilation system at its terminations with the two building edges. These measures or combinations thereof should be analyzed and recommended by an acoustical consultant as a requirement for building permit approval.

6.3 Project Rooftop HVAC System

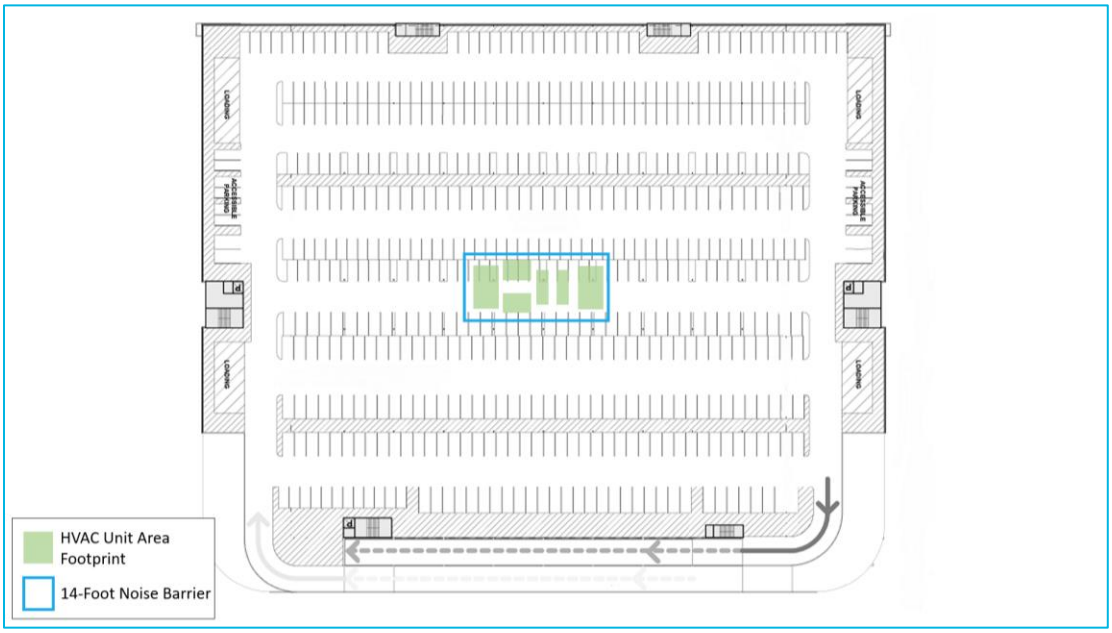
Noise generated by the operation of HVAC units on the project rooftops also would be a cause of predicted non-compliance with the article 29 requirements at elevations above the two buildings' rooftop heights. Several barrier-type noise attenuation measures around the dominant rooftop noise sources were modeled to assess their effectiveness at reducing noise. Implementation of a 12-foot-tall barrier surrounding each of the six rooftop unit areas was determined to comply with the article 29 requirements at all property plane assessment elevations. This HVAC system arrangement, shown in Figure 6-2, would allow HVAC unit areas to remain in their original locations with implementation of 12-foot-tall noise barriers.



Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/2000 McKinnon, 2019 (October). Adapted by AECOM.

Figure 6-2 Example of article 29-Compliant Rooftop HVAC Unit Layout with 12-foot-tall Noise Barrier, per Building

Nominal additional noise attenuation could be achieved with centralization of the HVAC units at the rooftop center. Figure 6-3 shows a graphic representation of an alternative, compliant rooftop system arrangement that would offer slightly greater noise reduction along certain property planes.



Source: Jackson Liles Architects (JLA), SF Gateway Conditional Use Authorization/Planned Unit Development Application, 749 Toland Street/ 2000 McKinnon, 2019 (October). Adapted by AECOM.

Figure 6-3 Example of Alternative, article 29-Compliant Rooftop HVAC Unit Layout with Centralized Arrangement and a 14-foot-tall Noise Barrier, per Building

The preceding description of noise attenuation measures includes rerouting of the ventilation units to exhaust away from surrounding land uses and toward I-280, as shown in Figure 6-1; installation of acoustical lining inside ventilation ducts; and two options for rooftop HVAC unit noise reduction, as shown in Figure 6-2 and Figure 6-3. Table 6-1 provides the noise levels that would result if project implementation includes rerouting the ventilation units, the acoustical lining inside ventilation ducts, and the rooftop HVAC unit layout and barriers as depicted in Figure 6-2. The table shows the predicted noise levels relative to the 2909(b) standards at the property plane and to the 2909(d) standards at the interior of the nearest residential receptors. The predicted noise levels at these locations assume that all fixed-source operational equipment is active, as described in Section 5.2.2 and Appendix B.5. Table 6-2 provides the noise levels that would result if project implementation includes the same noise reduction measures used for Table 6-1, except that the rooftop HVAC units are configured as shown in Figure 6-3.

Table 6-1 Predicted Operational Noise Levels with Minimum Noise Attenuation Measures

Assessed Property Plane/ Receiver	Applicable Article 29 Criterion	Applicable Article 29 Limit (dBA, L_{eq})	Predicted Highest Noise Level with Noise Attenuation Measures Implemented (dBA, L_{eq})	Compliant with Article 29 Criterion?
Northwest (Toland Street)	2909(b)	59	53	Yes
Southeast (Rankin Street)	2909(b)	58	52	Yes
Central (I-280/Selby Street)	2909(b)	59	58	Yes
Southwest (McKinnon Avenue)	2909(b)	59	59	Yes
Northeast (Kirkwood Avenue)	2909(b)	60	55	Yes
2018-2022 Oakdale Avenue (residential receptor)	2909(d)	45	34	Yes[1]
2039 Oakdale Avenue (residential receptor)	2909(d)	45	33	Yes[1]
1987 Oakdale Avenue (residential receptor)	2909(d)	45	33	Yes[1]
1996 Palou Avenue (residential receptor)	2909(d)	45	33	Yes[1]

Notes:

The analyzed scenario assumed the minimum-required HVAC relocation approach depicted in Figure 6-2.

1. Predicted project operational noise levels at all residential properties were determined to be compliant with Section 2909(d) without noise attenuation measures, as shown in Table 5-16. These properties are included here to show potential future noise levels with the measures considered. Note that the nighttime interior noise limits of 45 dBA for the residential receptors are different from the exterior noise limits used to determine Section 2909(b) compliance.

dBA = A-weighted decibels
HVAC = heating, ventilation, and air conditioning
I-280 = Interstate 280
L_{eq} = energy-average sound level (1-hour)

Source: Compiled by AECOM 2022

Table 6-2 Predicted Operational Noise Levels with Alternative Rooftop Noise Attenuation Measures

Assessed Property Plane/ Receiver	Applicable Article 29 Criterion	Applicable Article 29 Limit (dBA, L_{eq})	Predicted Highest Noise Level with Noise Attenuation Measures Implemented (dBA, L_{eq})	Compliant with Article 29 Criterion?
Northwest (Toland Street)	2909(b)	59	53	Yes
Southeast (Rankin Street)	2909(b)	58	52	Yes
Central (I-280/Selby Street)	2909(b)	59	58	Yes
Southwest (McKinnon Avenue)	2909(b)	59	58	Yes
Northeast (Kirkwood Avenue)	2909(b)	60	50	Yes
2018-2022 Oakdale Avenue (residential receptor)	2909(d)	45	33	Yes[1]
2039 Oakdale Avenue (residential receptor)	2909(d)	45	33	Yes[1]
1987 Oakdale Avenue (residential receptor)	2909(d)	45	32	Yes[1]
1996 Palou Avenue (residential receptor)	2909(d)	45	33	Yes[1]

Notes:

The analyzed scenario assumed the minimum-required HVAC relocation approach depicted in Figure 6-3.

1. Predicted project operational noise levels at all residential properties were determined to be compliant with Section 2909(d) without noise attenuation measures, as shown in Table 5-16. These properties are included here to show potential future noise levels with the measures considered. Note that the nighttime interior noise limits of 45 dBA for the residential receptors are different from the exterior noise limits used to determine Section 2909(b) compliance.

dBA = A-weighted decibels
HVAC = heating, ventilation, and air conditioning
I-280 – Interstate 280
L_{eq} = energy-average sound level (1-hour)

Source: Compiled by AECOM 2022

7. Conclusion

Without implementation of noise control measures, the proposed project's fixed-noise sources would result in exceedances of section 2909(b) requirements. However, design measures described above could be incorporated into the proposed project. These design measures—which include redirection of ventilation units, installation of acoustically lined ducts for ventilation units, and implementation of barriers for rooftop HVAC units—would meet article 29 noise limits at all property planes and noise-sensitive receptors. Other design measures, such as centralizing the rooftop HVAC layout behind a continuous barrier while maintaining recommended ventilation unit measures, would further reduce noise levels at some property planes by up to 7 dBA.

8. References

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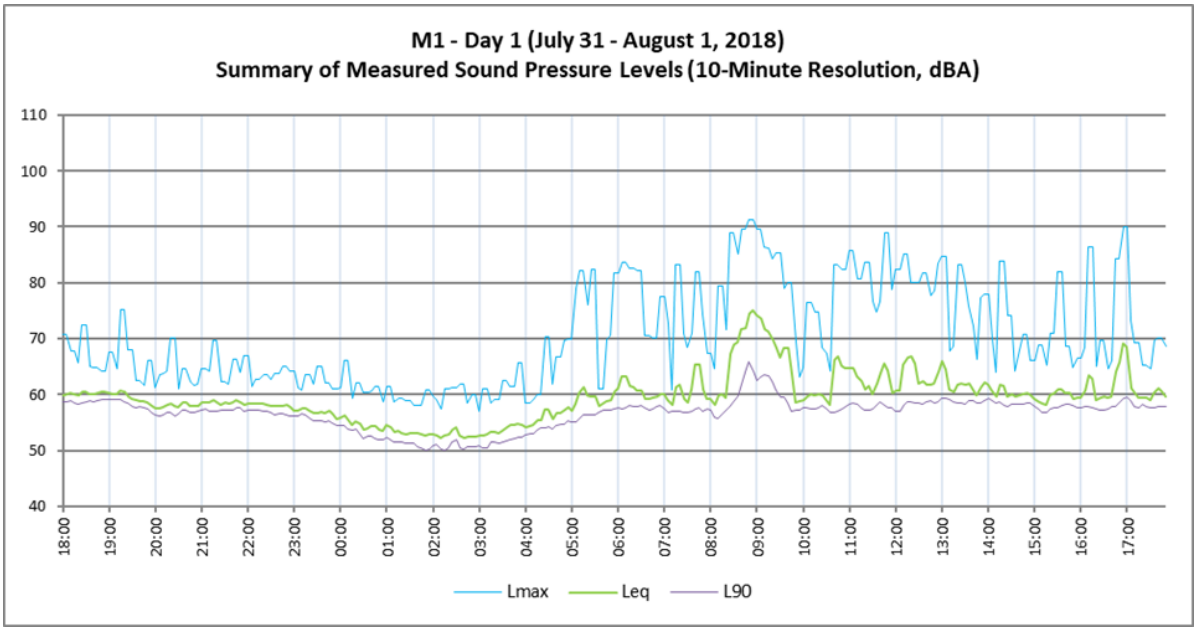
Appendix A Baseline Measurement Data

A.1 Summary of Long-Term Measurement Data

M1 – Day 1 (July 31 – August 1, 2018)

Hour	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
18:00	60.2	57.2	72.5	61.3	59.9	58.7
19:00	59.7	56.4	75.3	60.6	59.3	58.3
20:00	58.0	55.5	70.1	59.1	57.8	56.7
21:00	58.6	56.2	69.6	59.8	58.3	57.3
22:00	58.2	55.1	66.9	59.4	58.0	56.8
23:00	57.0	53.3	65.1	58.2	56.8	55.6
0:00	54.8	50.9	66.0	56.1	54.4	53.2
1:00	53.4	48.5	61.5	55.1	52.9	51.2
2:00	52.8	47.6	61.9	54.2	52.4	50.7
3:00	53.7	49.0	65.7	55.3	53.1	51.5
4:00	56.1	51.6	70.4	57.2	55.2	53.9
5:00	59.2	53.9	82.4	59.5	57.6	56.3
6:00	61.1	56.4	83.6	61.5	59.1	57.7
7:00	61.6	55.9	83.2	62.1	58.7	57.1
8:00	69.5	55.1	91.2	67.4	62.4	59.4
9:00	70.2	55.8	89.6	71.2	65.2	60.6
10:00	62.7	55.5	83.3	62.6	58.8	57.4
11:00	63.2	56.1	89.0	63.4	59.7	57.9
12:00	63.7	55.6	85.1	64.3	60.5	58.2
13:00	62.5	57.0	84.8	63.0	60.3	58.8
14:00	60.6	56.8	83.8	61.4	59.7	58.5
15:00	59.7	56.1	82.0	60.9	58.9	57.7
16:00	62.0	56.3	86.3	62.8	59.4	57.8
17:00	63.1	56.4	90.0	62.6	59.8	58.2
24-hour:	62.5	47.6	91.2	60.8	58.2	56.6

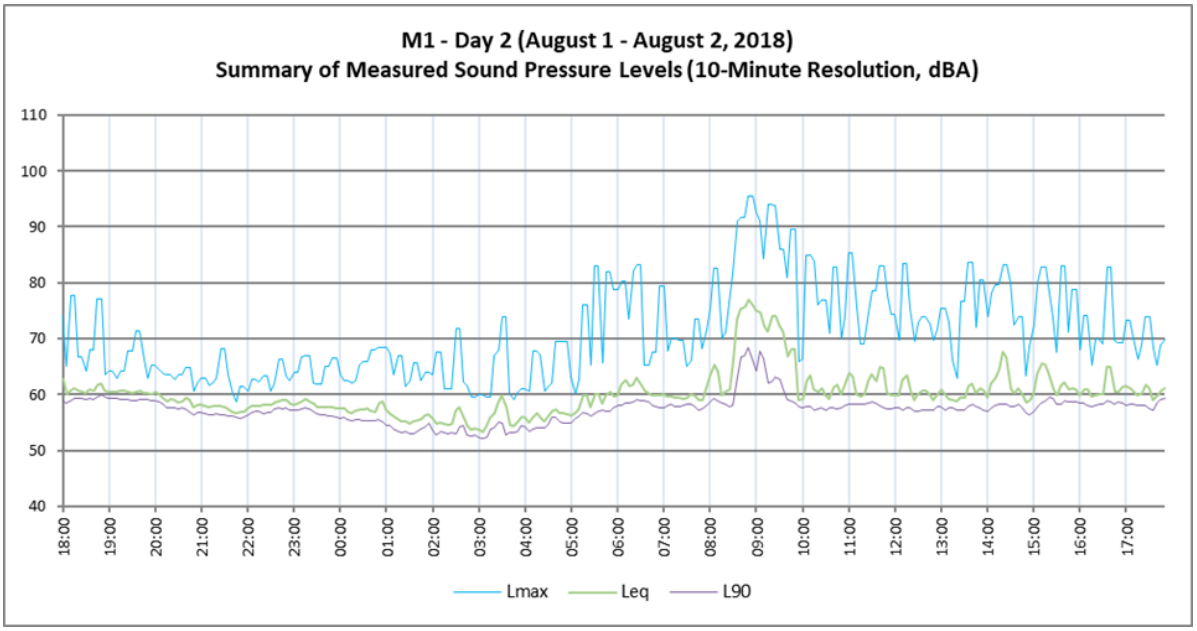
L_{eq} Day:	64.7
L_{eq} Evening:	58.8
L_{eq} Night:	57.1
CNEL:	65.7



M1 – Day 2 (August 1 – August 2, 2018)

Hour	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
18:00	61.3	57.6	77.8	62.3	60.5	59.3
19:00	60.5	58.1	71.3	61.6	60.3	59.2
20:00	59.2	55.9	65.2	60.5	58.9	57.7
21:00	57.6	54.9	68.2	58.6	57.3	56.3
22:00	58.3	55.6	66.3	59.4	58.1	57.0
23:00	58.3	54.8	66.9	59.5	58.0	56.9
0:00	57.4	54.1	68.5	58.9	56.9	55.5
1:00	55.9	51.6	68.5	57.3	55.3	53.7
2:00	55.4	51.0	71.9	56.4	54.7	53.4
3:00	56.3	50.9	73.9	57.1	55.1	53.4
4:00	56.3	52.9	69.5	57.4	55.7	54.6
5:00	59.0	54.5	83.1	59.0	57.6	56.5
6:00	61.2	57.2	83.2	61.8	59.7	58.5
7:00	59.6	56.6	79.5	60.6	59.0	57.9
8:00	71.9	56.4	95.5	69.7	64.7	61.5
9:00	72.3	56.6	94.1	72.5	67.3	62.2
10:00	61.0	55.9	85.0	61.5	58.9	57.6
11:00	62.6	56.1	85.4	63.2	59.7	58.2
12:00	60.7	56.0	83.4	62.0	58.9	57.4
13:00	60.4	55.8	83.6	61.1	59.1	57.7
14:00	63.0	55.0	83.2	63.6	59.5	57.7
15:00	62.6	55.4	83.0	63.7	60.0	58.5
16:00	61.5	56.9	82.8	62.4	60.0	58.4
17:00	60.8	56.0	73.9	62.5	59.8	58.3
24-hour:	63.6	50.9	95.5	61.4	58.9	57.4

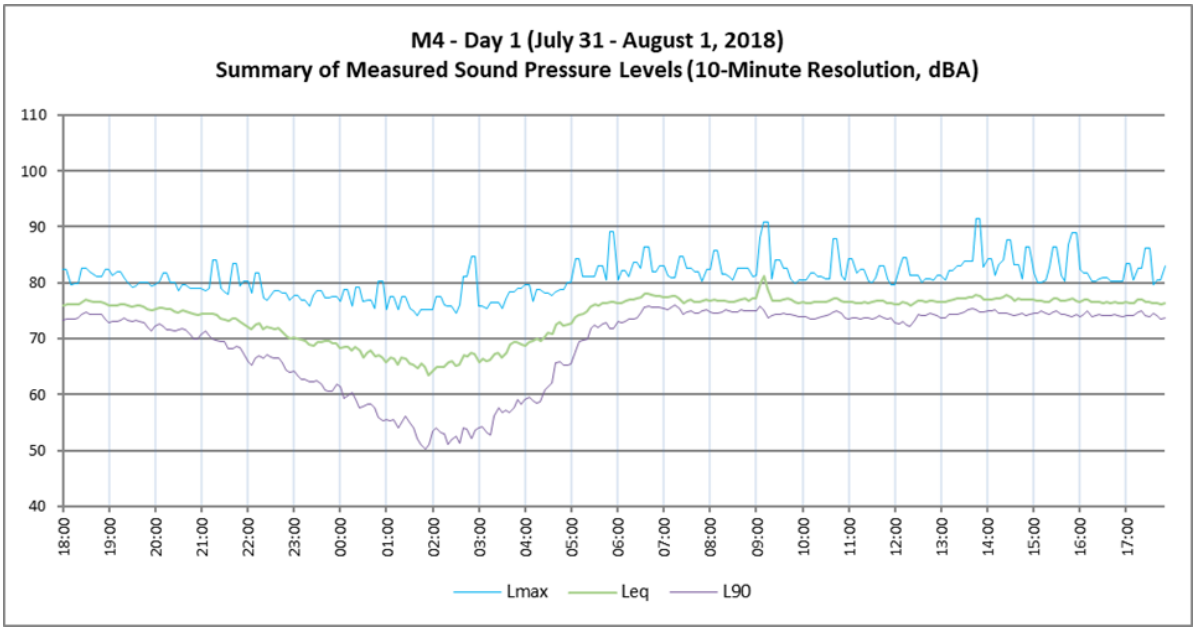
L_{eq} Day:	65.9
L_{eq} Evening:	59.2
L_{eq} Night:	57.9
CNEL:	66.6



M4 – Day 1 (July 31 – August 1, 2018)

Hour	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
18:00	76.4	67.7	82.6	0.0	76.2	74.0
19:00	75.9	66.4	82.4	0.0	75.7	73.0
20:00	75.0	64.3	81.7	0.0	74.8	71.5
21:00	73.9	61.8	84.0	0.0	73.3	69.5
22:00	71.8	59.5	81.8	0.0	70.9	66.1
23:00	69.5	55.5	78.6	0.0	68.1	62.2
0:00	67.9	50.1	80.3	0.0	65.5	58.7
1:00	65.7	46.0	77.6	0.0	61.9	53.9
2:00	65.9	45.1	84.8	0.0	61.2	52.7
3:00	67.6	45.9	79.1	0.0	64.6	56.0
4:00	70.9	51.9	79.7	0.0	69.1	61.5
5:00	75.3	58.5	89.1	0.0	74.6	70.3
6:00	77.2	65.6	86.3	0.0	77.0	74.2
7:00	77.1	71.6	84.7	0.0	76.9	75.1
8:00	76.8	71.1	85.7	0.0	76.6	74.9
9:00	78.0	70.2	90.9	0.0	77.1	74.6
10:00	76.7	67.6	87.9	0.0	76.6	74.1
11:00	76.5	67.9	84.3	0.0	76.3	73.7
12:00	76.5	67.5	84.4	0.0	76.3	73.5
13:00	77.1	68.8	91.4	0.0	76.9	74.6
14:00	77.1	70.1	87.6	0.0	76.9	74.6
15:00	76.9	69.7	88.9	0.0	76.6	74.5
16:00	76.6	68.8	82.3	0.0	76.4	74.2
17:00	76.5	70.4	86.2	0.0	76.4	74.2
24-hour:	75.4	45.1	91.4	0.0	73.2	69.2

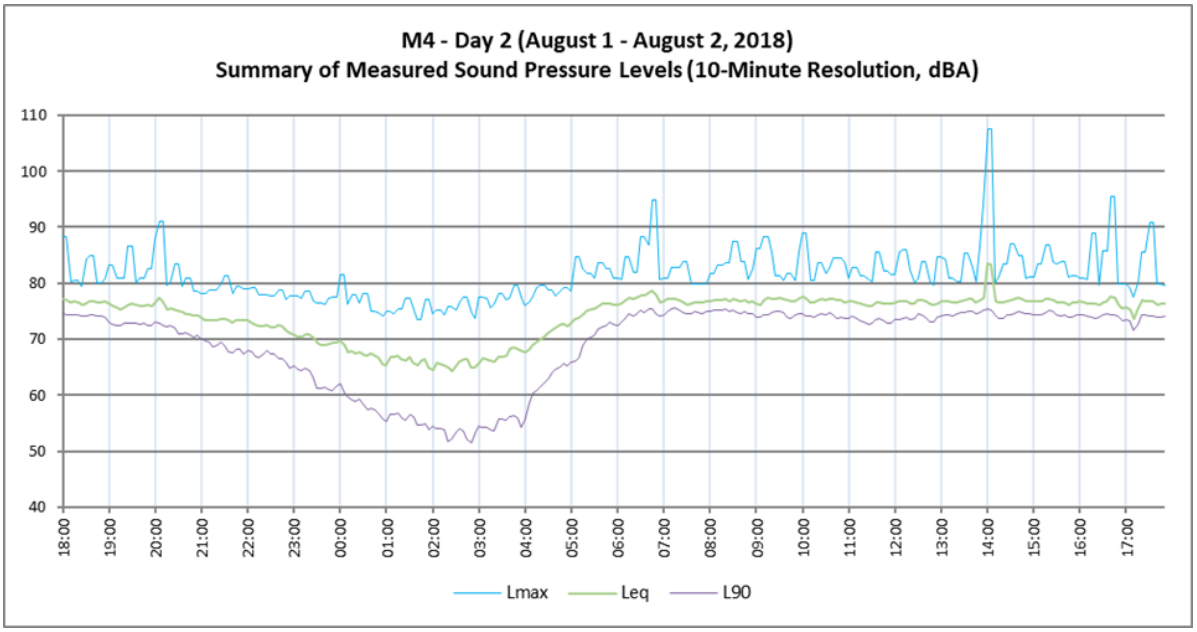
L_{eq} Day:	76.9
L_{eq} Evening:	75.0
L_{eq} Night:	72.0
CNEL:	79.8



M4 – Day 2 (August 1 – August 2, 2018)

Hour	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
18:00	76.8	69.3	88.3	0.0	76.5	74.3
19:00	76.0	67.9	86.7	0.0	75.8	72.8
20:00	75.6	63.3	91.0	0.0	75.0	71.7
21:00	73.5	60.8	81.4	0.0	73.1	68.9
22:00	72.5	59.1	79.2	0.0	71.8	67.0
23:00	70.0	53.6	78.5	0.0	68.7	63.0
0:00	67.8	52.1	81.5	0.0	65.5	59.0
1:00	66.3	49.9	77.4	0.0	63.0	55.7
2:00	65.3	47.6	77.6	0.0	61.3	53.1
3:00	67.0	47.6	79.7	0.0	63.8	55.0
4:00	70.7	48.5	79.7	0.0	69.0	61.8
5:00	75.2	55.3	84.8	0.0	74.5	69.8
6:00	77.4	65.9	94.8	0.0	77.0	74.3
7:00	76.7	70.8	83.9	0.0	76.6	74.9
8:00	76.9	72.0	87.4	0.0	76.7	75.0
9:00	76.9	70.1	88.3	0.0	76.6	74.4
10:00	77.0	67.5	88.9	0.0	76.8	74.2
11:00	76.4	66.9	85.5	0.0	76.2	73.3
12:00	76.6	67.0	85.9	0.0	76.5	73.7
13:00	76.8	70.3	86.5	0.0	76.7	74.6
14:00	78.9	67.9	107.5	0.0	76.8	74.6
15:00	76.8	70.4	86.8	0.0	76.6	74.5
16:00	76.6	70.9	95.4	0.0	76.2	74.2
17:00	76.1	68.7	90.8	0.0	75.7	73.6
24-hour:	75.4	47.6	107.5	0.0	73.2	69.3

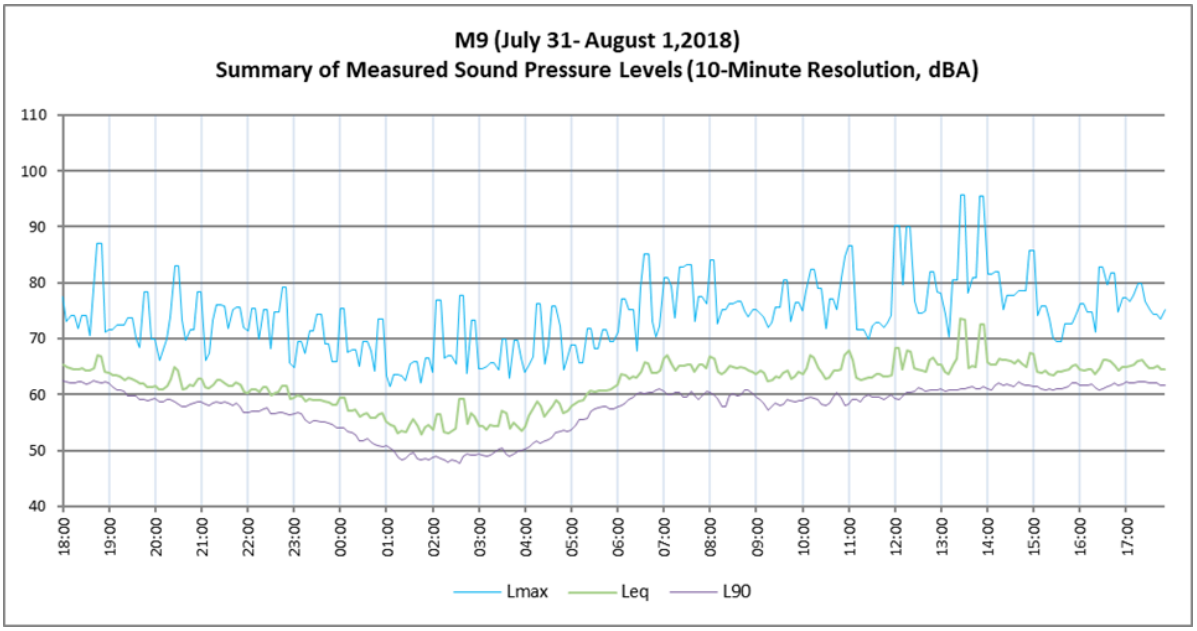
L_{eq} Day:	76.9
L_{eq} Evening:	75.2
L_{eq} Night:	72.1
CNEL:	80.0



M9 –July 31 – August 1, 2018

Hour	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
18:00	65.2	60.3	87.1	-	64.0	62.2
19:00	62.8	57.3	78.3	-	62.0	60.2
20:00	62.2	56.2	83.0	-	60.8	58.6
21:00	62.0	55.7	78.4	-	60.6	58.4
22:00	60.8	54.1	79.3	-	59.3	56.9
23:00	59.1	52.3	74.4	-	58.0	55.5
0:00	57.3	49.1	75.4	-	54.9	52.4
1:00	54.4	46.6	66.5	-	52.1	49.3
2:00	56.1	45.6	77.7	-	51.4	48.6
3:00	54.8	46.4	69.9	-	52.3	49.5
4:00	57.3	48.3	76.2	-	54.6	52.0
5:00	60.0	52.3	71.8	-	58.4	56.3
6:00	63.8	55.5	85.1	-	62.0	59.6
7:00	65.4	56.3	83.3	-	63.2	60.0
8:00	65.0	55.1	84.0	-	63.1	59.8
9:00	63.5	54.6	80.5	-	62.0	58.6
10:00	64.7	55.1	82.3	-	62.3	59.1
11:00	64.4	56.2	86.7	-	62.1	59.2
12:00	66.3	57.2	90.3	-	62.9	60.3
13:00	69.5	57.9	95.8	-	63.6	61.0
14:00	65.8	58.9	81.9	-	64.0	61.7
15:00	64.9	59.0	85.7	-	63.5	61.3
16:00	65.0	58.7	82.9	-	63.6	61.5
17:00	65.2	59.9	79.8	-	64.1	62.1
24-hour:	63.8	45.6	95.8	-	60.2	57.7

L_{eq} Day:	65.7
L_{eq} Evening:	62.4
L_{eq} Night:	59.2
CNEL:	67.5



A.2 Raw Long-Term Measurement Data

M1 – Day 1 (July 31 – August 1, 2018)
Measured Sound Pressure Level Data (dBA)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-07-31	18:00	59.9	57.5	62.2	60.9	59.9	58.8
2018-07-31	18:05	59.9	57.5	70.7	60.9	59.6	58.4
2018-07-31	18:10	60.1	57.6	63.3	61.2	60.1	58.9
2018-07-31	18:15	60.3	58.2	67.7	61.5	60.0	58.8
2018-07-31	18:20	59.7	57.2	65.0	60.8	59.5	58.3
2018-07-31	18:25	60.2	57.2	65.6	61.6	59.9	58.4
2018-07-31	18:30	60.6	57.7	72.5	61.8	59.8	58.4
2018-07-31	18:35	60.2	58.5	65.0	61.6	59.8	59.0
2018-07-31	18:40	60.0	58.5	63.4	61.0	59.8	58.7
2018-07-31	18:45	60.1	58.3	64.9	61.4	59.9	58.8
2018-07-31	18:50	60.4	58.6	64.3	61.4	60.3	59.2
2018-07-31	18:55	60.4	58.3	63.8	61.6	60.3	59.2
2018-07-31	19:00	60.5	58.5	64.2	61.7	60.4	59.2
2018-07-31	19:05	60.1	58.1	67.6	60.9	59.8	59.1
2018-07-31	19:10	60.0	58.5	64.6	60.9	59.9	59.1
2018-07-31	19:15	60.0	58.6	62.6	60.9	59.9	59.1
2018-07-31	19:20	61.3	58.1	75.3	62.2	59.7	59.0
2018-07-31	19:25	59.7	57.7	64.9	60.9	59.6	58.5
2018-07-31	19:30	59.7	57.9	68.1	60.9	59.5	58.3
2018-07-31	19:35	58.9	57.1	62.0	60.0	58.8	57.5
2018-07-31	19:40	59.1	57.0	62.6	60.1	58.9	57.9
2018-07-31	19:45	58.7	57.2	61.0	59.6	58.6	57.7
2018-07-31	19:50	58.9	57.1	61.7	59.9	58.7	57.8
2018-07-31	19:55	58.2	56.4	66.0	59.0	57.9	56.9
2018-07-31	20:00	57.8	56.0	61.2	58.8	57.6	56.6
2018-07-31	20:05	57.4	55.7	60.2	58.5	57.3	56.2
2018-07-31	20:10	57.6	55.5	63.6	58.6	57.4	56.2
2018-07-31	20:15	58.0	56.0	63.7	59.3	57.8	56.5
2018-07-31	20:20	58.5	56.3	64.3	59.8	58.3	57.2
2018-07-31	20:25	58.1	55.6	70.1	59.2	57.7	56.3
2018-07-31	20:30	57.7	55.5	61.0	58.8	57.5	56.2
2018-07-31	20:35	57.7	56.3	60.6	58.6	57.6	57.1
2018-07-31	20:40	59.3	56.6	64.7	60.8	59.1	57.4
2018-07-31	20:45	57.9	56.4	62.3	58.9	57.7	56.9
2018-07-31	20:50	58.0	56.6	61.7	59.0	57.7	56.8
2018-07-31	20:55	57.8	56.2	59.6	58.8	57.7	56.9
2018-07-31	21:00	58.3	56.7	61.9	59.3	58.2	57.1
2018-07-31	21:05	58.8	56.9	64.6	59.8	58.5	57.4
2018-07-31	21:10	58.6	56.6	61.6	59.7	58.5	57.3
2018-07-31	21:15	58.6	56.3	64.3	59.9	58.3	56.9
2018-07-31	21:20	59.3	56.3	69.6	60.8	58.3	57.1
2018-07-31	21:25	57.8	56.4	59.6	58.7	57.7	57.1
2018-07-31	21:30	58.4	56.7	62.4	59.7	58.3	57.2
2018-07-31	21:35	58.8	56.3	61.8	60.2	58.7	57.4
2018-07-31	21:40	58.1	56.2	60.3	58.9	58.2	57.0
2018-07-31	21:45	59.1	56.9	66.4	60.7	58.5	57.3
2018-07-31	21:50	59.1	57.5	63.9	60.4	58.8	58.1
2018-07-31	21:55	58.1	56.3	60.4	59.0	58.1	57.1
2018-07-31	22:00	58.2	55.5	66.9	59.2	57.9	56.8
2018-07-31	22:05	58.7	57.0	61.0	59.7	58.6	57.5
2018-07-31	22:10	58.2	56.3	61.4	59.4	58.2	56.9
2018-07-31	22:15	58.6	57.0	62.7	59.7	58.5	57.4
2018-07-31	22:20	58.0	56.3	61.7	59.0	57.8	57.1
2018-07-31	22:25	58.6	56.2	63.5	59.8	58.5	57.1
2018-07-31	22:30	57.9	56.4	59.9	58.8	57.8	57.0
2018-07-31	22:35	57.9	56.0	62.7	59.1	57.8	56.4
2018-07-31	22:40	58.2	55.9	63.8	59.8	57.9	56.5
2018-07-31	22:45	57.9	55.9	63.4	58.9	57.8	56.5
2018-07-31	22:50	58.2	55.8	65.0	59.6	57.7	56.6
2018-07-31	22:55	58.1	55.1	64.3	59.5	57.9	56.3
2018-07-31	23:00	57.2	55.5	64.3	58.4	57.1	56.1
2018-07-31	23:05	57.1	55.0	61.3	58.0	56.9	56.1
2018-07-31	23:10	57.2	56.0	58.6	58.2	57.2	56.2
2018-07-31	23:15	57.7	56.0	60.8	58.7	57.6	56.9
2018-07-31	23:20	57.5	54.9	63.5	58.9	57.2	56.0
2018-07-31	23:25	56.9	54.9	61.9	58.0	56.7	55.5
2018-07-31	23:30	56.3	54.0	59.4	57.7	56.3	55.0
2018-07-31	23:35	57.1	55.0	65.1	58.3	57.0	55.5
2018-07-31	23:40	56.6	54.5	61.6	57.8	56.5	55.1
2018-07-31	23:45	56.9	54.5	62.1	58.5	56.8	55.3
2018-07-31	23:50	57.3	54.9	60.9	58.8	57.1	55.5
2018-07-31	23:55	55.7	53.3	61.0	56.8	55.6	54.3

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	00:00	55.6	54.1	60.1	56.7	55.5	54.5
2018-08-01	00:05	56.1	53.8	61.2	57.6	55.8	54.6
2018-08-01	00:10	56.3	53.9	66.0	57.6	55.9	54.5
2018-08-01	00:15	54.1	52.3	59.4	55.3	53.9	53.1
2018-08-01	00:20	55.1	53.4	58.5	56.3	55.1	54.1
2018-08-01	00:25	55.5	52.9	62.0	57.3	54.8	53.5
2018-08-01	00:30	53.8	51.1	57.9	54.9	53.7	52.4
2018-08-01	00:35	53.7	50.9	60.4	55.2	53.4	52.1
2018-08-01	00:40	54.1	52.0	58.5	55.5	53.9	53.0
2018-08-01	00:45	54.6	51.1	60.7	56.4	54.3	52.3
2018-08-01	00:50	54.1	51.1	61.4	55.8	53.8	52.1
2018-08-01	00:55	53.1	51.2	58.6	54.5	52.9	51.7
2018-08-01	01:00	54.0	51.4	58.2	55.6	53.9	52.3
2018-08-01	01:05	54.9	50.5	61.5	57.3	54.1	52.4
2018-08-01	01:10	53.3	50.4	56.5	54.7	53.2	51.5
2018-08-01	01:15	53.5	50.4	58.6	55.5	53.0	51.5
2018-08-01	01:20	53.5	50.1	59.4	54.9	53.1	51.5
2018-08-01	01:25	52.8	50.6	58.5	54.4	52.6	51.4
2018-08-01	01:30	53.1	50.1	58.9	55.2	52.5	51.2
2018-08-01	01:35	53.1	50.0	58.0	54.5	52.9	51.3
2018-08-01	01:40	53.2	49.6	58.1	54.7	52.9	51.1
2018-08-01	01:45	53.0	48.5	58.1	55.0	52.5	50.4
2018-08-01	01:50	52.7	49.2	55.2	54.3	52.4	50.3
2018-08-01	01:55	52.8	48.6	60.9	54.7	51.6	49.7
2018-08-01	02:00	52.8	48.9	59.7	54.0	52.5	50.6
2018-08-01	02:05	52.8	50.1	59.2	54.3	52.3	51.0
2018-08-01	02:10	52.7	49.4	57.5	53.9	52.5	51.1
2018-08-01	02:15	51.6	47.6	57.2	52.9	51.5	49.2
2018-08-01	02:20	53.4	48.6	61.1	55.2	52.5	50.7
2018-08-01	02:25	52.2	48.6	56.6	53.8	52.0	50.2
2018-08-01	02:30	54.8	51.6	61.2	55.9	54.6	52.7
2018-08-01	02:35	53.2	50.5	58.0	55.3	52.6	51.1
2018-08-01	02:40	52.2	48.7	61.9	53.6	51.7	50.0
2018-08-01	02:45	52.5	49.1	58.5	54.2	51.9	50.4
2018-08-01	02:50	52.5	50.2	55.6	53.7	52.4	51.1
2018-08-01	02:55	52.5	49.2	59.9	53.8	51.9	50.4
2018-08-01	03:00	52.5	50.4	56.6	53.9	52.3	51.0
2018-08-01	03:05	52.8	50.0	57.0	54.7	52.1	50.6
2018-08-01	03:10	52.5	49.0	61.1	54.2	52.1	50.2
2018-08-01	03:15	53.1	49.5	58.4	54.8	52.7	50.5
2018-08-01	03:20	53.7	50.7	57.5	54.8	53.5	52.4
2018-08-01	03:25	53.1	49.9	59.2	54.7	53.0	50.8
2018-08-01	03:30	53.1	51.2	56.2	54.4	52.9	51.6
2018-08-01	03:35	53.9	50.2	62.5	56.0	52.9	51.6
2018-08-01	03:40	54.2	51.0	57.4	56.2	53.8	51.9
2018-08-01	03:45	54.9	51.1	61.5	57.2	53.7	52.1
2018-08-01	03:50	54.3	50.9	60.0	56.3	53.7	52.3
2018-08-01	03:55	55.3	51.5	65.7	56.3	54.0	52.6
2018-08-01	04:00	53.8	51.6	58.1	55.2	53.5	52.3
2018-08-01	04:05	54.5	52.4	58.4	55.9	54.3	53.1
2018-08-01	04:10	54.1	52.1	57.9	55.2	53.8	53.0
2018-08-01	04:15	54.9	52.2	59.2	56.1	54.7	53.1
2018-08-01	04:20	55.8	53.7	59.9	57.1	55.4	54.3
2018-08-01	04:25	55.0	53.2	57.5	56.0	54.9	53.6
2018-08-01	04:30	58.8	54.2	70.4	61.1	56.7	54.7
2018-08-01	04:35	55.4	53.1	61.9	56.8	54.9	54.0
2018-08-01	04:40	55.9	52.6	60.5	57.5	55.6	53.7
2018-08-01	04:45	57.4	53.9	66.7	58.4	56.6	55.2
2018-08-01	04:50	56.0	54.0	62.6	57.3	55.6	54.3
2018-08-01	04:55	58.1	54.6	69.6	59.3	56.5	55.2
2018-08-01	05:00	57.3	54.9	70.0	59.1	56.5	55.3
2018-08-01	05:05	56.9	53.9	68.5	57.9	56.2	55.0
2018-08-01	05:10	59.5	54.7	79.1	59.7	56.6	55.2
2018-08-01	05:15	61.1	55.7	82.2	59.8	57.6	56.3
2018-08-01	05:20	61.5	55.2	76.1	62.1	58.0	56.3
2018-08-01	05:25	57.5	56.1	60.2	58.6	57.4	56.4
2018-08-01	05:30	61.0	55.5	82.4	59.2	57.7	56.3
2018-08-01	05:35	57.6	56.1	60.6	58.6	57.5	56.4
2018-08-01	05:40	58.2	56.1	61.0	59.3	58.1	57.0
2018-08-01	05:45	58.4	56.9	60.4	59.3	58.4	57.3
2018-08-01	05:50	59.2	56.9	70.0	60.3	58.3	57.2
2018-08-01	05:55	58.9	56.5	70.6	59.8	58.3	57.1

M1 – Day 1 (July 31 – August 1, 2018) – Cont.

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	06:00	61.7	56.6	81.7	62.0	58.8	57.6
2018-08-01	06:05	60.6	56.9	75.6	61.5	59.1	57.6
2018-08-01	06:10	65.0	56.6	83.6	67.6	60.4	57.4
2018-08-01	06:15	60.2	56.4	72.5	61.5	58.9	58.0
2018-08-01	06:20	62.6	57.6	82.6	61.9	59.4	58.1
2018-08-01	06:25	59.5	56.7	66.2	60.8	59.2	57.8
2018-08-01	06:30	61.7	57.1	82.2	60.5	59.0	57.9
2018-08-01	06:35	59.2	57.7	65.4	60.2	58.9	58.2
2018-08-01	06:40	59.4	56.5	70.5	60.8	58.6	57.1
2018-08-01	06:45	59.1	56.9	69.4	60.0	58.8	57.4
2018-08-01	06:50	59.9	56.8	70.2	60.9	59.1	57.5
2018-08-01	06:55	59.5	57.6	69.5	60.4	59.0	58.1
2018-08-01	07:00	60.4	57.4	77.5	60.9	59.1	58.0
2018-08-01	07:05	59.7	56.1	72.7	61.0	58.5	56.8
2018-08-01	07:10	58.3	56.5	60.5	59.6	58.0	57.0
2018-08-01	07:15	58.0	56.4	60.9	59.0	57.8	57.0
2018-08-01	07:20	63.3	56.1	83.2	60.4	58.5	57.1
2018-08-01	07:25	59.5	56.2	71.0	60.6	58.7	57.1
2018-08-01	07:30	58.8	56.2	68.5	59.9	57.9	56.7
2018-08-01	07:35	58.6	55.9	67.4	60.0	58.1	56.7
2018-08-01	07:40	62.5	56.5	71.0	67.4	59.3	57.3
2018-08-01	07:45	67.1	56.5	81.9	70.7	61.0	57.7
2018-08-01	07:50	62.4	56.6	74.4	65.9	58.8	57.5
2018-08-01	07:55	58.4	56.1	66.0	59.7	58.1	56.7
2018-08-01	08:00	59.8	57.1	67.4	61.3	59.3	58.0
2018-08-01	08:05	58.5	55.7	64.4	60.6	57.6	56.3
2018-08-01	08:10	57.7	55.1	64.6	59.0	57.2	55.5
2018-08-01	08:15	61.2	55.1	79.4	62.9	57.4	56.0
2018-08-01	08:20	58.5	56.6	69.0	59.6	58.0	57.1
2018-08-01	08:25	60.1	56.2	71.7	62.0	58.8	57.2
2018-08-01	08:30	69.8	56.5	88.9	72.0	62.2	58.4
2018-08-01	08:35	68.1	56.9	85.2	69.9	62.2	58.8
2018-08-01	08:40	70.2	58.6	82.7	74.0	65.9	60.9
2018-08-01	08:45	72.7	60.5	89.5	74.1	67.3	63.0
2018-08-01	08:50	71.1	59.7	84.0	74.1	69.2	65.1
2018-08-01	08:55	76.4	61.5	91.2	79.7	73.2	66.7
2018-08-01	09:00	73.4	58.9	84.4	78.0	69.1	61.8
2018-08-01	09:05	75.1	59.9	89.6	78.3	70.2	63.3
2018-08-01	09:10	71.1	58.9	86.4	74.1	67.9	63.0
2018-08-01	09:15	72.3	59.4	86.1	75.8	69.6	64.2
2018-08-01	09:20	70.2	58.9	84.2	73.4	67.7	62.5
2018-08-01	09:25	69.2	59.2	83.8	72.4	65.9	61.9
2018-08-01	09:30	67.1	58.5	85.4	69.2	63.3	59.9
2018-08-01	09:35	65.9	57.5	79.0	70.8	61.9	59.2
2018-08-01	09:40	69.8	58.8	78.4	72.3	70.0	60.1
2018-08-01	09:45	66.0	55.8	80.0	69.8	59.4	57.0
2018-08-01	09:50	58.8	56.1	69.5	60.1	58.5	57.2
2018-08-01	09:55	58.5	55.8	62.9	59.8	58.5	57.1
2018-08-01	10:00	58.9	56.9	63.1	60.0	58.8	57.5
2018-08-01	10:05	59.2	57.0	64.9	61.0	58.8	57.6
2018-08-01	10:10	60.2	56.1	76.4	61.0	59.0	57.5
2018-08-01	10:15	59.8	55.9	73.0	61.3	59.0	57.4
2018-08-01	10:20	60.1	56.3	74.8	61.6	58.8	57.3
2018-08-01	10:25	60.1	57.5	68.5	61.7	59.7	58.0
2018-08-01	10:30	59.8	57.0	67.4	61.6	59.4	58.1
2018-08-01	10:35	58.2	56.3	63.9	59.6	57.9	56.9
2018-08-01	10:40	58.3	55.5	64.3	59.6	58.0	56.9
2018-08-01	10:45	68.9	55.9	83.3	72.7	58.2	56.8
2018-08-01	10:50	62.8	56.3	74.9	64.9	59.0	57.3
2018-08-01	10:55	66.6	56.7	82.4	65.7	58.9	57.5
2018-08-01	11:00	61.4	56.9	76.6	62.9	60.0	58.3
2018-08-01	11:05	66.5	57.6	85.8	65.6	60.2	58.4
2018-08-01	11:10	61.5	57.8	72.6	63.5	60.3	58.5
2018-08-01	11:15	64.4	56.9	80.7	65.5	59.4	58.0
2018-08-01	11:20	58.8	56.6	69.7	59.6	58.2	57.2
2018-08-01	11:25	62.2	56.1	83.7	60.6	58.3	57.2
2018-08-01	11:30	60.6	56.9	76.6	60.9	58.7	57.4
2018-08-01	11:35	59.4	57.0	69.6	60.6	58.9	57.5
2018-08-01	11:40	63.5	57.7	74.7	66.3	61.8	58.8
2018-08-01	11:45	64.3	57.6	76.6	67.6	60.9	58.5
2018-08-01	11:50	66.4	56.6	89.0	64.6	59.9	57.8
2018-08-01	11:55	60.3	56.6	67.6	62.6	59.4	57.7
2018-08-01	12:00	60.2	57.2	78.8	59.9	58.5	57.4
2018-08-01	12:05	61.3	55.6	82.3	59.9	58.4	56.6
2018-08-01	12:10	60.2	56.9	72.4	61.9	58.9	57.5
2018-08-01	12:15	67.7	57.6	85.1	69.2	64.5	58.7
2018-08-01	12:20	65.4	58.1	79.2	68.5	61.7	58.9
2018-08-01	12:25	67.8	57.9	80.0	71.4	62.8	58.6
2018-08-01	12:30	61.3	57.7	77.6	62.7	60.0	58.5
2018-08-01	12:35	62.7	57.7	80.1	63.5	59.8	58.4
2018-08-01	12:40	62.2	57.1	81.7	62.7	60.0	58.2
2018-08-01	12:45	61.1	58.1	67.8	63.3	60.5	59.1
2018-08-01	12:50	62.2	57.8	77.8	63.9	60.5	58.6
2018-08-01	12:55	61.9	57.8	78.5	64.5	59.8	58.3
2018-08-01	13:00	65.6	57.4	83.4	64.4	60.9	59.0
2018-08-01	13:05	66.3	57.9	84.8	66.8	61.8	59.5
2018-08-01	13:10	61.0	58.5	66.6	63.2	60.4	59.1
2018-08-01	13:15	60.7	58.0	67.8	62.2	60.3	59.1
2018-08-01	13:20	60.3	57.8	68.7	61.7	59.8	58.4
2018-08-01	13:25	62.7	58.3	83.3	62.3	59.9	58.7
2018-08-01	13:30	61.3	57.0	80.0	61.3	59.3	58.1
2018-08-01	13:35	62.1	57.7	75.8	64.2	60.6	58.5
2018-08-01	13:40	61.7	57.7	72.2	63.5	60.8	59.3
2018-08-01	13:45	60.0	57.3	66.4	61.4	59.7	58.4
2018-08-01	13:50	59.8	58.0	64.0	61.1	59.6	58.4
2018-08-01	13:55	62.6	57.9	77.3	64.3	60.2	58.7
2018-08-01	14:00	61.9	58.5	78.0	61.8	60.3	59.2
2018-08-01	14:05	61.7	58.8	69.9	63.6	61.0	59.4
2018-08-01	14:10	59.6	57.7	63.9	60.7	59.5	58.3
2018-08-01	14:15	59.9	58.2	62.6	61.1	59.7	58.6
2018-08-01	14:20	63.2	58.3	83.8	62.4	60.0	58.6
2018-08-01	14:25	58.9	56.8	63.9	60.1	58.6	57.4
2018-08-01	14:30	60.4	57.3	74.1	61.5	59.5	58.2
2018-08-01	14:35	59.6	57.8	64.2	60.7	59.4	58.3
2018-08-01	14:40	59.7	57.4	62.8	61.0	59.5	58.2
2018-08-01	14:45	60.2	58.0	68.1	61.2	59.6	58.4
2018-08-01	14:50	60.1	57.8	70.8	61.3	59.5	58.3
2018-08-01	14:55	60.3	57.6	66.1	61.6	60.0	58.7
2018-08-01	15:00	59.4	57.5	62.5	60.7	59.2	58.1
2018-08-01	15:05	59.1	56.8	66.1	60.2	58.8	57.5
2018-08-01	15:10	58.7	56.7	68.9	60.1	58.2	57.2
2018-08-01	15:15	57.9	56.2	60.7	58.9	57.7	56.5
2018-08-01	15:20	58.6	56.6	65.2	60.1	58.3	57.0
2018-08-01	15:25	60.7	56.6	70.9	62.5	59.4	58.0
2018-08-01	15:30	59.6	56.1	69.6	60.9	59.1	57.4
2018-08-01	15:35	62.0	57.1	82.0	62.0	58.9	58.1
2018-08-01	15:40	59.6	57.4	64.4	61.0	59.4	58.1
2018-08-01	15:45	60.8	57.3	68.6	62.9	60.0	58.3
2018-08-01	15:50	59.5	56.9	64.8	60.8	59.4	58.1
2018-08-01	15:55	59.1	57.3	63.5	60.4	58.9	57.9
2018-08-01	16:00	59.9	57.1	66.6	62.0	59.3	57.6
2018-08-01	16:05	58.8	57.1	64.0	60.0	58.6	57.6
2018-08-01	16:10	62.0	57.1	68.5	66.0	59.6	58.2
2018-08-01	16:15	64.7	56.6	86.3	62.8	59.4	57.7
2018-08-01	16:20	59.2	56.6	65.1	60.5	58.8	57.5
2018-08-01	16:25	58.7	56.3	63.0	59.9	58.5	57.2
2018-08-01	16:30	60.0	56.3	69.6	62.0	58.5	57.2
2018-08-01	16:35	59.3	56.3	64.6	60.9	59.0	57.2
2018-08-01	16:40	59.5	57.0	63.9	61.1	59.2	57.7
2018-08-01	16:45	59.8	57.2	66.0	61.4	59.3	58.2
2018-08-01	16:50	66.2	56.6	84.3	68.9	59.6	57.7
2018-08-01	16:55	65.4	57.9	79.4	68.2	62.4	59.2
2018-08-01	17:00	71.1	57.4	90.0	73.3	64.3	59.5
2018-08-01	17:05	61.6	58.8	73.3	62.6	60.7	59.6
2018-08-01	17:10	60.5	57.7	66.7	62.5	59.8	58.4
2018-08-01	17:15	60.1	56.5	69.3	61.8	59.2	57.4
2018-08-01	17:20	58.8	57.4	61.3	59.8	58.8	58.1
2018-08-01	17:25	60.0	58.0	65.3	62.0	59.4	58.3
2018-08-01	17:30	58.8	56.4	60.7	59.8	58.7	57.5
2018-08-01	17:35	59.4	56.8	64.7	60.8	59.1	57.7
2018-08-01	17:40	61.0	56.4	69.8	63.0	59.5	57.7
2018-08-01	17:45	61.3	57.7	70.2	63.0	59.6	58.1
2018-08-01	17:50	59.4	57.1	66.7	60.7	59.1	57.6
2018-08-01	17:55	60.0	57.1	68.7	62.2	58.9	58.0

M1 – Day 2 (August 1 – August 2, 2018)
Measured Sound Pressure Level Data (dBA)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)	Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	18:00	64.4	57.6	74.2	67.3	62.1	59.5	2018-08-02	00:00	57.0	54.8	63.6	58.5	56.8	55.5
2018-08-01	18:05	60.2	57.7	65.1	61.6	60.1	58.5	2018-08-02	00:05	57.9	54.3	61.9	59.5	57.7	56.1
2018-08-01	18:10	59.8	58.1	63.9	61.0	59.7	58.4	2018-08-02	00:10	57.0	55.3	62.5	58.1	56.8	55.7
2018-08-01	18:15	61.5	58.9	77.8	61.9	60.4	59.3	2018-08-02	00:15	56.8	55.1	62.1	57.9	56.6	55.5
2018-08-01	18:20	60.8	58.7	66.3	62.2	60.6	59.3	2018-08-02	00:20	56.4	54.4	60.3	57.8	56.0	55.1
2018-08-01	18:25	60.8	59.1	66.7	61.9	60.6	59.4	2018-08-02	00:25	57.7	54.3	62.5	59.1	57.7	55.8
2018-08-01	18:30	60.4	58.6	64.1	61.7	60.2	59.2	2018-08-02	00:30	57.1	54.1	65.3	58.6	56.6	55.2
2018-08-01	18:35	60.3	58.8	62.0	61.4	60.2	59.2	2018-08-02	00:35	57.7	54.2	65.8	59.5	57.1	55.4
2018-08-01	18:40	61.3	58.8	67.9	62.7	60.9	59.4	2018-08-02	00:40	57.2	54.2	64.3	58.8	56.6	55.4
2018-08-01	18:45	59.9	57.9	62.3	60.8	59.8	59.0	2018-08-02	00:45	57.2	54.1	67.9	58.7	56.5	55.2
2018-08-01	18:50	63.0	59.2	77.2	63.5	61.0	59.9	2018-08-02	00:50	56.8	54.7	64.1	58.2	56.4	55.3
2018-08-01	18:55	60.9	59.6	62.9	61.9	60.8	59.9	2018-08-02	00:55	59.5	54.4	68.5	62.2	57.9	55.8
2018-08-01	19:00	60.6	58.7	63.6	61.8	60.5	59.3	2018-08-02	01:00	57.9	52.6	68.5	60.1	56.7	54.4
2018-08-01	19:05	60.5	58.7	64.3	61.5	60.4	59.4	2018-08-02	01:05	56.7	54.0	67.4	57.8	55.9	54.7
2018-08-01	19:10	60.4	58.8	62.9	61.6	60.3	59.3	2018-08-02	01:10	56.2	53.0	63.5	57.9	55.6	54.1
2018-08-01	19:15	60.4	58.8	62.3	61.4	60.3	59.3	2018-08-02	01:15	55.8	53.0	61.1	57.0	55.5	53.7
2018-08-01	19:20	61.0	58.4	64.1	62.7	60.8	59.0	2018-08-02	01:20	55.3	51.6	66.9	56.3	54.6	53.1
2018-08-01	19:25	60.3	58.8	62.3	61.4	60.3	59.2	2018-08-02	01:25	55.2	52.7	61.0	56.6	54.8	53.5
2018-08-01	19:30	60.7	58.9	67.8	61.9	60.2	59.2	2018-08-02	01:30	55.2	52.6	61.5	56.7	54.9	53.3
2018-08-01	19:35	59.8	58.3	65.3	60.8	59.6	58.8	2018-08-02	01:35	54.5	51.9	62.6	55.9	53.9	52.6
2018-08-01	19:40	61.0	58.5	71.3	62.0	60.3	59.2	2018-08-02	01:40	55.8	52.1	65.6	57.7	55.0	53.2
2018-08-01	19:45	60.2	58.1	66.4	61.3	60.1	59.0	2018-08-02	01:45	55.2	52.9	60.2	56.5	55.0	53.5
2018-08-01	19:50	60.4	59.0	62.9	61.5	60.4	59.3	2018-08-02	01:50	55.9	53.0	62.6	57.2	55.3	54.1
2018-08-01	19:55	60.0	58.5	62.4	61.0	59.9	59.0	2018-08-02	01:55	56.6	54.1	64.0	58.0	55.8	54.6
2018-08-01	20:00	60.3	58.5	65.2	61.7	59.8	58.8	2018-08-02	02:00	56.5	54.1	63.6	57.6	56.0	55.1
2018-08-01	20:05	60.6	58.7	64.5	61.7	60.4	59.2	2018-08-02	02:05	54.4	51.0	59.4	55.9	54.3	52.3
2018-08-01	20:10	59.7	57.9	63.8	60.9	59.5	58.3	2018-08-02	02:10	55.1	52.7	67.5	56.1	54.4	53.2
2018-08-01	20:15	59.0	57.8	61.1	59.9	58.9	58.1	2018-08-02	02:15	54.9	52.8	59.6	55.9	54.8	53.5
2018-08-01	20:20	58.8	56.4	63.6	60.2	58.5	57.1	2018-08-02	02:20	54.6	52.4	61.1	56.0	54.1	53.0
2018-08-01	20:25	59.5	56.5	62.7	60.8	59.4	58.1	2018-08-02	02:25	54.5	52.1	61.1	55.8	54.2	53.0
2018-08-01	20:30	58.4	55.9	60.8	59.7	58.4	57.1	2018-08-02	02:30	55.1	52.9	60.2	56.7	54.7	53.3
2018-08-01	20:35	58.8	56.9	63.5	59.8	58.7	57.8	2018-08-02	02:35	58.5	51.9	71.9	59.8	56.1	52.8
2018-08-01	20:40	58.7	56.6	61.9	59.8	58.5	57.3	2018-08-02	02:40	56.6	55.6	62.2	57.1	56.4	55.6
2018-08-01	20:45	59.9	56.8	64.8	62.5	59.1	57.5	2018-08-02	02:45	55.1	52.4	61.7	56.8	54.6	53.2
2018-08-01	20:50	57.7	55.9	60.5	59.4	57.5	56.3	2018-08-02	02:50	53.5	52.0	59.6	54.4	53.4	52.3
2018-08-01	20:55	58.0	56.1	60.7	59.7	57.5	56.3	2018-08-02	02:55	53.9	52.2	59.6	54.9	53.7	52.9
2018-08-01	21:00	58.5	57.0	62.1	59.6	58.4	57.3	2018-08-02	03:00	53.8	52.1	57.6	54.9	53.6	52.6
2018-08-01	21:05	58.0	56.1	62.9	59.3	57.6	56.5	2018-08-02	03:05	53.5	50.9	59.9	54.4	53.4	52.2
2018-08-01	21:10	57.8	56.4	59.9	58.8	57.6	56.6	2018-08-02	03:10	53.3	51.5	59.6	54.1	53.1	52.2
2018-08-01	21:15	57.9	55.5	61.6	59.2	57.7	56.3	2018-08-02	03:15	55.1	52.1	57.7	56.6	55.2	52.5
2018-08-01	21:20	58.0	56.0	62.1	59.3	57.8	56.6	2018-08-02	03:20	56.5	54.6	59.6	57.5	56.4	55.2
2018-08-01	21:25	57.9	56.0	63.0	59.1	57.4	56.4	2018-08-02	03:25	56.8	52.1	66.9	59.4	54.7	52.9
2018-08-01	21:30	57.9	55.5	68.2	58.7	57.1	56.2	2018-08-02	03:30	60.0	56.6	68.1	61.8	58.8	57.2
2018-08-01	21:35	57.7	56.1	63.6	58.7	57.5	56.4	2018-08-02	03:35	59.6	51.9	73.9	61.7	57.2	52.4
2018-08-01	21:40	57.0	55.7	60.2	57.9	56.9	56.1	2018-08-02	03:40	54.8	52.7	60.2	55.9	54.5	53.3
2018-08-01	21:45	56.7	55.5	58.2	57.4	56.6	56.1	2018-08-02	03:45	54.5	52.5	59.1	55.7	54.3	53.1
2018-08-01	21:50	56.6	55.3	58.8	57.5	56.5	55.6	2018-08-02	03:50	54.4	52.4	57.2	55.7	54.1	53.2
2018-08-01	21:55	57.0	54.9	61.4	58.0	56.7	56.0	2018-08-02	03:55	55.6	53.4	60.4	57.3	55.3	53.8
2018-08-01	22:00	57.0	55.7	59.7	58.0	56.8	56.1	2018-08-02	04:00	56.5	54.1	61.1	57.5	56.4	55.1
2018-08-01	22:05	57.9	55.7	60.6	59.1	57.8	56.6	2018-08-02	04:05	55.3	53.1	59.5	56.9	54.9	53.5
2018-08-01	22:10	58.0	56.2	62.7	59.1	58.0	57.0	2018-08-02	04:10	54.8	53.0	60.7	55.8	54.6	53.5
2018-08-01	22:15	58.0	56.3	59.6	58.8	57.8	57.1	2018-08-02	04:15	56.7	53.2	67.7	58.5	55.3	54.1
2018-08-01	22:20	58.1	56.4	62.3	59.1	58.1	57.0	2018-08-02	04:20	56.6	52.9	67.2	58.2	55.4	54.0
2018-08-01	22:25	58.1	55.6	63.4	59.5	58.1	56.3	2018-08-02	04:25	55.1	53.1	60.7	56.0	55.0	54.0
2018-08-01	22:30	58.4	56.6	60.6	59.6	58.4	57.2	2018-08-02	04:30	55.2	53.5	59.2	56.0	55.0	54.1
2018-08-01	22:35	57.8	56.1	60.4	59.0	57.6	56.6	2018-08-02	04:35	56.7	54.6	61.4	57.8	56.6	55.4
2018-08-01	22:40	59.1	57.7	61.9	59.9	59.0	58.1	2018-08-02	04:40	57.5	55.9	62.1	58.1	57.4	56.5
2018-08-01	22:45	58.7	56.2	66.3	59.7	58.5	57.3	2018-08-02	04:45	57.2	54.9	69.4	57.7	56.4	55.3
2018-08-01	22:50	59.2	56.9	63.4	60.8	58.8	57.7	2018-08-02	04:50	56.3	54.5	61.9	57.9	56.0	54.8
2018-08-01	22:55	58.9	56.9	62.5	59.9	58.8	57.4	2018-08-02	04:55	57.1	54.1	69.5	57.8	55.8	55.0
2018-08-01	23:00	57.9	56.4	60.3	58.8	57.8	57.1	2018-08-02	05:00	55.9	54.5	63.2	56.8	55.6	54.6
2018-08-01	23:05	58.6	56.5	64.0	59.7	58.5	57.4	2018-08-02	05:05	56.6	55.2	60.2	57.6	56.5	55.4
2018-08-01	23:10	58.3	56.7	61.4	59.6	58.3	57.1	2018-08-02	05:10	56.9	55.5	58.6	57.8	56.7	56.1
2018-08-01	23:15	59.4	57.2	66.7	60.5	58.9	57.8	2018-08-02	05:15	57.7	55.2	62.7	58.8	57.6	56.2
2018-08-01	23:20	59.1	56.8	66.9	60.8	58.6	57.4	2018-08-02	05:20	61.4	56.5	76.1	61.9	58.5	57.2
2018-08-01	23:25	58.7	56.7	62.0	59.9	58.6	57.3	2018-08-02	05:25	57.4	55.5	59.1	58.5	57.4	56.1
2018-08-01	23:30	57.9	56.3	61.4	59.2	57.7	56.6	2018-08-02	05:30	57.9	55.6	65.2	58.9	57.5	56.3
2018-08-01	23:35	57.8	56.0	61.8	59.1	57.6	56.5	2018-08-02	05:35	61.5	55.5	83.1	59.8	58.2	57.0
2018-08-01	23:40	57.6	55.9	60.5	58.8	57.6	56.4	2018-08-02	05:40	58.2	56.5	65.6	58.9	58.0	57.1
2018-08-01	23:45	58.0	55.6	65.1	59.1	57.8	56.5	2018-08-02	05:45	58.5	56.8	61.0	59.7	58.3	57.3
2018-08-01	23:50	57.4	54.8	60.3	58.9	57.1	55.9	2018-08-02	05:50	60.8	56.1	82.0	59.0	57.9	56.9
2018-08-01	23:55	58.0	55.6	66.6	59.6	57.5	56.3	2018-08-02	05:55	60.3	56.6	78.7	59.9	58.8	57.3

M1 – Day 2 (August 1 – August 2, 2018) – Cont.

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	06:00	59.1	58.1	60.3	59.8	59.0	58.2
2018-08-02	06:05	60.6	57.2	78.8	60.6	58.7	57.8
2018-08-02	06:10	62.6	57.8	80.3	64.8	59.8	58.4
2018-08-02	06:15	62.7	58.1	73.5	65.5	60.2	58.6
2018-08-02	06:20	59.8	58.2	67.8	60.8	59.5	58.4
2018-08-02	06:25	63.1	57.8	82.2	61.6	60.0	59.1
2018-08-02	06:30	62.9	58.2	83.2	61.9	60.1	59.0
2018-08-02	06:35	60.1	58.0	64.8	61.0	59.9	59.0
2018-08-02	06:40	61.1	57.7	65.3	62.8	60.7	59.0
2018-08-02	06:45	59.5	57.8	62.1	60.5	59.4	58.4
2018-08-02	06:50	60.1	57.2	67.6	61.9	59.3	57.7
2018-08-02	06:55	59.4	57.8	63.5	60.4	59.2	58.2
2018-08-02	07:00	60.4	56.9	79.5	60.3	58.4	57.3
2018-08-02	07:05	59.8	56.7	67.7	61.4	59.4	57.8
2018-08-02	07:10	59.4	57.8	61.5	60.4	59.3	58.3
2018-08-02	07:15	59.8	57.5	70.1	60.8	59.4	58.1
2018-08-02	07:20	59.0	56.6	61.2	60.1	58.9	57.5
2018-08-02	07:25	59.7	57.0	69.6	60.9	58.9	58.1
2018-08-02	07:30	58.9	57.2	62.1	60.0	58.7	58.0
2018-08-02	07:35	59.9	57.7	65.0	61.1	59.6	58.4
2018-08-02	07:40	60.1	57.7	66.0	61.5	59.7	58.2
2018-08-02	07:45	59.4	56.7	73.5	59.8	58.5	57.5
2018-08-02	07:50	58.5	56.6	63.3	59.8	58.2	56.9
2018-08-02	07:55	59.6	57.1	68.3	60.9	59.1	58.1
2018-08-02	08:00	62.2	57.5	71.5	65.6	59.8	58.2
2018-08-02	08:05	64.1	57.7	75.5	66.7	62.2	59.1
2018-08-02	08:10	66.2	59.0	82.7	69.6	61.6	59.5
2018-08-02	08:15	59.8	58.1	70.1	60.6	59.4	58.4
2018-08-02	08:20	60.0	57.5	66.6	61.3	59.7	58.4
2018-08-02	08:25	60.8	57.6	71.1	62.9	59.7	58.3
2018-08-02	08:30	61.0	56.4	76.4	62.0	59.1	57.5
2018-08-02	08:35	68.4	57.2	81.7	72.5	62.2	58.5
2018-08-02	08:40	75.7	62.4	91.1	78.7	73.4	67.9
2018-08-02	08:45	74.8	60.7	91.6	77.7	72.0	65.6
2018-08-02	08:50	76.5	64.0	91.4	79.7	73.8	68.2
2018-08-02	08:55	77.3	61.5	95.5	78.8	73.3	68.5
2018-08-02	09:00	74.5	59.6	92.5	76.5	69.2	63.9
2018-08-02	09:05	75.5	59.2	91.1	78.6	71.0	64.6
2018-08-02	09:10	73.5	60.6	82.7	75.6	72.5	71.0
2018-08-02	09:15	70.7	59.5	84.2	73.2	68.1	62.2
2018-08-02	09:20	71.7	58.5	94.1	72.8	66.0	62.0
2018-08-02	09:25	75.6	57.5	93.7	76.8	69.5	62.7
2018-08-02	09:30	71.9	59.4	83.0	75.5	69.2	63.6
2018-08-02	09:35	72.6	57.9	86.0	76.2	70.3	61.7
2018-08-02	09:40	69.4	58.6	80.9	71.9	69.5	59.9
2018-08-02	09:45	60.7	57.6	68.1	62.6	59.9	58.4
2018-08-02	09:50	70.8	58.3	89.5	70.5	63.8	59.4
2018-08-02	09:55	58.9	56.6	65.0	60.3	58.7	57.5
2018-08-02	10:00	59.2	57.4	65.8	60.0	59.1	58.1
2018-08-02	10:05	59.3	56.3	66.4	60.9	58.8	57.3
2018-08-02	10:10	64.2	57.6	85.0	63.0	59.8	58.4
2018-08-02	10:15	62.5	56.8	83.8	61.9	58.7	57.5
2018-08-02	10:20	58.2	55.9	62.8	59.5	58.0	56.9
2018-08-02	10:25	62.0	57.0	76.0	64.1	59.5	58.0
2018-08-02	10:30	60.3	56.2	76.9	60.0	58.6	57.2
2018-08-02	10:35	59.6	56.7	70.9	62.0	58.7	57.3
2018-08-02	10:40	59.0	56.8	64.0	60.0	58.8	58.0
2018-08-02	10:45	62.8	56.5	82.8	61.9	58.9	57.5
2018-08-02	10:50	60.3	56.0	70.0	62.7	58.8	57.4
2018-08-02	10:55	60.0	57.0	68.4	61.8	59.2	58.0
2018-08-02	11:00	62.6	57.3	74.2	64.1	59.9	58.2
2018-08-02	11:05	64.8	56.9	85.4	63.8	60.3	58.3
2018-08-02	11:10	60.5	57.3	75.6	61.7	59.6	58.4
2018-08-02	11:15	59.6	57.2	66.9	60.9	59.4	58.2
2018-08-02	11:20	59.9	57.8	69.1	60.9	59.6	58.4
2018-08-02	11:25	60.1	57.8	66.3	61.5	59.7	58.3
2018-08-02	11:30	63.8	58.0	74.7	67.7	60.1	58.5
2018-08-02	11:35	63.5	58.2	78.5	64.5	60.1	58.8
2018-08-02	11:40	60.8	57.6	67.5	62.5	59.7	58.3
2018-08-02	11:45	66.9	57.0	83.0	67.6	59.9	58.0
2018-08-02	11:50	60.6	56.1	77.7	61.6	58.5	57.2
2018-08-02	11:55	59.9	57.5	67.7	61.6	59.2	57.7
2018-08-02	12:00	59.7	56.4	74.3	60.9	58.7	57.3
2018-08-02	12:05	59.9	56.9	69.7	61.0	59.1	58.0
2018-08-02	12:10	59.9	57.1	66.4	61.8	59.0	57.5
2018-08-02	12:15	64.4	56.2	83.4	65.8	58.9	57.1
2018-08-02	12:20	62.0	57.5	75.4	64.0	59.7	58.1
2018-08-02	12:25	58.7	56.7	66.6	59.8	58.2	57.2
2018-08-02	12:30	59.2	56.0	69.5	61.2	58.7	56.7
2018-08-02	12:35	60.8	56.6	72.9	62.9	58.6	57.2
2018-08-02	12:40	60.6	56.3	73.9	61.8	59.4	57.3
2018-08-02	12:45	60.9	56.5	72.6	63.9	58.9	57.3
2018-08-02	12:50	59.1	56.4	69.8	60.7	58.3	57.1
2018-08-02	12:55	58.8	56.9	63.0	59.9	58.8	57.5
2018-08-02	13:00	61.2	57.2	71.6	63.4	60.0	58.3
2018-08-02	13:05	60.8	56.6	75.4	60.8	58.8	57.3
2018-08-02	13:10	59.0	55.8	72.8	59.8	58.1	57.1
2018-08-02	13:15	59.4	57.3	66.2	60.6	59.2	58.1
2018-08-02	13:20	58.8	56.5	61.5	60.1	58.5	57.2
2018-08-02	13:25	58.7	57.2	63.0	60.0	58.5	57.4
2018-08-02	13:30	60.1	56.2	76.6	60.8	58.7	57.2
2018-08-02	13:35	58.7	57.0	62.2	59.8	58.6	57.4
2018-08-02	13:40	63.2	57.6	83.6	61.9	59.7	58.4
2018-08-02	13:45	60.2	57.5	66.3	61.8	59.9	58.3
2018-08-02	13:50	60.4	56.4	72.1	62.4	59.5	57.5
2018-08-02	13:55	61.7	57.0	80.4	62.2	59.5	58.0
2018-08-02	14:00	59.2	55.6	73.9	60.2	58.0	56.6
2018-08-02	14:05	59.6	56.5	72.7	60.6	58.6	57.3
2018-08-02	14:10	63.6	56.6	78.2	65.9	59.5	58.1
2018-08-02	14:15	62.4	56.7	79.6	62.0	58.9	57.9
2018-08-02	14:20	65.9	57.7	75.7	70.0	62.1	58.5
2018-08-02	14:25	68.8	56.6	83.2	73.2	62.3	58.1
2018-08-02	14:30	62.2	57.4	80.0	63.7	60.0	58.4
2018-08-02	14:35	59.4	56.2	70.0	60.9	58.5	57.2
2018-08-02	14:40	61.1	57.6	72.4	63.0	59.7	58.4
2018-08-02	14:45	61.2	56.9	73.9	63.3	59.5	58.1
2018-08-02	14:50	58.9	56.2	63.4	60.4	58.8	57.3
2018-08-02	14:55	58.1	55.0	63.2	59.9	58.1	56.2
2018-08-02	15:00	59.6	55.4	68.6	61.8	58.7	56.6
2018-08-02	15:05	60.4	55.9	72.4	62.4	59.4	57.5
2018-08-02	15:10	65.6	57.3	80.1	68.9	60.7	58.3
2018-08-02	15:15	65.5	58.0	82.8	68.1	60.3	58.8
2018-08-02	15:20	65.0	58.3	78.1	68.7	60.8	59.2
2018-08-02	15:25	61.9	58.6	73.8	63.4	61.4	60.1
2018-08-02	15:30	59.8	57.9	61.8	60.8	59.8	58.6
2018-08-02	15:35	60.1	56.7	67.6	61.7	59.8	57.9
2018-08-02	15:40	62.6	57.8	83.0	62.5	60.0	58.8
2018-08-02	15:45	61.6	58.2	70.8	63.1	60.2	59.0
2018-08-02	15:50	60.2	57.2	71.2	61.0	59.3	58.2
2018-08-02	15:55	61.8	58.2	78.7	62.5	59.9	59.1
2018-08-02	16:00	59.8	57.5	67.9	61.0	59.4	58.3
2018-08-02	16:05	59.9	57.8	62.9	61.0	59.8	58.5
2018-08-02	16:10	61.7	57.4	74.2	63.0	59.7	58.3
2018-08-02	16:15	59.8	57.2	65.2	61.8	59.2	57.7
2018-08-02	16:20	59.3	57.2	62.5	60.7	59.1	57.9
2018-08-02	16:25	60.4	57.7	69.9	62.1	59.7	58.3
2018-08-02	16:30	59.8	57.5	66.7	61.2	59.4	58.2
2018-08-02	16:35	60.4	58.0	69.0	62.5	59.8	58.5
2018-08-02	16:40	67.2	58.3	82.8	69.4	63.5	59.3
2018-08-02	16:45	60.4	57.2	69.8	62.2	59.7	58.3
2018-08-02	16:50	60.7	56.9	66.5	62.6	60.2	58.4
2018-08-02	16:55	60.4	57.8	69.2	61.8	60.0	58.8
2018-08-02	17:00	62.0	57.2	69.2	66.3	59.7	58.1
2018-08-02	17:05	60.9	57.4	73.3	62.4	60.2	58.1
2018-08-02	17:10	61.5	57.8	70.2	63.7	60.3	58.6
2018-08-02	17:15	59.4	57.3	66.4	60.6	59.0	58.0
2018-08-02	17:20	60.2	57.0	65.8	62.2	59.7	58.1
2018-08-02	17:25	60.5	57.5	68.8	62.2	59.6	58.2
2018-08-02	17:30	62.8	56.9	73.9	66.0	59.8	58.1
2018-08-02	17:35	58.4	56.0	68.3	59.7	58.0	56.7
2018-08-02	17:40	59.6	56.7	65.2	61.1	59.5	57.9
2018-08-02	17:45	60.3	58.3	64.9	61.7	60.1	59.0
2018-08-02	17:50	61.0	58.5	68.8	62.3	60.6	59.4
2018-08-02	17:55	61.1	58.5	69.9	62.3	60.7	59.4

M4 – Day 1 (July 31 – August 1, 2018)
Measured Sound Pressure Level Data (dBA)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)	Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-07-31	18:00	75.7	70.7	78.7	0.0	75.5	73.3	2018-08-01	00:00	69.0	59.5	76.6	0.0	68.1	63.3
2018-07-31	18:05	76.2	68.2	82.4	0.0	75.8	73.2	2018-08-01	00:05	67.5	56.1	75.0	0.0	65.4	59.7
2018-07-31	18:10	76.2	70.1	79.0	0.0	76.1	73.8	2018-08-01	00:10	69.4	53.9	78.8	0.0	67.1	59.1
2018-07-31	18:15	75.9	67.9	79.6	0.0	75.7	73.0	2018-08-01	00:15	67.4	57.9	75.0	0.0	65.4	60.4
2018-07-31	18:20	76.2	67.7	79.9	0.0	76.1	73.9	2018-08-01	00:20	68.5	57.4	75.9	0.0	67.5	60.4
2018-07-31	18:25	76.0	68.7	79.8	0.0	75.9	73.5	2018-08-01	00:25	68.4	54.4	79.3	0.0	65.3	57.7
2018-07-31	18:30	77.1	73.6	82.6	0.0	76.8	75.1	2018-08-01	00:30	67.3	54.0	76.6	0.0	65.3	57.5
2018-07-31	18:35	76.9	70.2	82.0	0.0	76.6	74.3	2018-08-01	00:35	66.0	51.5	73.4	0.0	63.8	58.1
2018-07-31	18:40	76.5	70.2	81.5	0.0	76.4	74.4	2018-08-01	00:40	68.5	54.6	76.9	0.0	65.7	58.4
2018-07-31	18:45	76.6	71.7	80.3	0.0	76.3	74.2	2018-08-01	00:45	67.0	50.1	75.4	0.0	64.9	58.1
2018-07-31	18:50	76.6	72.6	81.2	0.0	76.5	74.5	2018-08-01	00:50	66.5	54.5	74.5	0.0	63.9	57.3
2018-07-31	18:55	76.6	71.8	80.8	0.0	76.4	74.2	2018-08-01	00:55	67.4	51.5	80.3	0.0	64.0	54.8
2018-07-31	19:00	76.0	70.6	82.4	0.0	75.8	72.9	2018-08-01	01:00	65.8	51.2	73.6	0.0	63.4	56.0
2018-07-31	19:05	75.9	69.9	79.3	0.0	75.7	73.0	2018-08-01	01:05	65.7	51.5	75.3	0.0	62.5	55.2
2018-07-31	19:10	75.9	70.8	81.4	0.0	75.8	73.3	2018-08-01	01:10	67.3	52.1	77.6	0.0	64.8	55.6
2018-07-31	19:15	76.0	69.4	82.0	0.0	75.8	73.0	2018-08-01	01:15	65.3	52.5	74.7	0.0	61.9	55.3
2018-07-31	19:20	76.2	70.2	80.8	0.0	76.1	73.7	2018-08-01	01:20	65.5	48.7	75.1	0.0	62.2	52.9
2018-07-31	19:25	76.3	68.2	80.0	0.0	76.2	73.7	2018-08-01	01:25	67.4	52.2	77.6	0.0	64.1	57.3
2018-07-31	19:30	75.7	70.4	79.2	0.0	75.4	73.0	2018-08-01	01:30	65.4	51.5	75.4	0.0	61.3	55.2
2018-07-31	19:35	75.9	71.5	79.0	0.0	75.8	73.3	2018-08-01	01:35	65.6	51.2	75.0	0.0	61.4	54.8
2018-07-31	19:40	75.8	71.2	79.5	0.0	75.6	73.2	2018-08-01	01:40	64.9	48.7	74.2	0.0	60.1	53.1
2018-07-31	19:45	75.9	69.8	80.0	0.0	75.5	72.9	2018-08-01	01:45	64.5	48.1	73.2	0.0	60.7	51.1
2018-07-31	19:50	75.7	69.4	80.0	0.0	75.7	72.8	2018-08-01	01:50	66.4	48.2	75.2	0.0	63.0	50.9
2018-07-31	19:55	75.0	66.4	79.4	0.0	74.7	71.1	2018-08-01	01:55	62.5	46.0	71.1	0.0	57.3	49.6
2018-07-31	20:00	75.0	67.6	78.6	0.0	75.1	71.6	2018-08-01	02:00	64.1	49.0	75.1	0.0	59.1	52.5
2018-07-31	20:05	75.7	68.5	79.6	0.0	75.6	72.7	2018-08-01	02:05	64.7	50.2	74.2	0.0	59.7	54.2
2018-07-31	20:10	75.5	70.1	80.3	0.0	75.2	72.6	2018-08-01	02:10	65.3	49.6	77.6	0.0	61.1	53.9
2018-07-31	20:15	75.4	64.9	81.7	0.0	75.2	71.9	2018-08-01	02:15	64.7	47.9	76.1	0.0	60.0	52.3
2018-07-31	20:20	75.0	67.9	79.2	0.0	74.7	71.5	2018-08-01	02:20	65.1	48.7	75.4	0.0	58.9	53.5
2018-07-31	20:25	75.5	67.5	80.0	0.0	75.4	71.9	2018-08-01	02:25	66.3	45.1	75.9	0.0	63.7	48.8
2018-07-31	20:30	74.3	66.5	78.0	0.0	74.0	70.9	2018-08-01	02:30	65.8	49.6	73.6	0.0	62.0	55.1
2018-07-31	20:35	75.1	69.4	78.6	0.0	74.9	72.1	2018-08-01	02:35	64.5	47.2	74.6	0.0	59.3	50.0
2018-07-31	20:40	75.2	64.9	79.6	0.0	74.9	71.7	2018-08-01	02:40	66.2	49.0	76.0	0.0	61.8	52.5
2018-07-31	20:45	74.7	65.4	78.9	0.0	74.5	71.3	2018-08-01	02:45	67.7	51.0	81.1	0.0	64.4	55.7
2018-07-31	20:50	74.6	68.3	78.7	0.0	74.4	70.3	2018-08-01	02:50	65.8	47.2	75.0	0.0	62.5	52.1
2018-07-31	20:55	74.1	64.3	79.0	0.0	73.6	69.5	2018-08-01	02:55	68.6	47.7	84.8	0.0	61.5	52.1
2018-07-31	21:00	74.5	66.2	79.1	0.0	74.4	70.2	2018-08-01	03:00	65.1	50.6	75.0	0.0	62.2	55.2
2018-07-31	21:05	74.6	68.2	78.5	0.0	74.4	71.5	2018-08-01	03:05	66.5	49.7	75.9	0.0	62.7	53.0
2018-07-31	21:10	74.5	68.3	77.7	0.0	74.3	71.3	2018-08-01	03:10	66.3	52.2	75.4	0.0	63.1	55.4
2018-07-31	21:15	74.3	64.7	79.0	0.0	73.9	69.8	2018-08-01	03:15	65.7	45.9	75.2	0.0	63.2	50.8
2018-07-31	21:20	74.5	66.0	84.0	0.0	73.7	70.2	2018-08-01	03:20	66.8	50.9	76.4	0.0	63.0	54.7
2018-07-31	21:25	73.8	64.4	79.0	0.0	73.4	69.0	2018-08-01	03:25	67.8	53.1	76.5	0.0	64.4	57.6
2018-07-31	21:30	73.6	64.6	78.3	0.0	73.2	70.0	2018-08-01	03:30	66.9	54.7	75.4	0.0	63.8	57.8
2018-07-31	21:35	73.2	62.6	78.0	0.0	72.9	69.1	2018-08-01	03:35	66.4	46.5	75.0	0.0	63.9	55.7
2018-07-31	21:40	73.0	61.8	77.9	0.0	72.4	67.4	2018-08-01	03:40	68.2	52.5	77.1	0.0	65.6	58.7
2018-07-31	21:45	74.0	65.8	83.4	0.0	72.7	69.1	2018-08-01	03:45	69.6	47.7	78.4	0.0	67.6	55.1
2018-07-31	21:50	73.2	65.8	77.9	0.0	72.7	68.3	2018-08-01	03:50	69.2	54.0	75.2	0.0	68.1	60.1
2018-07-31	21:55	72.9	65.8	79.4	0.0	72.1	68.4	2018-08-01	03:55	69.4	52.4	79.1	0.0	67.1	58.1
2018-07-31	22:00	72.1	62.3	80.2	0.0	71.2	66.4	2018-08-01	04:00	68.4	54.7	76.9	0.0	66.1	58.5
2018-07-31	22:05	72.0	61.4	77.8	0.0	71.3	65.3	2018-08-01	04:05	69.1	51.9	79.7	0.0	67.0	59.8
2018-07-31	22:10	71.3	62.1	78.2	0.0	70.3	65.4	2018-08-01	04:10	69.5	52.9	76.6	0.0	67.4	59.1
2018-07-31	22:15	73.5	64.7	81.8	0.0	72.7	67.6	2018-08-01	04:15	69.8	53.5	76.6	0.0	67.2	58.9
2018-07-31	22:20	71.7	63.6	77.3	0.0	70.8	66.4	2018-08-01	04:20	70.3	52.9	78.7	0.0	67.9	58.2
2018-07-31	22:25	71.9	60.7	76.9	0.0	71.2	66.7	2018-08-01	04:25	68.7	55.5	76.6	0.0	67.6	59.3
2018-07-31	22:30	72.5	65.5	76.9	0.0	71.9	67.7	2018-08-01	04:30	71.5	57.4	78.1	0.0	70.2	62.5
2018-07-31	22:35	71.3	61.7	77.8	0.0	70.6	65.8	2018-08-01	04:35	70.7	55.6	77.0	0.0	69.7	60.2
2018-07-31	22:40	72.2	64.0	78.5	0.0	71.2	67.2	2018-08-01	04:40	71.0	56.6	77.7	0.0	69.8	63.8
2018-07-31	22:45	71.6	59.8	77.7	0.0	70.6	65.9	2018-08-01	04:45	73.6	59.2	78.4	0.0	72.9	67.7
2018-07-31	22:50	71.1	60.5	78.2	0.0	70.2	65.4	2018-08-01	04:50	72.0	57.5	78.7	0.0	70.8	64.2
2018-07-31	22:55	69.8	59.5	76.9	0.0	68.9	63.5	2018-08-01	04:55	72.6	62.2	77.5	0.0	72.1	66.3
2018-07-31	23:00	70.2	60.7	75.3	0.0	69.6	64.6	2018-08-01	05:00	72.3	58.5	80.0	0.0	71.2	64.2
2018-07-31	23:05	70.4	59.7	77.7	0.0	69.0	63.8	2018-08-01	05:05	73.2	60.6	78.7	0.0	72.2	66.8
2018-07-31	23:10	69.8	58.8	76.3	0.0	69.0	62.7	2018-08-01	05:10	74.4	64.4	84.2	0.0	73.3	68.8
2018-07-31	23:15	69.6	59.2	76.9	0.0	68.2	62.8	2018-08-01	05:15	74.1	64.7	80.2	0.0	73.3	70.0
2018-07-31	23:20	69.6	58.8	75.8	0.0	68.6	62.5	2018-08-01	05:20	74.6	62.1	81.2	0.0	74.0	69.2
2018-07-31	23:25	68.3	58.9	74.5	0.0	67.0	62.2	2018-08-01	05:25	75.2	67.6	79.7	0.0	74.8	70.5
2018-07-31	23:30	69.1	59.9	77.8	0.0	66.6	62.6	2018-08-01	05:30	76.3	69.0	81.1	0.0	75.9	73.1
2018-07-31	23:35	69.7	59.8	78.6	0.0	68.5	62.6	2018-08-01	05:35	75.8	65.1	79.7	0.0	75.6	71.8
2018-07-31	23:40	69.2	58.6	76.1	0.0	67.7	61.1	2018-08-01	05:40	76.1	64.9	83.0	0.0	75.7	72.2
2018-07-31	23:45	69.9	56.8	77.3	0.0	67.7	60.5	2018-08-01	05:45	76.7	68.7	80.4	0.0	76.7	73.1
2018-07-31	23:50	69.1	56.4	75.4	0.0	68.1	60.7	2018-08-01	05:50	76.2	68.5	80.4	0.0	75.8	72.5
2018-07-31	23:55	69.3	55.5	77.5	0.0	67.3	60.5	2018-08-01	05:55	76.8	67.4	89.1	0.0	76.1	71.3

M4 – Day 1 (July 31 – August 1, 2018) – Cont.

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	06:00	76.1	65.6	80.4	0.0	76.0	72.4
2018-08-01	06:05	76.5	69.1	80.4	0.0	76.2	73.6
2018-08-01	06:10	76.4	69.5	82.1	0.0	75.7	72.0
2018-08-01	06:15	77.3	70.8	81.2	0.0	77.1	74.1
2018-08-01	06:20	76.6	71.3	80.6	0.0	76.5	73.0
2018-08-01	06:25	77.3	69.8	83.6	0.0	77.0	73.9
2018-08-01	06:30	77.1	70.7	82.7	0.0	77.0	73.6
2018-08-01	06:35	77.8	73.1	82.7	0.0	77.7	75.5
2018-08-01	06:40	78.2	70.3	86.3	0.0	77.7	75.6
2018-08-01	06:45	77.8	74.0	81.7	0.0	77.6	75.9
2018-08-01	06:50	77.7	72.5	82.0	0.0	77.4	75.5
2018-08-01	06:55	77.6	73.3	81.3	0.0	77.5	75.8
2018-08-01	07:00	77.6	74.0	83.0	0.0	77.5	75.6
2018-08-01	07:05	77.4	72.6	81.3	0.0	77.2	75.4
2018-08-01	07:10	77.4	71.6	81.0	0.0	77.3	75.2
2018-08-01	07:15	77.7	73.0	80.2	0.0	77.6	76.1
2018-08-01	07:20	77.5	73.8	80.8	0.0	77.4	75.8
2018-08-01	07:25	76.7	72.2	84.7	0.0	76.5	74.9
2018-08-01	07:30	76.1	72.7	79.8	0.0	75.8	74.0
2018-08-01	07:35	77.3	73.3	82.6	0.0	77.0	75.5
2018-08-01	07:40	76.7	72.8	79.2	0.0	76.8	74.5
2018-08-01	07:45	76.5	72.2	82.0	0.0	76.3	74.5
2018-08-01	07:50	76.8	73.1	80.3	0.0	76.6	74.8
2018-08-01	07:55	76.9	73.1	79.7	0.0	76.7	75.2
2018-08-01	08:00	77.0	74.0	82.4	0.0	76.8	75.1
2018-08-01	08:05	76.6	72.1	79.0	0.0	76.6	74.3
2018-08-01	08:10	77.3	73.2	85.7	0.0	76.6	74.7
2018-08-01	08:15	76.4	72.9	79.6	0.0	76.3	74.3
2018-08-01	08:20	77.0	73.6	81.6	0.0	76.7	75.2
2018-08-01	08:25	76.7	74.4	81.1	0.0	76.4	75.1
2018-08-01	08:30	76.5	73.5	80.5	0.0	76.4	74.8
2018-08-01	08:35	76.8	72.2	80.0	0.0	76.7	74.7
2018-08-01	08:40	76.7	73.6	82.6	0.0	76.5	75.0
2018-08-01	08:45	77.2	71.1	80.5	0.0	77.2	75.2
2018-08-01	08:50	77.1	72.1	82.5	0.0	76.7	74.9
2018-08-01	08:55	76.6	72.5	80.9	0.0	76.3	75.0
2018-08-01	09:00	77.6	71.7	81.1	0.0	77.3	74.8
2018-08-01	09:05	76.7	72.5	81.3	0.0	76.6	75.1
2018-08-01	09:10	81.9	74.0	88.1	0.0	79.6	76.6
2018-08-01	09:15	80.4	71.2	90.9	0.0	77.3	74.0
2018-08-01	09:20	76.3	72.4	80.1	0.0	76.1	73.5
2018-08-01	09:25	77.1	71.5	80.7	0.0	77.1	74.6
2018-08-01	09:30	76.6	71.9	84.1	0.0	76.4	74.2
2018-08-01	09:35	76.9	70.2	80.1	0.0	76.8	74.7
2018-08-01	09:40	77.1	70.7	82.5	0.0	77.0	74.6
2018-08-01	09:45	77.2	71.5	80.6	0.0	77.2	74.3
2018-08-01	09:50	76.8	70.5	79.3	0.0	76.9	74.2
2018-08-01	09:55	76.4	72.1	79.8	0.0	76.3	74.2
2018-08-01	10:00	76.5	68.1	80.5	0.0	76.4	73.8
2018-08-01	10:05	76.6	71.8	79.3	0.0	76.7	74.2
2018-08-01	10:10	76.1	67.9	80.5	0.0	75.9	73.6
2018-08-01	10:15	76.7	67.6	81.8	0.0	76.5	73.5
2018-08-01	10:20	76.6	70.4	79.6	0.0	76.6	73.7
2018-08-01	10:25	76.5	69.0	81.1	0.0	76.3	73.7
2018-08-01	10:30	76.8	69.5	80.0	0.0	76.8	74.3
2018-08-01	10:35	76.5	72.6	80.6	0.0	76.3	74.0
2018-08-01	10:40	77.0	72.9	80.2	0.0	76.9	74.5
2018-08-01	10:45	77.5	72.9	87.9	0.0	77.0	75.0
2018-08-01	10:50	76.9	72.3	81.3	0.0	76.8	74.9
2018-08-01	10:55	76.7	72.5	80.5	0.0	76.5	74.1
2018-08-01	11:00	76.4	70.2	80.3	0.0	76.4	73.3
2018-08-01	11:05	76.6	68.9	84.3	0.0	76.4	73.5
2018-08-01	11:10	76.5	71.8	80.7	0.0	76.2	74.1
2018-08-01	11:15	76.0	67.9	81.7	0.0	75.7	73.2
2018-08-01	11:20	76.5	70.1	82.4	0.0	76.4	73.6
2018-08-01	11:25	76.5	70.8	80.3	0.0	76.3	74.0
2018-08-01	11:30	76.4	71.4	79.6	0.0	76.3	73.5
2018-08-01	11:35	76.6	68.2	80.1	0.0	76.7	73.6
2018-08-01	11:40	76.8	71.8	80.8	0.0	76.4	73.9
2018-08-01	11:45	76.9	71.3	83.1	0.0	76.6	74.3
2018-08-01	11:50	76.5	68.3	80.6	0.0	76.3	73.2
2018-08-01	11:55	76.4	70.2	79.6	0.0	76.3	73.7
2018-08-01	12:00	76.5	70.5	79.7	0.0	76.3	73.6
2018-08-01	12:05	75.8	68.3	79.6	0.0	75.8	72.1
2018-08-01	12:10	76.4	69.7	82.7	0.0	76.0	73.3
2018-08-01	12:15	76.8	68.5	84.4	0.0	76.6	73.0
2018-08-01	12:20	75.9	67.5	80.4	0.0	75.6	72.1
2018-08-01	12:25	75.9	68.6	81.4	0.0	75.5	72.2
2018-08-01	12:30	76.7	70.0	81.4	0.0	76.5	74.3
2018-08-01	12:35	77.0	71.2	80.1	0.0	77.0	74.4
2018-08-01	12:40	76.5	71.5	79.4	0.0	76.5	73.8
2018-08-01	12:45	76.6	68.3	80.7	0.0	76.6	74.4
2018-08-01	12:50	76.8	73.0	80.5	0.0	76.8	74.7
2018-08-01	12:55	76.6	69.8	79.5	0.0	76.7	74.1
2018-08-01	13:00	76.7	69.9	81.4	0.0	76.6	74.3
2018-08-01	13:05	76.4	68.8	79.9	0.0	76.4	73.0
2018-08-01	13:10	76.7	71.8	80.4	0.0	76.6	74.3
2018-08-01	13:15	76.8	72.2	82.1	0.0	76.6	74.6
2018-08-01	13:20	77.0	70.5	80.5	0.0	76.8	74.2
2018-08-01	13:25	77.4	70.9	83.0	0.0	77.2	74.6
2018-08-01	13:30	76.8	72.0	81.4	0.0	76.7	74.7
2018-08-01	13:35	77.5	70.7	83.9	0.0	77.3	75.0
2018-08-01	13:40	77.2	73.5	80.5	0.0	77.0	75.2
2018-08-01	13:45	77.6	72.5	83.9	0.0	77.3	75.5
2018-08-01	13:50	78.2	72.3	91.4	0.0	77.0	75.1
2018-08-01	13:55	77.1	69.7	82.9	0.0	77.0	74.5
2018-08-01	14:00	76.9	71.4	79.7	0.0	76.8	75.2
2018-08-01	14:05	77.0	73.2	84.2	0.0	76.9	74.6
2018-08-01	14:10	77.1	73.8	80.1	0.0	77.0	75.3
2018-08-01	14:15	77.2	72.3	81.4	0.0	76.9	74.9
2018-08-01	14:20	77.3	71.1	83.2	0.0	77.1	74.3
2018-08-01	14:25	77.5	71.7	84.0	0.0	77.4	74.7
2018-08-01	14:30	78.0	71.6	87.6	0.0	77.4	74.4
2018-08-01	14:35	76.5	70.1	79.8	0.0	76.4	74.3
2018-08-01	14:40	77.1	71.2	83.3	0.0	76.8	73.9
2018-08-01	14:45	77.1	71.2	80.1	0.0	77.1	74.8
2018-08-01	14:50	76.8	71.3	80.7	0.0	76.6	74.2
2018-08-01	14:55	77.1	70.1	86.3	0.0	76.7	74.1
2018-08-01	15:00	76.9	73.0	81.8	0.0	76.7	74.6
2018-08-01	15:05	77.0	71.8	80.0	0.0	76.8	74.6
2018-08-01	15:10	76.7	70.7	79.9	0.0	76.5	74.7
2018-08-01	15:15	76.9	71.1	80.1	0.0	76.8	75.1
2018-08-01	15:20	76.4	72.0	80.4	0.0	76.0	74.2
2018-08-01	15:25	76.9	69.7	82.8	0.0	76.7	74.4
2018-08-01	15:30	77.5	71.6	86.5	0.0	77.2	75.2
2018-08-01	15:35	76.9	70.8	81.3	0.0	76.8	74.6
2018-08-01	15:40	76.8	70.4	80.2	0.0	76.9	73.9
2018-08-01	15:45	76.9	72.0	80.2	0.0	76.7	75.0
2018-08-01	15:50	77.0	71.8	86.9	0.0	76.2	73.3
2018-08-01	15:55	77.2	71.4	88.9	0.0	76.3	74.4
2018-08-01	16:00	76.5	72.8	82.3	0.0	76.3	74.5
2018-08-01	16:05	76.6	71.0	81.4	0.0	76.4	73.5
2018-08-01	16:10	77.4	73.4	81.7	0.0	77.2	75.3
2018-08-01	16:15	76.7	72.7	79.7	0.0	76.6	74.6
2018-08-01	16:20	76.3	68.8	80.3	0.0	76.2	73.4
2018-08-01	16:25	76.9	72.9	80.1	0.0	76.6	75.0
2018-08-01	16:30	76.3	69.4	80.6	0.0	76.1	73.8
2018-08-01	16:35	76.6	71.9	80.9	0.0	76.6	74.3
2018-08-01	16:40	76.4	69.2	79.8	0.0	76.3	74.0
2018-08-01	16:45	76.4	71.3	80.2	0.0	76.2	74.3
2018-08-01	16:50	76.6	70.7	80.2	0.0	76.5	74.5
2018-08-01	16:55	76.3	71.9	80.2	0.0	76.1	73.6
2018-08-01	17:00	76.6	71.4	79.2	0.0	76.6	74.1
2018-08-01	17:05	76.5	71.9	83.4	0.0	75.9	74.2
2018-08-01	17:10	76.3	70.6	80.5	0.0	76.3	74.1
2018-08-01	17:15	76.5	72.0	79.9	0.0	76.5	74.2
2018-08-01	17:20	77.4	74.1	82.6	0.0	77.2	75.5
2018-08-01	17:25	76.6	71.9	79.6	0.0	76.5	74.6
2018-08-01	17:30	76.6	70.9	86.2	0.0	76.1	73.7
2018-08-01	17:35	76.4	71.5	79.7	0.0	76.2	74.3
2018-08-01	17:40	76.5	72.1	79.2	0.0	76.5	74.8
2018-08-01	17:45	76.2	70.7	80.5	0.0	76.2	73.4
2018-08-01	17:50	76.3	71.7	79.9	0.0	76.3	73.7
2018-08-01	17:55	76.3	70.4	83.1	0.0	75.9	73.7

M4 – Day 2 (August 1 – August 2, 2018)
Measured Sound Pressure Level Data (dBA)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)	Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	18:00	77.4	71.7	87.2	0.0	77.1	75.0	2018-08-02	00:00	69.5	56.1	76.8	0.0	68.1	62.7
2018-08-01	18:05	77.2	72.5	88.3	0.0	76.5	74.5	2018-08-02	00:05	69.9	57.9	81.5	0.0	67.8	61.3
2018-08-01	18:10	76.7	71.3	80.3	0.0	76.5	74.3	2018-08-02	00:10	67.5	56.5	75.4	0.0	65.7	60.1
2018-08-01	18:15	76.6	70.8	79.6	0.0	76.6	74.4	2018-08-02	00:15	67.9	54.1	76.3	0.0	65.9	59.5
2018-08-01	18:20	76.9	72.5	80.5	0.0	76.8	74.4	2018-08-02	00:20	67.7	54.8	78.0	0.0	65.6	58.7
2018-08-01	18:25	76.2	72.4	78.9	0.0	76.2	74.2	2018-08-02	00:25	67.4	57.3	76.5	0.0	65.1	59.2
2018-08-01	18:30	76.3	72.1	79.5	0.0	76.1	74.2	2018-08-02	00:30	67.9	55.0	75.4	0.0	65.9	59.5
2018-08-01	18:35	76.6	71.8	84.2	0.0	76.4	74.2	2018-08-02	00:35	66.7	53.5	78.2	0.0	63.4	57.4
2018-08-01	18:40	77.0	72.2	85.0	0.0	76.6	74.5	2018-08-02	00:40	67.2	53.0	75.0	0.0	65.1	57.5
2018-08-01	18:45	76.7	69.3	80.1	0.0	76.6	74.1	2018-08-02	00:45	67.6	53.4	75.0	0.0	65.2	58.0
2018-08-01	18:50	76.6	71.2	80.1	0.0	76.5	74.0	2018-08-02	00:50	66.5	52.1	74.7	0.0	64.1	56.7
2018-08-01	18:55	76.7	69.8	79.8	0.0	76.5	74.3	2018-08-02	00:55	66.8	52.6	74.2	0.0	64.3	56.9
2018-08-01	19:00	76.7	68.7	80.9	0.0	76.6	73.5	2018-08-02	01:00	63.8	52.2	73.6	0.0	59.9	54.5
2018-08-01	19:05	76.1	68.3	83.3	0.0	75.8	72.7	2018-08-02	01:05	66.6	51.7	74.9	0.0	63.2	56.2
2018-08-01	19:10	75.9	69.4	80.9	0.0	75.6	72.5	2018-08-02	01:10	67.0	50.1	74.1	0.0	64.8	56.8
2018-08-01	19:15	75.4	68.3	80.8	0.0	75.2	72.4	2018-08-02	01:15	66.6	50.4	74.5	0.0	63.7	56.4
2018-08-01	19:20	75.4	68.3	79.7	0.0	75.2	72.6	2018-08-02	01:20	67.4	51.0	75.4	0.0	64.7	57.0
2018-08-01	19:25	76.1	70.7	80.9	0.0	75.8	73.1	2018-08-02	01:25	65.2	50.9	74.1	0.0	61.0	54.9
2018-08-01	19:30	76.2	69.4	86.7	0.0	75.6	72.6	2018-08-02	01:30	67.0	49.9	77.4	0.0	64.1	56.3
2018-08-01	19:35	76.4	68.8	80.0	0.0	76.3	73.1	2018-08-02	01:35	66.7	52.9	75.5	0.0	63.5	57.0
2018-08-01	19:40	76.0	70.1	79.5	0.0	76.0	72.6	2018-08-02	01:40	64.6	51.0	73.2	0.0	60.8	55.5
2018-08-01	19:45	75.9	69.3	80.8	0.0	75.7	72.8	2018-08-02	01:45	66.1	50.5	73.5	0.0	64.1	53.9
2018-08-01	19:50	76.0	67.9	80.4	0.0	76.0	72.9	2018-08-02	01:50	66.4	51.6	73.6	0.0	64.2	55.4
2018-08-01	19:55	76.1	68.4	82.5	0.0	75.8	72.2	2018-08-02	01:55	66.6	52.2	77.0	0.0	62.0	54.4
2018-08-01	20:00	75.9	68.9	81.3	0.0	75.7	72.7	2018-08-02	02:00	62.3	49.6	73.4	0.0	58.8	53.3
2018-08-01	20:05	77.3	69.1	87.8	0.0	75.8	73.3	2018-08-02	02:05	65.9	50.1	74.5	0.0	63.9	55.5
2018-08-01	20:10	77.7	67.9	91.0	0.0	76.2	72.4	2018-08-02	02:10	65.5	50.0	75.2	0.0	61.5	52.6
2018-08-01	20:15	75.4	67.7	78.7	0.0	75.3	72.6	2018-08-02	02:15	65.5	51.5	73.0	0.0	63.3	55.5
2018-08-01	20:20	75.4	64.9	79.6	0.0	75.2	71.9	2018-08-02	02:20	65.2	49.5	74.4	0.0	60.5	52.2
2018-08-01	20:25	75.6	71.6	80.1	0.0	75.4	72.8	2018-08-02	02:25	64.8	48.0	75.9	0.0	59.6	51.3
2018-08-01	20:30	75.1	63.5	83.4	0.0	74.7	71.1	2018-08-02	02:30	63.6	50.2	74.0	0.0	59.1	53.2
2018-08-01	20:35	75.0	69.0	79.4	0.0	74.7	71.0	2018-08-02	02:35	66.4	49.2	75.1	0.0	63.3	53.8
2018-08-01	20:40	74.6	63.9	78.4	0.0	74.5	71.1	2018-08-02	02:40	65.7	48.5	76.6	0.0	61.6	54.1
2018-08-01	20:45	74.5	66.2	80.8	0.0	74.2	71.4	2018-08-02	02:45	67.2	49.1	77.6	0.0	63.1	53.1
2018-08-01	20:50	74.3	63.3	78.5	0.0	73.9	70.1	2018-08-02	02:50	65.3	47.6	74.7	0.0	61.3	51.2
2018-08-01	20:55	74.2	67.6	78.5	0.0	74.0	70.5	2018-08-02	02:55	64.7	50.0	73.8	0.0	59.7	51.8
2018-08-01	21:00	74.4	68.8	78.2	0.0	74.1	71.2	2018-08-02	03:00	65.0	49.8	73.1	0.0	61.7	54.4
2018-08-01	21:05	73.3	65.0	77.8	0.0	73.1	69.2	2018-08-02	03:05	66.6	48.0	77.5	0.0	61.7	54.4
2018-08-01	21:10	73.4	67.6	78.2	0.0	73.0	70.0	2018-08-02	03:10	66.5	47.6	77.3	0.0	63.1	54.2
2018-08-01	21:15	73.6	63.8	78.8	0.0	73.5	68.9	2018-08-02	03:15	66.3	51.3	75.7	0.0	63.3	54.2
2018-08-01	21:20	73.2	64.0	78.7	0.0	72.6	68.3	2018-08-02	03:20	66.0	49.2	74.6	0.0	62.9	53.6
2018-08-01	21:25	73.7	62.1	77.8	0.0	73.4	69.6	2018-08-02	03:25	65.8	50.8	76.3	0.0	61.8	53.8
2018-08-01	21:30	73.6	64.4	79.8	0.0	73.1	69.4	2018-08-02	03:30	67.7	53.2	78.2	0.0	65.6	57.5
2018-08-01	21:35	73.7	65.4	81.4	0.0	73.3	68.4	2018-08-02	03:35	65.6	48.5	72.8	0.0	62.2	54.0
2018-08-01	21:40	73.1	60.8	78.1	0.0	72.5	67.3	2018-08-02	03:40	68.1	51.0	77.2	0.0	66.2	57.1
2018-08-01	21:45	72.9	65.3	78.2	0.0	72.5	68.0	2018-08-02	03:45	68.4	50.7	77.3	0.0	66.0	55.2
2018-08-01	21:50	73.7	63.6	79.4	0.0	73.2	68.6	2018-08-02	03:50	68.7	53.8	79.7	0.0	66.5	57.7
2018-08-01	21:55	73.2	62.7	77.9	0.0	72.8	67.9	2018-08-02	03:55	67.9	50.0	77.5	0.0	65.0	54.2
2018-08-01	22:00	73.4	63.1	78.9	0.0	72.6	66.9	2018-08-02	04:00	67.7	48.5	75.2	0.0	66.4	54.2
2018-08-01	22:05	73.3	61.7	77.7	0.0	72.9	68.9	2018-08-02	04:05	67.5	51.3	76.1	0.0	65.2	56.7
2018-08-01	22:10	72.7	64.0	79.2	0.0	72.3	66.7	2018-08-02	04:10	68.8	56.1	76.6	0.0	67.2	60.6
2018-08-01	22:15	72.4	61.7	77.2	0.0	72.0	67.3	2018-08-02	04:15	69.0	52.3	77.8	0.0	67.5	60.1
2018-08-01	22:20	72.1	62.3	78.0	0.0	71.6	66.1	2018-08-02	04:20	70.0	54.1	79.2	0.0	68.1	61.5
2018-08-01	22:25	72.7	65.5	77.9	0.0	71.9	68.5	2018-08-02	04:25	69.9	56.0	79.7	0.0	67.9	61.6
2018-08-01	22:30	72.3	63.2	76.7	0.0	72.0	67.5	2018-08-02	04:30	71.1	59.1	76.9	0.0	70.0	62.9
2018-08-01	22:35	71.8	62.4	77.7	0.0	70.8	67.1	2018-08-02	04:35	71.1	58.0	78.8	0.0	69.8	62.9
2018-08-01	22:40	72.5	63.9	77.7	0.0	72.2	67.5	2018-08-02	04:40	72.4	61.1	77.8	0.0	71.2	64.9
2018-08-01	22:45	72.8	61.3	78.7	0.0	71.9	65.7	2018-08-02	04:45	71.9	58.3	77.8	0.0	71.3	64.3
2018-08-01	22:50	71.6	61.5	76.0	0.0	71.1	67.5	2018-08-02	04:50	73.2	56.1	78.6	0.0	72.5	65.8
2018-08-01	22:55	71.3	59.1	77.0	0.0	69.7	64.2	2018-08-02	04:55	72.1	58.6	79.3	0.0	70.7	65.5
2018-08-01	23:00	70.9	61.2	77.7	0.0	70.2	65.4	2018-08-02	05:00	72.4	57.6	77.6	0.0	71.6	65.0
2018-08-01	23:05	70.8	56.8	77.8	0.0	70.0	65.3	2018-08-02	05:05	73.5	60.8	78.5	0.0	72.7	66.6
2018-08-01	23:10	70.2	57.0	77.4	0.0	69.4	64.1	2018-08-02	05:10	73.6	55.3	84.8	0.0	72.2	65.5
2018-08-01	23:15	70.6	60.5	77.1	0.0	69.0	64.9	2018-08-02	05:15	74.0	62.1	82.6	0.0	73.1	68.1
2018-08-01	23:20	71.3	62.0	78.5	0.0	70.2	64.7	2018-08-02	05:20	74.7	66.7	80.2	0.0	74.3	69.6
2018-08-01	23:25	70.4	61.1	76.9	0.0	69.6	64.0	2018-08-02	05:25	75.4	63.7	81.8	0.0	74.7	70.8
2018-08-01	23:30	69.9	58.4	76.1	0.0	68.7	62.4	2018-08-02	05:30	75.2	63.5	80.0	0.0	75.1	69.8
2018-08-01	23:35	68.6	55.0	76.4	0.0	67.1	60.2	2018-08-02	05:35	75.8	68.3	80.8	0.0	75.7	71.6
2018-08-01	23:40	69.2	57.8	75.4	0.0	68.1	62.2	2018-08-02	05:40	76.2	67.5	83.7	0.0	75.7	72.2
2018-08-01	23:45	68.9	58.5	76.3	0.0	66.9	60.8	2018-08-02	05:45	76.5	67.5	81.5	0.0	76.2	72.2
2018-08-01	23:50	69.4	57.8	77.4	0.0	67.8	61.1	2018-08-02	05:50	76.4	70.8	82.6	0.0	76.1	72.9
2018-08-01	23:55	69.2	53.6	77.5	0.0	67.0	60.5	2018-08-02	05:55	76.5	69.1	81.0	0.0	76.4	73.4

M4 – Day 2 (August 1 – August 2, 2018) – Cont.

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	06:00	75.8	67.3	81.0	0.0	75.5	72.0
2018-08-02	06:05	76.3	69.8	80.7	0.0	76.0	73.1
2018-08-02	06:10	76.6	65.9	80.3	0.0	76.6	73.2
2018-08-02	06:15	77.4	71.7	84.8	0.0	76.9	74.4
2018-08-02	06:20	77.4	72.1	81.2	0.0	77.1	74.6
2018-08-02	06:25	77.0	68.7	81.9	0.0	76.9	73.8
2018-08-02	06:30	77.7	70.2	81.1	0.0	77.7	75.5
2018-08-02	06:35	78.0	70.8	88.2	0.0	77.3	74.8
2018-08-02	06:40	77.8	72.6	82.6	0.0	77.6	74.6
2018-08-02	06:45	78.6	74.3	86.8	0.0	78.0	76.1
2018-08-02	06:50	78.8	70.6	94.8	0.0	77.4	74.9
2018-08-02	06:55	76.7	72.6	80.7	0.0	76.4	74.1
2018-08-02	07:00	76.3	71.9	79.6	0.0	75.9	74.3
2018-08-02	07:05	77.2	72.3	80.9	0.0	77.2	74.4
2018-08-02	07:10	77.4	70.8	80.8	0.0	77.3	75.4
2018-08-02	07:15	77.1	73.7	82.9	0.0	76.9	75.6
2018-08-02	07:20	77.4	74.2	80.1	0.0	77.2	75.8
2018-08-02	07:25	76.5	72.3	82.9	0.0	76.0	74.5
2018-08-02	07:30	76.6	73.4	83.9	0.0	76.6	75.0
2018-08-02	07:35	75.8	72.4	79.6	0.0	75.6	74.1
2018-08-02	07:40	76.8	73.8	79.8	0.0	76.7	75.2
2018-08-02	07:45	76.5	73.4	78.9	0.0	76.4	74.8
2018-08-02	07:50	76.5	73.6	79.8	0.0	76.3	74.6
2018-08-02	07:55	76.6	72.7	79.8	0.0	76.5	74.7
2018-08-02	08:00	76.8	73.2	80.1	0.0	76.6	75.1
2018-08-02	08:05	76.7	72.7	81.7	0.0	76.6	75.0
2018-08-02	08:10	77.2	72.3	80.5	0.0	77.1	75.5
2018-08-02	08:15	76.9	73.1	83.2	0.0	76.7	74.9
2018-08-02	08:20	77.2	73.7	79.7	0.0	77.2	75.5
2018-08-02	08:25	77.2	73.6	83.7	0.0	76.9	75.3
2018-08-02	08:30	76.5	72.5	79.6	0.0	76.4	74.6
2018-08-02	08:35	77.9	74.0	87.4	0.0	77.3	75.7
2018-08-02	08:40	76.1	72.0	79.7	0.0	75.9	73.9
2018-08-02	08:45	77.2	72.3	83.8	0.0	76.9	75.3
2018-08-02	08:50	76.6	72.8	80.3	0.0	76.4	74.5
2018-08-02	08:55	76.7	73.3	80.7	0.0	76.5	74.6
2018-08-02	09:00	76.7	73.5	82.6	0.0	76.5	74.6
2018-08-02	09:05	75.9	71.6	86.2	0.0	75.1	73.3
2018-08-02	09:10	76.4	71.8	80.6	0.0	76.2	74.5
2018-08-02	09:15	77.4	72.0	88.3	0.0	76.6	74.3
2018-08-02	09:20	77.3	72.7	85.5	0.0	76.8	74.6
2018-08-02	09:25	77.0	71.7	79.6	0.0	76.9	74.9
2018-08-02	09:30	77.5	70.9	81.4	0.0	77.3	75.1
2018-08-02	09:35	77.2	72.4	80.4	0.0	77.1	74.8
2018-08-02	09:40	77.1	70.1	79.7	0.0	76.9	74.7
2018-08-02	09:45	76.8	70.7	81.7	0.0	76.5	73.3
2018-08-02	09:50	76.9	70.4	80.5	0.0	76.8	74.3
2018-08-02	09:55	76.8	71.6	80.1	0.0	76.7	74.4
2018-08-02	10:00	77.5	70.4	85.6	0.0	77.3	74.9
2018-08-02	10:05	77.7	67.5	88.9	0.0	76.9	74.2
2018-08-02	10:10	76.5	70.4	79.2	0.0	76.6	74.0
2018-08-02	10:15	76.6	71.6	80.4	0.0	76.5	74.1
2018-08-02	10:20	76.7	71.5	80.3	0.0	76.6	73.7
2018-08-02	10:25	77.3	71.4	83.6	0.0	77.2	74.9
2018-08-02	10:30	76.9	71.6	81.8	0.0	76.6	74.1
2018-08-02	10:35	76.9	71.9	81.1	0.0	76.7	74.4
2018-08-02	10:40	77.6	71.5	82.9	0.0	77.4	75.1
2018-08-02	10:45	76.6	70.3	84.4	0.0	76.5	73.4
2018-08-02	10:50	77.2	68.4	84.5	0.0	76.9	74.0
2018-08-02	10:55	76.7	69.8	83.7	0.0	76.5	74.0
2018-08-02	11:00	76.6	70.8	80.8	0.0	76.4	73.5
2018-08-02	11:05	76.8	71.5	80.4	0.0	76.6	74.1
2018-08-02	11:10	76.8	71.3	82.9	0.0	76.5	74.0
2018-08-02	11:15	76.4	69.2	80.8	0.0	76.2	73.3
2018-08-02	11:20	76.5	70.8	81.3	0.0	76.2	73.1
2018-08-02	11:25	75.9	68.9	80.7	0.0	75.9	72.9
2018-08-02	11:30	75.9	66.9	80.2	0.0	75.8	72.6
2018-08-02	11:35	76.1	70.2	79.7	0.0	76.0	73.0
2018-08-02	11:40	77.0	70.7	85.5	0.0	76.7	74.1
2018-08-02	11:45	76.0	71.1	80.2	0.0	75.7	73.3
2018-08-02	11:50	76.5	67.6	82.2	0.0	76.3	73.4
2018-08-02	11:55	76.2	69.5	80.1	0.0	76.2	72.3
2018-08-02	12:00	76.6	70.2	81.6	0.0	76.4	73.5
2018-08-02	12:05	76.7	69.1	79.7	0.0	76.7	73.4
2018-08-02	12:10	76.7	70.6	85.5	0.0	76.2	73.4
2018-08-02	12:15	76.8	68.9	85.9	0.0	76.4	73.9
2018-08-02	12:20	76.9	71.4	82.4	0.0	76.7	74.1
2018-08-02	12:25	75.9	70.6	79.4	0.0	75.8	73.0
2018-08-02	12:30	76.9	72.1	80.1	0.0	77.1	74.3
2018-08-02	12:35	76.9	68.3	81.0	0.0	76.9	74.8
2018-08-02	12:40	77.0	71.1	83.8	0.0	77.0	73.8
2018-08-02	12:45	76.7	71.5	80.3	0.0	76.6	74.0
2018-08-02	12:50	75.9	67.0	79.7	0.0	75.7	72.1
2018-08-02	12:55	76.3	69.9	79.3	0.0	76.3	74.1
2018-08-02	13:00	76.6	71.3	84.7	0.0	76.1	73.9
2018-08-02	13:05	77.0	71.5	84.2	0.0	77.0	74.4
2018-08-02	13:10	76.7	72.2	79.9	0.0	76.6	74.4
2018-08-02	13:15	76.7	70.3	80.9	0.0	76.6	74.2
2018-08-02	13:20	76.5	71.1	79.9	0.0	76.4	74.2
2018-08-02	13:25	76.7	72.3	80.2	0.0	76.6	74.8
2018-08-02	13:30	76.8	72.7	80.3	0.0	76.6	74.7
2018-08-02	13:35	77.0	71.2	85.3	0.0	76.8	74.9
2018-08-02	13:40	77.4	73.3	82.8	0.0	77.3	75.1
2018-08-02	13:45	76.8	72.3	80.2	0.0	76.6	74.7
2018-08-02	13:50	76.5	73.6	79.9	0.0	76.2	74.6
2018-08-02	13:55	77.3	72.1	86.5	0.0	77.0	74.9
2018-08-02	14:00	77.6	73.1	94.0	0.0	77.0	75.3
2018-08-02	14:05	85.9	71.2	107.5	0.0	77.9	75.4
2018-08-02	14:10	77.0	72.2	79.7	0.0	76.9	74.8
2018-08-02	14:15	76.6	72.3	80.1	0.0	76.5	74.0
2018-08-02	14:20	76.4	71.8	81.2	0.0	76.1	73.5
2018-08-02	14:25	76.8	71.6	83.5	0.0	76.4	74.1
2018-08-02	14:30	76.8	71.6	79.7	0.0	76.6	74.6
2018-08-02	14:35	77.1	71.9	87.1	0.0	76.7	74.3
2018-08-02	14:40	77.3	72.5	80.8	0.0	77.3	75.0
2018-08-02	14:45	77.5	72.5	85.0	0.0	77.2	75.0
2018-08-02	14:50	76.8	67.9	80.9	0.0	76.6	74.5
2018-08-02	14:55	76.8	72.2	80.7	0.0	76.6	74.7
2018-08-02	15:00	76.9	72.9	81.2	0.0	76.8	74.6
2018-08-02	15:05	76.6	71.9	80.0	0.0	76.4	74.3
2018-08-02	15:10	76.8	71.1	83.4	0.0	76.7	74.2
2018-08-02	15:15	76.8	71.6	79.4	0.0	76.8	74.6
2018-08-02	15:20	77.4	71.8	86.8	0.0	77.1	75.1
2018-08-02	15:25	77.1	73.3	83.8	0.0	76.8	75.1
2018-08-02	15:30	76.8	73.0	79.5	0.0	76.7	74.8
2018-08-02	15:35	76.4	72.8	83.4	0.0	75.9	74.0
2018-08-02	15:40	76.9	71.8	83.8	0.0	76.7	74.3
2018-08-02	15:45	76.2	70.9	79.2	0.0	76.1	74.4
2018-08-02	15:50	76.3	70.4	81.1	0.0	76.3	73.4
2018-08-02	15:55	76.7	72.2	81.4	0.0	76.5	74.6
2018-08-02	16:00	76.5	71.3	80.4	0.0	76.4	74.0
2018-08-02	16:05	76.9	72.2	80.8	0.0	76.8	74.7
2018-08-02	16:10	76.4	72.1	80.7	0.0	76.2	73.8
2018-08-02	16:15	76.2	73.3	79.1	0.0	76.1	74.3
2018-08-02	16:20	76.5	70.9	89.0	0.0	75.5	73.5
2018-08-02	16:25	76.2	71.6	79.6	0.0	76.1	74.1
2018-08-02	16:30	76.1	72.2	79.4	0.0	76.0	73.8
2018-08-02	16:35	76.9	72.8	85.7	0.0	76.6	74.8
2018-08-02	16:40	76.5	71.1	79.1	0.0	76.4	74.5
2018-08-02	16:45	78.4	71.1	95.4	0.0	76.4	74.3
2018-08-02	16:50	76.2	71.9	79.4	0.0	76.0	74.4
2018-08-02	16:55	75.9	71.5	79.8	0.0	75.7	74.0
2018-08-02	17:00	75.2	68.7	79.9	0.0	74.8	72.6
2018-08-02	17:05	76.2	70.5	79.3	0.0	76.1	74.3
2018-08-02	17:10	73.9	69.9	76.6	0.0	73.9	72.2
2018-08-02	17:15	73.4	70.3	77.5	0.0	73.0	71.2
2018-08-02	17:20	76.6	71.6	80.1	0.0	76.5	74.2
2018-08-02	17:25	77.3	70.3	85.5	0.0	76.7	74.4
2018-08-02	17:30	76.3	72.2	83.2	0.0	75.8	74.1
2018-08-02	17:35	77.4	69.8	90.8	0.0	76.3	74.1
2018-08-02	17:40	76.1	70.7	79.9	0.0	76.0	74.0
2018-08-02	17:45	76.2	71.2	79.8	0.0	76.0	73.9
2018-08-02	17:50	76.5	71.6	79.1	0.0	76.6	74.1
2018-08-02	17:55	76.3	70.5	79.7	0.0	76.2	74.1

M9 (July 31 – August 1, 2018)
Measured Sound Pressure Level Data (dBA)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)	Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-07-31	18:00	65.6	61.6	77.6	0.0	64.3	62.5	2018-08-01	00:00	57.9	52.4	65.6	0.0	56.5	53.8
2018-07-31	18:05	65.1	62.2	72.9	0.0	64.5	62.7	2018-08-01	00:05	60.5	52.4	75.4	0.0	57.1	54.2
2018-07-31	18:10	64.9	60.8	73.1	0.0	64.1	62.0	2018-08-01	00:10	57.9	52.4	67.6	0.0	56.1	54.0
2018-07-31	18:15	64.7	61.2	74.2	0.0	63.7	62.1	2018-08-01	00:15	56.4	51.8	65.0	0.0	54.8	52.9
2018-07-31	18:20	64.4	60.8	71.6	0.0	63.9	62.1	2018-08-01	00:20	57.7	52.1	68.0	0.0	56.2	53.3
2018-07-31	18:25	64.7	61.2	71.9	0.0	64.2	62.3	2018-08-01	00:25	56.8	50.8	65.0	0.0	54.9	52.3
2018-07-31	18:30	64.7	61.4	74.2	0.0	63.8	62.2	2018-08-01	00:30	55.3	50.1	61.0	0.0	54.3	51.3
2018-07-31	18:35	64.0	60.3	70.6	0.0	63.4	61.4	2018-08-01	00:35	57.5	50.6	69.4	0.0	55.1	52.3
2018-07-31	18:40	64.6	61.2	70.4	0.0	64.3	62.6	2018-08-01	00:40	55.9	50.8	67.8	0.0	53.7	52.0
2018-07-31	18:45	64.9	61.7	78.8	0.0	64.0	62.5	2018-08-01	00:45	55.7	49.1	64.1	0.0	53.7	51.0
2018-07-31	18:50	68.5	61.2	87.1	0.0	63.9	62.0	2018-08-01	00:50	55.8	50.3	63.0	0.0	53.9	51.3
2018-07-31	18:55	64.1	61.1	71.2	0.0	63.6	62.1	2018-08-01	00:55	57.0	49.1	73.6	0.0	52.8	50.3
2018-07-31	19:00	63.9	61.5	70.6	0.0	63.6	62.3	2018-08-01	01:00	56.3	49.9	63.4	0.0	54.6	51.2
2018-07-31	19:05	63.9	60.7	71.5	0.0	63.4	61.9	2018-08-01	01:05	54.0	49.4	61.3	0.0	53.0	50.6
2018-07-31	19:10	63.2	60.5	68.0	0.0	62.7	61.1	2018-08-01	01:10	55.1	49.0	61.4	0.0	53.4	50.4
2018-07-31	19:15	63.8	59.9	72.5	0.0	62.6	60.6	2018-08-01	01:15	53.5	48.6	63.5	0.0	51.7	49.5
2018-07-31	19:20	62.5	59.4	67.3	0.0	62.2	60.9	2018-08-01	01:20	52.7	47.3	63.3	0.0	50.6	48.2
2018-07-31	19:25	62.9	58.8	72.4	0.0	61.7	60.1	2018-08-01	01:25	54.3	47.3	62.5	0.0	52.5	48.5
2018-07-31	19:30	63.2	58.3	73.8	0.0	61.8	59.5	2018-08-01	01:30	52.3	47.4	61.8	0.0	50.2	48.4
2018-07-31	19:35	62.5	59.3	70.2	0.0	61.9	60.1	2018-08-01	01:35	56.1	48.1	65.4	0.0	53.0	50.4
2018-07-31	19:40	62.1	58.1	68.5	0.0	61.2	59.4	2018-08-01	01:40	55.1	46.6	65.8	0.0	52.7	48.9
2018-07-31	19:45	61.9	57.5	66.9	0.0	61.4	58.9	2018-08-01	01:45	53.4	46.6	62.1	0.0	50.5	48.0
2018-07-31	19:50	61.9	58.3	78.3	0.0	60.9	59.2	2018-08-01	01:50	52.3	47.0	62.0	0.0	50.9	48.6
2018-07-31	19:55	60.7	57.3	64.4	0.0	60.5	58.7	2018-08-01	01:55	55.5	47.2	66.5	0.0	52.1	48.5
2018-07-31	20:00	62.0	57.6	69.9	0.0	61.3	59.4	2018-08-01	02:00	53.3	47.4	63.9	0.0	50.6	48.3
2018-07-31	20:05	61.2	58.4	66.1	0.0	60.7	59.2	2018-08-01	02:05	54.2	48.2	61.2	0.0	51.9	49.4
2018-07-31	20:10	60.7	56.9	65.2	0.0	60.3	58.4	2018-08-01	02:10	58.0	47.7	76.9	0.0	52.6	48.7
2018-07-31	20:15	61.2	56.3	68.1	0.0	60.6	58.9	2018-08-01	02:15	54.1	46.6	66.6	0.0	50.9	48.2
2018-07-31	20:20	62.0	58.0	70.0	0.0	61.3	59.5	2018-08-01	02:20	52.2	47.2	61.9	0.0	50.2	48.4
2018-07-31	20:25	63.5	57.2	74.0	0.0	61.6	58.7	2018-08-01	02:25	54.0	45.6	67.0	0.0	51.1	47.6
2018-07-31	20:30	66.0	57.2	83.0	0.0	61.1	58.5	2018-08-01	02:30	53.0	47.7	62.4	0.0	51.1	49.0
2018-07-31	20:35	61.5	56.6	73.2	0.0	60.3	57.9	2018-08-01	02:35	54.6	46.6	65.5	0.0	50.0	47.3
2018-07-31	20:40	60.4	56.4	65.5	0.0	60.1	57.8	2018-08-01	02:40	61.3	46.4	77.7	0.0	50.5	48.1
2018-07-31	20:45	61.9	56.2	69.6	0.0	60.6	57.9	2018-08-01	02:45	54.8	47.1	62.1	0.0	52.7	49.7
2018-07-31	20:50	61.6	57.6	71.6	0.0	60.7	58.5	2018-08-01	02:50	54.9	46.9	63.7	0.0	52.1	49.2
2018-07-31	20:55	61.5	57.5	69.1	0.0	60.4	58.4	2018-08-01	02:55	57.9	47.9	73.2	0.0	52.5	49.2
2018-07-31	21:00	64.0	58.2	78.4	0.0	61.3	59.2	2018-08-01	03:00	52.5	46.9	58.5	0.0	51.9	49.3
2018-07-31	21:05	61.4	56.7	66.2	0.0	60.9	58.1	2018-08-01	03:05	55.7	48.2	64.6	0.0	52.8	49.7
2018-07-31	21:10	61.1	57.8	66.2	0.0	60.7	58.5	2018-08-01	03:10	52.7	47.9	60.4	0.0	51.6	48.8
2018-07-31	21:15	61.1	55.7	67.3	0.0	60.3	57.7	2018-08-01	03:15	54.4	46.4	65.0	0.0	52.0	49.2
2018-07-31	21:20	62.2	58.1	73.3	0.0	61.3	59.1	2018-08-01	03:20	54.7	48.2	65.7	0.0	51.6	49.0
2018-07-31	21:25	63.0	57.4	76.1	0.0	60.3	58.5	2018-08-01	03:25	54.2	48.5	61.6	0.0	52.6	50.1
2018-07-31	21:30	62.1	55.7	75.8	0.0	60.4	58.3	2018-08-01	03:30	54.7	49.5	64.4	0.0	52.2	50.4
2018-07-31	21:35	62.0	57.6	70.6	0.0	61.2	59.2	2018-08-01	03:35	58.7	48.2	69.9	0.0	54.3	50.3
2018-07-31	21:40	61.1	56.5	71.8	0.0	60.0	57.8	2018-08-01	03:40	52.9	47.1	61.2	0.0	51.0	48.7
2018-07-31	21:45	62.1	56.6	75.2	0.0	60.7	58.4	2018-08-01	03:45	54.9	47.6	63.0	0.0	52.0	49.3
2018-07-31	21:50	62.1	56.6	75.6	0.0	60.5	58.4	2018-08-01	03:50	54.9	47.6	69.6	0.0	52.4	49.3
2018-07-31	21:55	61.2	56.0	72.1	0.0	59.5	57.2	2018-08-01	03:55	53.8	48.8	66.5	0.0	52.8	50.4
2018-07-31	22:00	59.9	54.8	67.1	0.0	59.0	56.4	2018-08-01	04:00	53.3	48.3	61.7	0.0	52.3	49.5
2018-07-31	22:05	60.7	55.8	71.3	0.0	60.0	57.1	2018-08-01	04:05	55.3	49.0	64.0	0.0	53.3	51.1
2018-07-31	22:10	61.3	56.1	75.4	0.0	59.3	56.9	2018-08-01	04:10	56.9	49.0	65.5	0.0	53.7	50.2
2018-07-31	22:15	60.6	56.2	69.9	0.0	59.2	57.0	2018-08-01	04:15	57.8	50.0	66.7	0.0	56.3	52.2
2018-07-31	22:20	60.6	54.4	68.3	0.0	59.8	57.1	2018-08-01	04:20	59.6	49.2	76.2	0.0	55.4	51.4
2018-07-31	22:25	62.0	56.9	75.3	0.0	59.9	57.9	2018-08-01	04:25	55.0	50.1	63.6	0.0	53.7	51.4
2018-07-31	22:30	60.4	56.8	68.3	0.0	59.7	57.6	2018-08-01	04:30	56.8	49.6	65.5	0.0	55.2	52.2
2018-07-31	22:35	59.4	54.1	65.8	0.0	58.6	55.7	2018-08-01	04:35	56.9	50.6	68.8	0.0	54.3	51.8
2018-07-31	22:40	61.1	56.1	74.7	0.0	59.9	57.3	2018-08-01	04:40	58.8	52.0	75.8	0.0	54.7	53.1
2018-07-31	22:45	59.6	54.8	64.9	0.0	58.9	56.4	2018-08-01	04:45	59.4	52.0	72.2	0.0	56.1	53.4
2018-07-31	22:50	63.0	55.9	79.3	0.0	59.7	57.1	2018-08-01	04:50	56.9	52.6	63.5	0.0	55.6	53.6
2018-07-31	22:55	59.2	55.2	65.7	0.0	58.1	56.2	2018-08-01	04:55	56.4	52.3	64.5	0.0	55.1	53.5
2018-07-31	23:00	59.3	54.8	64.7	0.0	58.7	56.4	2018-08-01	05:00	57.9	52.3	66.6	0.0	55.6	53.5
2018-07-31	23:05	59.6	55.5	64.8	0.0	58.9	56.6	2018-08-01	05:05	58.2	52.3	68.8	0.0	56.1	53.7
2018-07-31	23:10	60.3	54.9	69.4	0.0	59.3	57.0	2018-08-01	05:10	58.6	54.2	65.5	0.0	57.1	55.2
2018-07-31	23:15	59.1	54.2	64.5	0.0	58.4	56.3	2018-08-01	05:15	59.0	54.7	65.7	0.0	57.7	55.8
2018-07-31	23:20	58.7	52.4	67.4	0.0	57.6	54.7	2018-08-01	05:20	58.9	53.5	65.6	0.0	57.9	55.1
2018-07-31	23:25	59.6	54.4	71.4	0.0	57.6	55.3	2018-08-01	05:25	60.9	53.5	71.8	0.0	58.8	56.3
2018-07-31	23:30	58.2	53.7	63.2	0.0	57.6	55.5	2018-08-01	05:30	60.5	56.7	66.2	0.0	59.8	57.7
2018-07-31	23:35	59.7	52.7	74.4	0.0	57.6	55.0	2018-08-01	05:35	60.7	55.5	68.2	0.0	59.6	57.3
2018-07-31	23:40	58.4	53.4	64.3	0.0	57.8	55.2	2018-08-01	05:40	60.6	56.1	65.7	0.0	60.0	57.8
2018-07-31	23:45	59.3	53.1	69.0	0.0	58.1	54.9	2018-08-01	05:45	60.9	56.5	71.5	0.0	59.6	58.1
2018-07-31	23:50	57.9	53.0	63.4	0.0	56.7	54.8	2018-08-01	05:50	60.6	56.8	67.1	0.0	59.4	57.6
2018-07-31	23:55	58.6	52.3	65.8	0.0	57.4	54.4	2018-08-01	05:55	61.3	55.6	69.5	0.0	59.7	57.3

M9 (July 31 – August 1, 2018) – Cont.

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)	Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	06:00	61.3	55.5	66.8	0.0	60.3	57.6	2018-08-01	12:00	63.8	58.0	74.1	0.0	62.2	59.7
2018-08-01	06:05	62.1	56.3	71.1	0.0	60.1	58.0	2018-08-01	12:05	70.4	57.2	90.3	0.0	62.8	58.8
2018-08-01	06:10	64.7	56.6	77.1	0.0	61.6	58.1	2018-08-01	12:10	64.2	58.5	77.1	0.0	62.5	59.6
2018-08-01	06:15	61.6	57.6	68.5	0.0	60.6	58.8	2018-08-01	12:15	65.0	58.7	79.6	0.0	62.7	59.9
2018-08-01	06:20	63.8	58.3	75.1	0.0	61.9	59.4	2018-08-01	12:20	69.7	58.4	90.0	0.0	63.1	60.8
2018-08-01	06:25	62.6	58.6	67.0	0.0	62.2	59.8	2018-08-01	12:25	64.3	58.7	76.7	0.0	62.3	60.0
2018-08-01	06:30	63.3	58.5	67.8	0.0	62.9	60.5	2018-08-01	12:30	65.0	59.4	73.7	0.0	63.6	61.1
2018-08-01	06:35	64.6	58.1	79.2	0.0	62.1	60.2	2018-08-01	12:35	64.0	60.1	74.6	0.0	63.1	61.2
2018-08-01	06:40	66.6	58.6	85.1	0.0	62.9	60.3	2018-08-01	12:40	64.6	58.5	71.6	0.0	63.9	60.8
2018-08-01	06:45	64.1	59.1	73.1	0.0	63.2	60.4	2018-08-01	12:45	63.5	58.6	75.0	0.0	62.5	60.4
2018-08-01	06:50	63.7	59.0	70.3	0.0	63.0	60.4	2018-08-01	12:50	68.0	59.6	81.9	0.0	63.9	61.3
2018-08-01	06:55	64.0	59.6	69.2	0.0	63.3	61.1	2018-08-01	12:55	64.3	57.5	78.4	0.0	62.6	60.2
2018-08-01	07:00	64.6	59.3	72.2	0.0	64.1	61.1	2018-08-01	13:00	66.2	60.8	78.1	0.0	64.2	61.5
2018-08-01	07:05	67.6	58.8	80.9	0.0	63.3	60.1	2018-08-01	13:05	64.4	57.9	74.4	0.0	63.3	60.5
2018-08-01	07:10	66.2	58.2	79.5	0.0	62.8	60.0	2018-08-01	13:10	63.7	59.5	69.4	0.0	63.4	60.8
2018-08-01	07:15	64.3	58.4	73.7	0.0	63.3	60.0	2018-08-01	13:15	63.5	59.5	70.3	0.0	63.0	60.7
2018-08-01	07:20	64.2	58.7	69.4	0.0	63.6	60.6	2018-08-01	13:20	66.7	59.5	80.5	0.0	63.6	61.1
2018-08-01	07:25	66.1	58.4	82.8	0.0	63.5	60.3	2018-08-01	13:25	65.9	59.2	76.3	0.0	63.5	60.6
2018-08-01	07:30	63.8	56.6	75.8	0.0	62.2	58.6	2018-08-01	13:30	76.2	59.7	95.8	0.0	64.6	61.5
2018-08-01	07:35	66.5	58.3	83.3	0.0	64.2	60.4	2018-08-01	13:35	64.0	59.8	78.2	0.0	62.4	60.7
2018-08-01	07:40	63.9	58.2	70.3	0.0	63.3	60.6	2018-08-01	13:40	65.5	60.2	75.7	0.0	63.7	61.9
2018-08-01	07:45	64.2	56.3	73.1	0.0	62.6	59.0	2018-08-01	13:45	64.9	57.9	80.9	0.0	63.2	61.1
2018-08-01	07:50	66.3	57.6	77.6	0.0	63.0	59.4	2018-08-01	13:50	65.1	59.7	76.2	0.0	63.6	61.1
2018-08-01	07:55	64.4	57.4	74.0	0.0	62.8	60.2	2018-08-01	13:55	75.1	58.3	95.4	0.0	64.2	61.0
2018-08-01	08:00	65.2	59.5	76.3	0.0	63.5	60.8	2018-08-01	14:00	65.4	60.1	79.3	0.0	64.2	61.7
2018-08-01	08:05	67.9	57.8	84.0	0.0	63.7	60.1	2018-08-01	14:05	66.1	58.9	81.6	0.0	63.1	60.5
2018-08-01	08:10	64.2	58.3	72.7	0.0	63.2	60.0	2018-08-01	14:10	64.5	59.4	75.5	0.0	63.1	61.2
2018-08-01	08:15	63.9	56.2	71.2	0.0	62.8	58.8	2018-08-01	14:15	66.1	60.9	81.9	0.0	63.8	62.1
2018-08-01	08:20	63.3	55.1	75.3	0.0	61.9	56.8	2018-08-01	14:20	66.6	60.1	73.6	0.0	65.1	61.9
2018-08-01	08:25	64.6	56.6	74.0	0.0	63.0	59.0	2018-08-01	14:25	65.8	59.6	75.3	0.0	63.7	61.3
2018-08-01	08:30	65.5	58.8	76.2	0.0	63.7	60.4	2018-08-01	14:30	66.5	61.7	77.7	0.0	64.4	62.6
2018-08-01	08:35	64.5	58.0	76.0	0.0	62.8	60.1	2018-08-01	14:35	65.5	59.8	77.7	0.0	63.8	60.6
2018-08-01	08:40	64.9	57.3	76.7	0.0	62.8	59.5	2018-08-01	14:40	65.7	59.8	72.7	0.0	64.7	62.4
2018-08-01	08:45	65.0	58.2	75.0	0.0	63.3	60.3	2018-08-01	14:45	66.6	60.7	78.5	0.0	64.3	62.2
2018-08-01	08:50	64.4	58.6	72.8	0.0	63.8	61.5	2018-08-01	14:50	64.3	60.5	75.7	0.0	63.6	61.5
2018-08-01	08:55	64.4	58.1	74.0	0.0	62.8	60.1	2018-08-01	14:55	65.5	60.3	78.6	0.0	63.9	61.8
2018-08-01	09:00	63.7	58.6	75.2	0.0	62.4	60.1	2018-08-01	15:00	68.7	60.5	85.7	0.0	63.9	61.6
2018-08-01	09:05	63.8	57.5	74.5	0.0	63.0	59.0	2018-08-01	15:05	64.8	60.4	74.1	0.0	63.5	61.5
2018-08-01	09:10	64.8	58.1	74.0	0.0	63.3	59.4	2018-08-01	15:10	63.5	59.6	67.5	0.0	63.2	61.3
2018-08-01	09:15	62.7	55.8	72.1	0.0	61.5	57.4	2018-08-01	15:15	64.4	59.1	75.8	0.0	63.1	60.6
2018-08-01	09:20	62.2	54.6	68.0	0.0	61.7	56.9	2018-08-01	15:20	64.0	59.3	73.5	0.0	63.1	61.1
2018-08-01	09:25	62.9	57.5	72.9	0.0	61.2	58.7	2018-08-01	15:25	63.1	59.0	70.2	0.0	62.5	61.0
2018-08-01	09:30	63.7	56.9	75.6	0.0	61.6	58.3	2018-08-01	15:30	63.8	59.8	69.5	0.0	63.2	60.8
2018-08-01	09:35	62.4	56.0	69.0	0.0	61.8	58.0	2018-08-01	15:35	64.3	59.9	69.5	0.0	63.3	61.4
2018-08-01	09:40	64.9	57.9	80.5	0.0	62.1	58.6	2018-08-01	15:40	63.7	59.3	69.3	0.0	63.1	60.6
2018-08-01	09:45	63.5	57.4	73.1	0.0	62.4	59.6	2018-08-01	15:45	64.8	60.6	72.6	0.0	63.9	61.7
2018-08-01	09:50	62.2	56.6	70.4	0.0	61.1	58.4	2018-08-01	15:50	64.2	59.7	70.7	0.0	63.8	61.2
2018-08-01	09:55	64.2	56.4	76.5	0.0	61.8	58.9	2018-08-01	15:55	65.9	61.1	72.7	0.0	65.1	62.8
2018-08-01	10:00	64.0	56.9	74.9	0.0	62.1	59.0	2018-08-01	16:00	64.6	59.7	74.6	0.0	63.4	61.3
2018-08-01	10:05	63.4	56.9	73.6	0.0	62.4	58.8	2018-08-01	16:05	64.5	61.0	76.2	0.0	63.8	62.1
2018-08-01	10:10	65.9	58.7	78.5	0.0	62.9	60.0	2018-08-01	16:10	64.3	59.2	74.3	0.0	63.5	61.1
2018-08-01	10:15	67.9	57.4	82.3	0.0	61.5	58.9	2018-08-01	16:15	64.9	60.5	74.7	0.0	63.7	62.1
2018-08-01	10:20	64.8	58.8	76.8	0.0	63.1	59.7	2018-08-01	16:20	64.1	60.8	71.2	0.0	63.4	61.7
2018-08-01	10:25	64.6	57.3	79.1	0.0	62.1	58.5	2018-08-01	16:25	63.3	59.8	69.6	0.0	62.9	60.9
2018-08-01	10:30	62.8	56.3	71.6	0.0	61.9	58.0	2018-08-01	16:30	65.9	59.5	82.9	0.0	63.3	60.9
2018-08-01	10:35	62.9	57.0	71.9	0.0	61.5	58.2	2018-08-01	16:35	66.4	58.7	78.6	0.0	64.0	61.2
2018-08-01	10:40	63.1	56.8	77.0	0.0	61.8	58.7	2018-08-01	16:40	66.2	60.1	79.6	0.0	63.8	61.5
2018-08-01	10:45	65.3	57.8	75.3	0.0	63.8	60.6	2018-08-01	16:45	65.9	60.1	81.8	0.0	63.8	61.8
2018-08-01	10:50	63.2	55.1	71.1	0.0	62.6	60.0	2018-08-01	16:50	64.4	60.9	71.8	0.0	63.9	62.2
2018-08-01	10:55	65.6	56.6	80.8	0.0	61.4	58.7	2018-08-01	16:55	64.2	60.1	74.7	0.0	63.5	61.3
2018-08-01	11:00	68.1	56.2	84.8	0.0	62.0	57.5	2018-08-01	17:00	65.5	61.1	77.3	0.0	64.3	62.3
2018-08-01	11:05	67.8	56.5	86.7	0.0	62.2	59.0	2018-08-01	17:05	64.5	60.9	72.8	0.0	64.1	62.1
2018-08-01	11:10	63.5	57.3	71.5	0.0	62.5	59.3	2018-08-01	17:10	65.6	61.1	76.6	0.0	64.0	62.1
2018-08-01	11:15	62.6	56.9	70.4	0.0	61.7	58.8	2018-08-01	17:15	64.9	61.3	77.8	0.0	63.7	62.2
2018-08-01	11:20	62.6	57.9	71.7	0.0	61.4	58.8	2018-08-01	17:20	66.8	61.1	79.8	0.0	64.5	62.2
2018-08-01	11:25	62.9	58.5	69.9	0.0	61.9	60.1	2018-08-01	17:25	65.5	59.9	76.7	0.0	64.4	62.4
2018-08-01	11:30	63.2	58.2	69.8	0.0	62.4	59.8	2018-08-01	17:30	65.2	61.1	75.3	0.0	64.0	62.2
2018-08-01	11:35	63.0	57.8	72.3	0.0	62.0	59.1	2018-08-01	17:35	64.3	60.8	71.8	0.0	63.8	62.1
2018-08-01	11:40	64.1	58.7	72.8	0.0	62.4	60.1	2018-08-01	17:40	65.3	60.2	74.3	0.0	64.4	62.2
2018-08-01	11:45	63.2	57.6	70.4	0.0	61.8	59.1	2018-08-01	17:45	65.1	60.9	73.4	0.0	64.3	62.0
2018-08-01	11:50	63.1	57.0	72.1	0.0	62.1	59.0	2018-08-01	17:50	64.0	60.4	69.3	0.0	63.7	61.5
2018-08-01	11:55	63.2	59.2	72.9	0.0	62.3	60.2	2018-08-01	17:55	65.0	60.2	75.3	0.0	63.9	61.8

A.3 Summary of Short-Term Measurement Data

M2 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	11:18	64.5	71.0	56.8	69.1	60.5	57.4
2018-08-01	11:19	65.0	72.0	57.9	69.9	62.2	58.3
2018-08-01	11:20	68.0	77.4	59.3	72.3	64.4	60.9
2018-08-01	11:21	65.6	73.2	58.5	70.1	61.8	59.1
2018-08-01	11:22	66.4	76.8	58.0	70.7	61.2	58.8
2018-08-01	11:23	67.6	77.2	58.5	70.5	65.0	59.4
2018-08-01	11:24	62.9	70.9	56.4	66.8	59.4	56.7
2018-08-01	11:25	68.2	76.6	58.1	71.4	66.3	59.5
2018-08-01	11:26	65.0	73.0	57.6	68.7	61.5	58.1
2018-08-01	11:27	66.9	73.5	59.3	71.6	63.6	60.3
Summary:		**66.3**	**77.4**	**56.4**	**70.1**	**62.6**	**58.9**

Noise Sources and Observations: Traffic on Toland Street and delivery truck idling at nearby produce facility.

M2 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	22:46	59.4	61.2	57.9	59.9	59.5	58.4
2018-08-01	22:47	64.2	74.7	57.4	66.2	59.4	57.8
2018-08-01	22:48	59.6	64.8	58.2	61.7	59.0	58.5
2018-08-01	22:49	58.5	63.1	57.3	59.3	58.3	57.5
2018-08-01	22:50	62.1	68.7	57.5	66.1	59.5	57.9
2018-08-01	22:51	59.4	62.7	57.6	60.8	58.9	58.0
2018-08-01	22:52	70.1	78.9	59.2	75.2	65.2	60.7
2018-08-01	22:53	62.8	73.0	58.2	65.1	60.1	58.7
2018-08-01	22:54	60.1	68.6	58.4	61.0	59.3	58.7
2018-08-01	22:55	58.8	60.4	57.2	59.5	58.7	58.2
2018-08-01	22:56	63.0	67.7	57.5	66.9	61.1	58.8
2018-08-01	22:57	60.8	66.3	57.7	63.7	59.9	58.0
2018-08-01	22:58	61.8	70.8	58.3	63.8	59.5	58.9
2018-08-01	22:59	60.6	69.8	57.6	62.4	58.4	58.0
2018-08-01	23:00	61.0	68.8	56.6	63.9	59.1	57.0
Summary:		**62.8**	**78.9**	**56.6**	**63.7**	**59.7**	**58.3**

Noise Sources and Observations: Light traffic on Toland Avenue and distant traffic on I-280

M2 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	17:08	65.4	71.4	59.6	68.6	64.6	60.4
2018-08-01	17:09	69.4	77.4	60.9	73.2	66.3	62.3
2018-08-01	17:10	67.8	75.7	60.0	71.8	65.1	60.6
2018-08-01	17:11	64.2	70.6	59.0	68.1	62.0	60.0
2018-08-01	17:12	70.9	87.2	58.1	71.4	62.6	59.0
2018-08-01	17:13	64.7	71.9	57.6	69.3	61.8	58.0
2018-08-01	17:14	65.4	73.2	57.4	69.0	62.3	57.9
2018-08-01	17:15	63.5	70.9	57.9	67.5	61.2	58.7
2018-08-01	17:16	62.0	71.9	57.4	64.3	58.9	58.0
2018-08-01	17:17	70.1	80.3	57.6	73.5	62.8	58.1
2018-08-01	17:18	66.6	80.4	57.9	70.3	60.9	58.3
2018-08-01	17:19	61.8	69.9	58.1	64.6	59.1	58.4
2018-08-01	17:20	59.9	65.4	57.3	62.2	58.9	57.9
2018-08-01	17:21	64.4	71.9	58.2	68.6	62.1	58.8
2018-08-01	17:22	65.9	74.3	58.5	69.2	62.3	59.2
Summary:		**66.5**	**87.2**	**57.3**	**68.8**	**62.1**	**59.0**

Noise Sources and Observations: Traffic on Toland Avenue and distant traffic on I-280

M3 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	11:32	62.0	71.0	57.5	64.3	60.7	58.1
2018-08-01	11:33	61.9	71.8	57.9	64.1	59.8	58.3
2018-08-01	11:34	66.4	74.6	58.3	69.4	64.6	59.3
2018-08-01	11:35	62.9	69.9	57.5	67.4	60.0	58.1
2018-08-01	11:36	67.7	75.7	59.1	71.8	64.4	60.5
2018-08-01	11:37	65.2	73.2	57.7	69.9	62.6	58.7
2018-08-01	11:38	65.5	74.7	56.8	69.6	61.2	57.4
2018-08-01	11:39	61.2	65.9	57.5	63.9	60.1	58.4
2018-08-01	11:40	64.4	71.9	56.3	69.0	60.3	56.9
2018-08-01	11:41	65.4	73.0	57.4	69.1	63.8	58.6
Summary:		**64.8**	**75.7**	**56.3**	**67.9**	**61.8**	**58.4**

Noise Sources and Observations: Traffic on Toland Street and truck loading at nearby hardware store.

M3 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	17:28	64.6	72.7	57.1	69.4	60.8	58.1
2018-08-01	17:29	69.8	83.3	57.4	73.2	61.5	59.1
2018-08-01	17:30	65.6	74.2	57.6	70.9	60.0	58.6
2018-08-01	17:31	61.4	69.0	56.9	64.7	58.7	57.5
2018-08-01	17:32	67.2	76.9	59.2	71.0	64.4	60.2
2018-08-01	17:33	59.8	69.6	57.8	62.0	59.0	58.1
2018-08-01	17:34	65.2	71.9	58.2	68.5	63.3	58.8
2018-08-01	17:35	67.7	81.5	57.0	68.0	59.7	57.5
2018-08-01	17:36	61.0	71.8	56.8	61.4	58.6	57.1
2018-08-01	17:37	63.7	69.6	57.6	67.5	61.0	58.4
2018-08-01	17:38	64.0	72.1	58.1	67.4	62.9	58.8
2018-08-01	17:39	63.9	71.9	58.8	67.1	61.9	59.7
2018-08-01	17:40	59.5	66.4	57.3	60.8	58.7	57.8
2018-08-01	17:41	64.1	71.3	57.1	68.4	61.3	58.6
2018-08-01	17:42	65.6	74.5	56.7	68.5	59.3	57.0
Summary:		**65.1**	**83.3**	**56.7**	**67.3**	**60.7**	**58.4**

Noise Sources and Observations: Light traffic on Toland Avenue

M3 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	23:04	58.0	62.0	56.6	58.6	57.8	56.9
2018-08-01	23:05	63.8	74.1	56.9	67.6	59.2	57.4
2018-08-01	23:06	60.5	68.5	56.5	63.4	58.4	57.1
2018-08-01	23:07	59.2	64.1	57.3	60.3	58.6	57.9
2018-08-01	23:08	59.2	68.0	56.8	60.2	58.1	57.0
2018-08-01	23:09	62.1	69.9	57.0	65.3	58.4	57.5
2018-08-01	23:10	58.0	60.5	56.0	59.1	57.9	56.6
2018-08-01	23:11	59.4	62.8	57.6	61.7	58.3	57.8
2018-08-01	23:12	60.2	66.0	56.2	62.9	58.8	56.8
2018-08-01	23:13	58.2	60.8	57.3	58.8	58.1	57.6
2018-08-01	23:14	67.2	77.0	57.7	72.5	60.1	58.0
2018-08-01	23:15	59.7	65.9	57.0	62.1	59.1	57.8
2018-08-01	23:16	59.8	63.5	58.0	61.2	59.2	58.3
2018-08-01	23:17	62.1	68.8	56.8	67.1	60.2	57.2
2018-08-01	23:18	61.2	70.3	56.5	62.9	60.0	56.8
Summary:		**61.4**	**77.0**	**56.0**	**62.9**	**58.8**	**57.4**

Noise Sources and Observations: Light traffic on Toland Avenue and Newcomb Avenue, distant traffic on I-280

M5 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	11:19	78.3	80.8	72.2	80.1	78.5	73.8
2018-08-02	11:20	78.6	81.8	73.2	80.5	78.3	75.8
2018-08-02	11:21	79.0	84.8	73.7	81.3	78.3	75.0
2018-08-02	11:22	77.8	81.1	72.7	80.2	76.9	73.9
2018-08-02	11:23	79.5	82.9	74.8	81.3	79.5	76.5
2018-08-02	11:24	77.9	80.9	74.6	79.2	77.7	75.3
2018-08-02	11:25	78.8	85.1	72.4	81.1	78.3	74.7
2018-08-02	11:26	78.7	82.1	73.6	81.1	78.6	74.5
2018-08-02	11:27	78.0	79.9	73.6	79.2	78.2	75.1
2018-08-02	11:28	77.1	81.0	70.4	79.0	77.3	73.6
2018-08-02	11:29	77.6	80.0	72.0	79.1	77.2	75.1
2018-08-02	11:30	78.7	81.2	74.3	80.3	78.8	76.1
2018-08-02	11:31	77.0	79.7	72.5	78.9	77.1	73.8
2018-08-02	11:32	78.0	80.7	73.0	79.9	78.1	74.8
2018-08-02	11:33	78.6	83.6	72.8	80.7	78.5	74.0
	Summary:	**78.3**	**85.1**	**70.4**	**80.1**	**78.1**	**74.8**

Noise Sources and Observations: Traffic on I-280 and light traffic on Oakdale Avenue

M6 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	11:45	76.7	79.5	72.6	78.5	76.6	73.7
2018-08-01	11:46	76.7	79.1	72.3	78.1	76.9	74.9
2018-08-01	11:47	76.8	79.3	71.5	78.8	77.0	73.1
2018-08-01	11:48	77.9	80.9	75.6	79.6	77.5	76.2
2018-08-01	11:49	76.9	80.2	73.3	78.5	76.6	74.3
2018-08-01	11:50	75.6	78.9	68.7	78.0	75.5	72.1
2018-08-01	11:51	77.3	82.0	70.7	79.4	76.8	74.0
2018-08-01	11:52	76.1	79.3	69.5	78.0	76.0	72.9
2018-08-01	11:53	76.5	79.5	71.5	78.8	75.8	74.4
2018-08-01	11:54	76.4	79.8	71.0	78.9	76.2	72.6
	Summary:	**76.8**	**82.0**	**68.7**	**78.7**	**76.5**	**73.8**

Noise Sources and Observations: Traffic on I-280, light traffic on McKinnon Avenue, and truck loading at nearby warehouse.

M5 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	17:42	77.9	79.4	75.8	78.6	78.0	76.7
2018-08-02	17:43	77.9	80.7	74.7	79.9	77.6	75.6
2018-08-02	17:44	77.1	79.5	72.0	78.6	77.3	74.2
2018-08-02	17:45	77.4	79.6	74.4	78.5	77.4	76.2
2018-08-02	17:46	79.2	90.5	73.0	80.5	76.6	74.1
2018-08-02	17:47	78.8	83.5	76.4	79.9	78.4	77.4
2018-08-02	17:48	78.0	82.6	72.5	80.2	77.4	74.4
2018-08-02	17:49	77.9	80.3	72.8	79.6	77.7	75.1
2018-08-02	17:50	78.2	80.4	74.5	79.6	78.3	76.2
2018-08-02	17:51	78.9	87.7	73.5	80.7	78.1	74.4
2018-08-02	17:52	78.1	80.5	73.5	79.4	78.1	76.0
2018-08-02	17:53	78.2	80.1	73.6	79.6	78.3	75.8
2018-08-02	17:54	77.8	80.9	74.0	79.5	77.7	75.1
2018-08-02	17:55	78.7	81.8	76.0	80.5	78.3	76.8
2018-08-02	17:56	77.7	80.4	75.1	78.9	77.6	76.5
	Summary:	**78.2**	**90.5**	**72.0**	**79.6**	**77.8**	**75.6**

Noise Sources and Observations: Traffic on I-280 and Oakdale Avenue, light traffic on Selby Street

M6 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	17:47	76.5	78.4	71.7	78.1	76.4	73.9
2018-08-01	17:48	76.4	78.8	72.8	78.1	76.6	73.9
2018-08-01	17:49	77.2	80.7	71.0	79.3	76.7	73.0
2018-08-01	17:50	76.7	79.7	72.8	78.2	76.7	74.7
2018-08-01	17:51	76.1	77.8	72.5	77.3	76.2	74.3
2018-08-01	17:52	76.8	78.6	72.7	77.9	76.9	74.5
2018-08-01	17:53	76.6	79.1	72.5	78.2	76.5	74.4
2018-08-01	17:54	76.3	78.3	71.8	77.7	76.7	72.5
2018-08-01	17:55	76.5	78.8	72.5	78.0	76.1	74.0
2018-08-01	17:56	76.7	82.6	72.2	78.9	75.5	73.4
2018-08-01	17:57	78.9	88.8	70.9	79.9	77.0	74.3
2018-08-01	17:58	76.9	83.8	73.1	78.0	76.5	74.7
2018-08-01	17:59	77.2	79.3	74.5	78.5	76.9	75.5
2018-08-01	18:00	77.1	80.1	72.4	79.1	77.0	73.7
2018-08-01	18:01	77.5	80.1	74.4	79.3	77.4	75.3
	Summary:	**76.9**	**88.8**	**70.9**	**78.4**	**76.6**	**74.1**

Noise Sources and Observations: Traffic on I-280

M5 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	00:46	70.5	74.9	64.3	73.4	69.9	65.4
2018-08-02	00:47	67.3	75.0	59.8	70.7	65.4	60.4
2018-08-02	00:48	66.5	72.3	55.8	71.0	63.3	57.0
2018-08-02	00:49	68.2	73.9	59.2	71.6	67.4	61.6
2018-08-02	00:50	70.6	76.5	59.9	74.1	68.8	61.4
2018-08-02	00:51	68.5	75.8	60.9	71.6	67.9	62.6
2018-08-02	00:52	66.7	71.9	61.8	69.9	66.0	62.6
2018-08-02	00:53	67.2	72.1	55.1	71.0	66.6	58.4
2018-08-02	00:54	67.4	74.0	59.5	70.4	65.1	61.2
2018-08-02	00:55	69.1	74.1	58.4	73.0	67.7	60.7
2018-08-02	00:56	66.4	72.2	58.0	69.9	65.7	60.2
2018-08-02	00:57	68.5	74.5	59.0	72.7	66.0	61.1
2018-08-02	00:58	67.6	73.8	58.4	71.5	65.6	60.3
2018-08-02	00:59	68.4	74.5	61.0	70.7	67.5	63.9
2018-08-02	01:00	67.5	74.2	58.8	70.8	65.8	61.5
	Summary:	**68.2**	**76.5**	**55.1**	**71.5**	**66.6**	**61.2**

Noise Sources and Observations: Traffic on I-280 and light traffic on Oakdale Avenue

M6 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	23:27	70.7	79.2	59.8	74.8	67.9	60.3
2018-08-01	23:28	76.1	83.6	67.8	80.4	73.4	69.3
2018-08-01	23:29	73.5	78.4	66.1	76.5	72.9	68.7
2018-08-01	23:30	75.9	83.2	59.7	80.4	73.7	62.0
2018-08-01	23:31	76.2	81.7	67.1	79.9	75.1	70.2
2018-08-01	23:32	71.1	76.0	60.4	75.0	69.0	61.7
2018-08-01	23:33	70.8	77.4	60.2	74.5	69.1	63.0
2018-08-01	23:34	70.9	78.6	58.7	76.2	66.6	59.3
2018-08-01	23:35	73.3	81.0	63.6	76.8	71.4	67.0
2018-08-01	23:36	73.5	82.0	58.0	79.2	69.1	58.8
2018-08-01	23:37	70.5	76.5	61.1	73.4	70.0	62.1
2018-08-01	23:38	68.2	75.1	58.7	72.5	65.0	59.1
2018-08-01	23:39	70.4	77.0	57.5	73.6	69.8	59.2
2018-08-01	23:40	69.9	76.8	60.3	73.5	67.6	61.6
2018-08-01	23:41	71.2	78.7	62.0	74.1	69.7	64.0
	Summary:	**72.8**	**83.6**	**57.5**	**76.1**	**70.0**	**63.1**

Noise Sources and Observations: Traffic on I-280

M7 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	11:41	65.8	70.5	61.0	67.5	65.8	63.4
2018-08-02	11:42	65.4	68.9	60.6	67.3	64.9	61.7
2018-08-02	11:43	74.2	82.5	62.8	80.7	68.2	64.2
2018-08-02	11:44	65.4	68.0	60.5	66.9	65.8	61.4
2018-08-02	11:45	66.5	72.9	62.1	68.8	65.9	63.0
2018-08-02	11:46	67.1	70.5	62.0	68.9	66.7	64.9
2018-08-02	11:47	68.0	76.6	63.9	69.6	66.6	64.9
2018-08-02	11:48	66.6	73.5	62.6	68.4	65.6	63.7
2018-08-02	11:49	70.6	78.8	63.3	74.5	68.3	64.8
2018-08-02	11:50	68.8	74.8	61.1	73.1	66.1	62.2
2018-08-02	11:51	68.4	75.5	62.4	72.3	66.7	63.2
2018-08-02	11:52	67.6	74.0	60.6	71.0	66.9	62.3
2018-08-02	11:53	75.0	88.2	62.2	78.0	67.3	63.8
2018-08-02	11:54	68.5	77.4	64.1	71.4	66.6	64.9
2018-08-02	11:55	67.1	76.6	59.9	71.2	62.8	61.0
	Summary:	**69.5**	**88.2**	**59.9**	**71.3**	**66.3**	**63.3**

Noise Sources and Observations: Light traffic on Oakdale and distant traffic on I-280

M8 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	12:04	76.2	79.9	70.4	78.7	75.7	73.8
2018-08-01	12:05	76.8	79.9	70.6	78.6	76.7	74.1
2018-08-01	12:06	77.0	81.3	69.7	79.3	76.8	71.3
2018-08-01	12:07	77.4	80.5	71.0	79.4	76.8	75.0
2018-08-01	12:08	77.7	82.0	73.2	79.3	77.6	75.2
2018-08-01	12:09	74.8	79.1	69.7	76.8	74.3	71.6
2018-08-01	12:10	76.1	79.5	71.2	78.3	75.9	72.0
2018-08-01	12:11	77.5	80.5	74.4	79.8	77.2	75.2
2018-08-01	12:12	77.1	79.7	74.4	78.8	77.0	74.8
2018-08-01	12:13	76.8	82.4	70.0	79.6	76.0	71.7
	Summary:	**76.8**	**82.4**	**69.7**	**78.9**	**76.4**	**73.5**

Noise Sources and Observations: Traffic on I-280 and light traffic on Jerrold Avenue

M7 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	18:02	67.0	78.3	64.2	68.0	66.7	65.1
2018-08-02	18:03	67.9	70.9	65.6	69.4	67.6	66.5
2018-08-02	18:04	68.2	73.4	64.8	69.6	67.6	65.6
2018-08-02	18:05	68.6	74.3	64.4	71.0	68.2	65.5
2018-08-02	18:06	67.3	70.4	64.8	69.0	67.2	65.5
2018-08-02	18:07	67.3	69.0	64.9	68.4	67.2	65.6
2018-08-02	18:08	67.5	71.6	64.6	69.4	67.0	65.4
2018-08-02	18:09	68.1	74.2	65.0	70.7	66.8	65.6
2018-08-02	18:10	68.6	72.2	65.2	71.0	67.8	66.2
2018-08-02	18:11	67.8	72.3	64.9	69.4	67.8	65.4
2018-08-02	18:12	78.5	93.2	66.6	76.4	68.6	67.1
2018-08-02	18:13	70.3	79.1	65.1	71.7	68.1	66.6
2018-08-02	18:14	68.8	72.4	66.7	69.9	68.3	67.5
2018-08-02	18:15	67.2	70.4	65.0	68.7	67.0	65.5
2018-08-02	18:16	67.4	73.4	64.6	68.5	67.0	65.5
	Summary:	**70.3**	**93.2**	**64.2**	**70.1**	**67.5**	**65.9**

Noise Sources and Observations: Traffic on Oakdale Avenue and distant traffic on I-280

M8 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	18:08	79.9	88.9	75.2	81.5	77.9	76.0
2018-08-01	18:09	77.7	80.7	75.5	79.0	77.4	76.1
2018-08-01	18:10	76.9	78.8	72.5	78.0	76.9	75.5
2018-08-01	18:11	77.2	80.5	73.7	78.4	77.0	75.3
2018-08-01	18:12	78.0	80.8	73.6	79.8	77.7	76.2
2018-08-01	18:13	78.3	80.4	75.3	79.6	78.3	76.4
2018-08-01	18:14	77.2	79.9	74.6	78.9	76.7	75.4
2018-08-01	18:15	77.5	80.2	73.2	79.8	76.6	74.2
2018-08-01	18:16	77.4	80.3	73.4	79.2	77.2	75.0
2018-08-01	18:17	77.4	80.0	72.5	78.9	77.4	74.7
2018-08-01	18:18	77.4	79.7	73.9	79.1	77.3	75.4
2018-08-01	18:19	77.8	79.6	74.6	79.0	78.0	75.8
2018-08-01	18:20	77.7	80.8	73.2	79.2	77.5	75.4
2018-08-01	18:21	77.5	80.1	73.6	79.4	77.4	74.7
2018-08-01	18:22	78.5	80.9	75.2	80.1	78.3	76.7
	Summary:	**77.8**	**88.9**	**72.5**	**79.3**	**77.4**	**75.5**

Noise Sources and Observations: Traffic on I-280 and light traffic on Jerrold Avenue

M7 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	01:05	58.8	62.2	55.3	61.3	58.1	56.0
2018-08-02	01:06	64.0	73.4	56.7	66.2	60.8	57.8
2018-08-02	01:07	56.1	60.0	53.3	58.1	55.8	54.0
2018-08-02	01:08	60.9	69.5	54.0	64.6	58.8	55.2
2018-08-02	01:09	59.2	68.6	52.7	63.3	55.2	53.0
2018-08-02	01:10	58.8	65.5	52.1	63.2	56.7	53.0
2018-08-02	01:11	58.6	68.0	53.4	61.2	55.6	54.0
2018-08-02	01:12	60.1	66.3	55.4	63.5	58.9	55.9
2018-08-02	01:13	59.2	67.1	53.8	62.8	56.2	54.7
2018-08-02	01:14	57.5	61.2	51.6	59.9	57.5	52.9
2018-08-02	01:15	62.5	70.3	54.5	66.7	59.4	55.4
2018-08-02	01:16	58.8	65.2	53.4	61.4	56.7	54.5
2018-08-02	01:17	56.7	62.7	53.8	58.2	55.8	54.7
2018-08-02	01:18	57.8	64.2	53.7	61.1	55.8	54.6
2018-08-02	01:19	57.2	63.1	51.0	61.5	54.1	52.0
	Summary:	**59.6**	**73.4**	**51.0**	**62.2**	**57.0**	**54.5**

Noise Sources and Observations: Light traffic on Oakdale Avenue and distant traffic on I-280

M8 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-01	23:48	74.9	80.1	65.0	78.6	73.3	66.2
2018-08-01	23:49	72.4	78.6	60.3	76.3	71.4	60.8
2018-08-01	23:50	71.7	75.5	65.3	74.7	70.3	67.4
2018-08-01	23:51	69.9	74.7	61.5	72.9	69.2	62.5
2018-08-01	23:52	73.7	83.1	64.2	76.9	71.6	66.1
2018-08-01	23:53	70.1	74.9	60.9	72.8	70.3	62.4
2018-08-01	23:54	72.2	77.8	61.2	76.2	70.7	66.0
2018-08-01	23:55	69.4	75.4	59.8	73.7	67.5	61.1
2018-08-01	23:56	72.2	78.7	63.1	76.3	70.0	64.6
2018-08-01	23:57	67.6	73.2	57.7	71.8	66.8	60.0
2018-08-01	23:58	70.1	77.5	58.2	72.8	68.4	58.9
2018-08-01	23:59	68.2	74.5	59.2	72.2	67.1	60.6
2018-08-02	00:00	68.4	75.4	57.0	72.2	66.9	58.3
2018-08-02	00:01	69.9	73.1	59.6	72.2	69.7	63.1
2018-08-02	00:02	71.3	76.4	61.5	75.4	69.6	64.9
	Summary:	**71.3**	**83.1**	**57.0**	**74.3**	**69.5**	**62.9**

Noise Sources and Observations: Traffic on I-280

M10 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	10:58	61.5	69.5	59.9	62.9	61.3	60.3
2018-08-02	10:59	61.7	64.1	60.6	62.6	61.7	60.9
2018-08-02	11:00	62.0	63.4	60.7	62.7	61.8	61.3
2018-08-02	11:01	62.2	71.9	59.1	62.7	61.2	59.9
2018-08-02	11:02	63.3	73.6	59.1	64.1	60.9	59.9
2018-08-02	11:03	67.9	77.9	59.0	71.2	61.7	59.7
2018-08-02	11:04	63.7	74.1	60.3	63.3	61.3	60.6
2018-08-02	11:05	64.1	71.4	60.5	67.5	62.2	61.0
2018-08-02	11:06	63.0	70.8	59.4	64.2	61.8	60.1
2018-08-02	11:07	63.2	66.3	61.1	65.5	62.4	61.4
2018-08-02	11:08	61.4	62.8	60.2	62.2	61.3	60.5
2018-08-02	11:09	67.4	79.3	59.5	69.2	61.2	59.7
2018-08-02	11:10	63.2	72.9	58.7	65.9	60.9	59.4
2018-08-02	11:11	65.3	74.9	59.3	69.0	62.5	59.8
2018-08-02	11:12	62.7	65.3	59.8	64.4	62.2	60.8
	Summary:	**64.0**	**79.3**	**58.7**	**65.2**	**61.6**	**60.4**

Noise Sources and Observations: Distant traffic from I-280 and local roadways

M10 Daytime (Afternoon)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	17:22	67.6	77.1	62.6	71.1	64.6	62.9
2018-08-02	17:23	65.2	72.8	63.3	66.4	65.2	63.8
2018-08-02	17:24	63.3	64.6	62.6	63.8	63.2	62.8
2018-08-02	17:25	63.7	65.6	62.4	64.8	63.4	62.6
2018-08-02	17:26	66.2	69.3	63.9	67.5	65.9	64.4
2018-08-02	17:27	65.8	74.5	62.4	66.5	64.2	63.3
2018-08-02	17:28	65.7	72.3	61.3	69.2	63.6	61.9
2018-08-02	17:29	65.9	75.5	62.7	66.8	64.0	63.1
2018-08-02	17:30	63.0	64.0	61.5	63.8	63.0	62.0
2018-08-02	17:31	62.8	64.4	61.5	63.8	62.4	61.9
2018-08-02	17:32	64.2	71.7	62.3	64.3	63.2	62.7
2018-08-02	17:33	62.4	68.0	61.2	63.3	62.4	61.7
2018-08-02	17:34	62.5	69.5	60.8	63.8	61.3	61.0
2018-08-02	17:35	62.7	69.3	60.1	63.7	62.0	60.8
2018-08-02	17:36	63.0	70.5	60.0	64.5	61.7	60.5
	Summary:	**64.6**	**77.1**	**60.0**	**65.6**	**63.3**	**62.4**

Noise Sources and Observations: Light traffic on Rankin Street and distant traffic on I-280

M10 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	00:26	58.9	68.7	54.1	61.3	56.0	54.6
2018-08-02	00:27	59.5	68.0	54.6	60.9	58.5	55.3
2018-08-02	00:28	63.3	71.6	53.8	67.1	61.4	57.4
2018-08-02	00:29	55.1	57.2	53.5	56.1	54.9	54.0
2018-08-02	00:30	56.5	59.1	52.0	58.6	56.5	53.3
2018-08-02	00:31	65.9	75.9	55.7	70.0	60.3	57.8
2018-08-02	00:32	55.6	57.7	53.9	57.0	55.3	54.5
2018-08-02	00:33	60.0	67.5	55.2	63.4	57.5	56.2
2018-08-02	00:34	60.2	69.5	56.2	62.6	58.6	57.0
2018-08-02	00:35	62.6	73.5	55.6	67.6	58.3	56.5
2018-08-02	00:36	57.5	62.0	54.5	59.3	57.3	54.9
2018-08-02	00:37	62.4	75.1	54.9	63.2	56.9	55.4
2018-08-02	00:38	59.8	69.8	55.4	61.7	57.3	56.1
2018-08-02	00:39	57.2	58.7	55.6	58.0	57.1	56.3
2018-08-02	00:40	58.2	67.2	54.5	59.4	56.6	55.5
	Summary:	**60.6**	**75.9**	**52.0**	**61.7**	**57.5**	**55.7**

Noise Sources and Observations: Light traffic Rankin Street and distant traffic on I-280

M11 Daytime (Morning)

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	10:39	69.5	84.8	61.9	70.7	64.7	62.6
2018-08-02	10:40	70.9	80.9	62.1	74.2	65.5	63.3
2018-08-02	10:41	64.8	71.9	61.5	67.6	64.1	61.9
2018-08-02	10:42	65.4	69.5	63.3	66.6	65.0	63.6
2018-08-02	10:43	64.1	69.5	62.2	66.1	63.2	62.5
2018-08-02	10:44	68.5	75.1	61.4	72.6	66.1	62.1
2018-08-02	10:45	66.8	73.1	62.3	69.8	65.1	62.9
2018-08-02	10:46	68.5	75.6	61.2	73.7	64.0	61.8
2018-08-02	10:47	65.2	70.1	62.1	67.7	64.6	62.9
2018-08-02	10:48	66.7	71.7	63.0	68.7	66.0	63.5
2018-08-02	10:49	65.7	70.8	61.7	68.5	64.5	62.4
2018-08-02	10:50	68.5	74.5	63.2	71.3	67.6	64.1
2018-08-02	10:51	66.3	70.4	63.4	68.2	65.8	63.7
2018-08-02	10:52	64.3	68.4	61.4	67.0	63.5	61.8
2018-08-02	10:53	66.3	69.9	63.4	68.4	65.7	64.3
	Summary:	**67.2**	**84.8**	**61.2**	**69.4**	**65.0**	**62.9**

Noise Sources and Observations: Light traffic on Jerrold Avenue, distant traffic on I-280, train pass-by at 10:47

M11 Nighttime

Date	Time	L_{eq}	L_{min}	L_{max}	L(10)	L(50)	L(90)
2018-08-02	00:07	64.1	66.7	62.8	65.0	64.1	63.3
2018-08-02	00:08	67.4	73.0	63.6	70.7	66.0	64.0
2018-08-02	00:09	64.1	67.7	62.8	65.9	63.5	63.1
2018-08-02	00:10	65.7	73.4	62.8	67.6	63.9	63.1
2018-08-02	00:11	71.7	82.4	62.7	74.9	64.8	63.3
2018-08-02	00:12	72.6	78.3	63.0	76.9	67.6	64.0
2018-08-02	00:13	62.4	64.0	61.6	62.9	62.4	61.9
2018-08-02	00:14	66.8	76.0	62.2	69.8	64.1	62.9
2018-08-02	00:15	65.3	75.2	62.1	66.3	63.1	62.4
2018-08-02	00:16	63.6	69.8	62.0	64.7	62.8	62.4
2018-08-02	00:17	62.7	63.9	61.8	63.3	62.5	62.1
2018-08-02	00:18	62.7	65.2	61.4	64.1	62.4	61.7
2018-08-02	00:19	68.2	72.9	63.4	70.2	67.7	66.2
2018-08-02	00:20	64.2	67.3	62.6	65.3	64.0	63.0
2018-08-02	00:21	66.1	73.4	62.4	68.7	64.2	63.0
	Summary:	**67.1**	**82.4**	**61.4**	**67.8**	**64.2**	**63.1**

Noise Sources and Observations: Light traffic on Jerrold Avenue and I-280

A.4 Derivation of CNEL and Lowest L_{90} for ST Measurement Locations

ST Measurement ID	Representative Reference LT Location	ST Measurement Time	ST Measurement CNEL-Period	ST Measured L_{eq}, dBA	Reference LT Equivalent Time Period L_{eq}, dBA	Delta	Calculated CNEL-Period Delta[1]	
M2	M1	11:18	Daytime	66.3	62.4	3.9	Daytime	5.5
		17:08	Daytime	66.5	59.9	6.7	Nighttime	3.9
		22:46	Nighttime	62.8	58.9	3.9	Evening	4.8
M3	M1	11:32	Daytime	64.8	60.0	4.7	Daytime	5.0
		17:28	Daytime	65.1	59.8	5.3	Nighttime	2.6
		23:05	Nighttime	61.4	58.8	2.6	Evening	4.0
M5	M4	0:46	Nighttime	68.2	67.0	1.2	Daytime	2.0
		11:19	Daytime	78.3	76.1	2.2	Nighttime	1.2
		17:42	Daytime	78.2	76.3	1.9	Evening	1.6
M6	M4	11:45	Daytime	76.8	76.7	0.0	Daytime	0.0
		14:47	Daytime	76.9	77.0	-0.1	Nighttime	3.1
		23:27	Nighttime	72.8	69.7	3.1	Evening	1.8
M7	M9	1:05	Nighttime	59.6	54.3	5.4	Daytime	5.6
		11:41	Daytime	69.5	63.5	6.0	Nighttime	5.4
		17:02	Daytime	70.3	65.2	5.1	Evening	5.5
M8	M4	12:04	Daytime	76.8	76.1	0.7	Daytime	0.9
		18:08	Daytime	77.8	76.7	1.1	Nighttime	1.9
		23:48	Nighttime	71.3	69.4	1.9	Evening	1.4
M10	M1	0:26	Nighttime	60.6	57.5	3.1	Daytime	2.3
		10:58	Daytime	64.0	63.0	1.0	Nighttime	3.1
		17:22	Daytime	64.6	61.3	3.2	Evening	2.7
M11	M1	0:07	Nighttime	67.1	57.5	9.6	Daytime	6.2
		10:39	Daytime	67.2	61.0	6.2	Nighttime	9.6
		-	-	-	-	-	Evening	8.2

1. Evening CNEL-Period deltas are calculated as an average of the daytime and nighttime deltas. In cases where two daytime ST measurements were conducted at a single measurement location, daytime deltas presented are averages of the two calculated deltas.

	Reference LT CNEL-Period L_{eq}, dBA[1]			Extrapolated ST CNEL-Period L_{eq}, dBA			Calculated CNEL, dBA at ST Location
ST Measurement ID	Daytime	Evening	Nighttime	Daytime	Evening	Nighttime	
M2	65.4	59.0	57.5	70.8	63.8	61.4	70.9
M3	65.4	59.0	57.5	70.3	63.0	60.2	70.0
M5	76.9	75.1	72.1	78.9	76.7	73.3	81.4
M6	76.9	75.1	72.1	76.9	76.9	75.2	82.3
M7	65.7	62.4	59.2	71.2	67.8	64.5	72.9
M8	76.9	75.1	70.0	77.8	76.5	72.0	80.3
M10	65.4	59.0	57.5	67.6	61.7	60.6	68.9
M11	65.4	59.0	57.5	71.6	67.3	67.2	74.6

1. For LT measurements spanning two 24-hour periods, the reference CNEL-Period L_{eq} values presented in these columns represent an average of the CNEL-period values across both days.

ST Measurement ID	Representative Reference LT Location	ST Measurement Time	ST Measured L_{90}, dBA	Reference LT Equivalent Time Period L_{90}, dBA	Delta	Reference LT Measured Lowest L_{90} (15 m)	Calculated Lowest L_{90}, dBA at ST Location
M2	M1	22:46	58.3	57.5	0.9	50.0	50.9
M3	M1	23:05	57.4	57.4	-0.1	50.0	50.0
M5	M4	0:46	61.2	57.2	4.0	50.5	54.6
M6	M4	23:27	63.1	62.2	0.9	50.5	51.4
M7	M9	1:05	54.5	50.2	4.3	48.0	52.3
M8	M4	23:48	62.9	61.4	1.4	50.5	52.0
M10	M1	0:26	55.7	55.5	0.2	50.0	50.2
M11	M1	0:07	63.1	55.9	7.2	50.0	57.2

Appendix B Noise and Vibration Inputs

B.1 Construction Noise Inputs and Calculations

Full Equipment Roster Per Phase – Phases 1 through 3

Phase 1 – Demolition and Site Prep **Phase Duration: Eight (8) Weeks – 40 Days**

Equipment Type	Quantity	Avg Hours Per Day	Days Per Phase	Selected FTA/RCNM Equivalent	L_{max} at 50'	Usage Factor	L_{eq}, dBA
Air Compressors	2	4	20	Compressor (Air)	80.0	40.0	78.2
Concrete/Industrial Saws	2	4	20	Concrete Saw	90.0	20.0	85.2
Crushing/Processing Equipment	1	6	30	Mounted Impact Hammer	90.0	20.0	85.2
Excavators (demo)	2	8	40	Excavator	85.0	40.0	83.2
Forklifts, Rough Terrain	1	6	30	Backhoe	80.0	40.0	78.2
Generator Sets	1	8	40	Generator	82.0	50.0	81.2
Rubber Tired Loaders (demo)	1	6	30	Front End Loader	80.0	40.0	78.2
Sweepers/Scrubbers	1	6	40	Vacuum Street Sweeper	80.0	10.0	72.2
Water Truck	1	6	30	Flatbed Truck	84.0	40.0	82.2

Phase 2 – Grading and Ground Improvements **Phase Duration: Sixteen (16) Weeks – 80 Days**

Equipment Type	Quantity	Avg Hours Per Day	Days Per Phase	Selected FTA/RCNM Equivalent	L_{max} at 50'	Usage Factor	L_{eq}, dBA
Bore/Drill Rigs (auger cast)	1	8	50	Auger Drill Rig	85.0	20.0	80.2
Bore/Drill Rigs (stone columns)	1	8	50	Drill Rig Truck	84.0	20.0	79.2
Dumpers/Tenders	2	5	40	Dump Truck	84.0	40.0	82.2
Generator Sets	1	8	60	Generator	82.0	50.0	81.2
Graders	3	8	40	Grader	85.0	40.0	83.2
Concrete Pumps	2	6	100	Concrete Pump Truck	82.0	20.0	77.2
Sweepers/Scrubbers	1	6	60	Vacuum Street Sweeper	80.0	10.0	72.2
Tractors/Loaders/Backhoes (utilities)	2	8	60	Front End Loader	80.0	40.0	78.2
Water Truck	1	6	60	Flatbed Truck	84.0	40.0	82.2

Phase 3 – Building Construction **Phase Duration: Sixty-one (61) Weeks – 305 Days**

Equipment Type	Quantity	Avg Hours Per Day	Days Per Phase	Selected FTA/RCNM Equivalent	L_{max} at 50'	Usage Factor	L_{eq}, dBA
Aerial Lifts (jlg)	12	6	80	Man Lift	85.0	20.0	80.2
Air Compressors	4	4	80	Compressor (Air)	80.0	40.0	78.2
Cranes (Precast)	4	8	80	Crane	85.0	16.0	79.3
Cranes (Steel)	2	6	60	Crane	85.0	16.0	79.3
Forklifts (Precast)	4	6	80	Backhoe	80.0	40.0	78.2
Forklifts (Precast)	4	6	80	Backhoe	80.0	40.0	78.2
Forklifts (Steel)	4	8	80	Backhoe	80.0	40.0	78.2
Generator Sets	4	6	80	Generator	82.0	50.0	81.2
Plate Compactors (building phase)	4	8	120	Compactor	82.0	20.0	77.2
Concrete Pumps	2	6	100	Concrete Pump Truck	82.0	20.0	77.2
Skid Steer Loaders	1	6	40	Front End Loader	80.0	40.0	78.2
Sweepers/Scrubbers	1	6	60	Vacuum Street Sweeper	80.0	10.0	72.2
Tractors/Loaders/Backhoes (building phase)	2	8	80	Front End Loader	80.0	40.0	78.2
Water Truck	1	6	30	Flatbed Truck	84.0	40.0	82.2
Welders	6	8	60	Welder/Torch	73.0	40.0	71.2

Full Equipment Roster Per Phase – Phases 4 through 6

Phase 4 – Building Envelope and Interior Build Out **Phase Duration: Sixty (60) Weeks – 300 days**

Equipment Type	Quantity	Avg Hours Per Day	Days Per Phase	Selected FTA/RCNM Equivalent	L_{max} at 50'	Usage Factor	L_{eq}, dBA
Aerial Lifts (jlg)	4	6	100	Man Lift	85.0	20.0	80.2
Cranes (MEP)	2	8	100	Crane	85.0	16.0	79.3
Cranes (Cladding)	2	8	120	Crane	85.0	16.0	79.3
Forklifts (MEP)	10	8	120	Backhoe	80.0	40.0	78.2
Generator Sets	2	8	120	Generator	82.0	50.0	81.2
Pressure Washers	2	4	60	Generator	82.0	50.0	81.2
Rollers	2	4	40	Roller	85.0	20.0	80.2
Surfacing Equipment	2	4	20	Paver	85.0	50.0	84.2
Tractors/Loaders/Backhoes (arch)	2	6	40	Tractor	85.0	40.0	83.2
Tractors/Loaders/Backhoes (mep)	4	8	120	Tractor	85.0	40.0	83.2
Trenchers	1	6	40	Slurry Trenching Machine	82.0	50.0	81.2
Welders	2	8	60	Welder/Torch	73.0	40.0	71.2

Phase 5 – Sitework **Phase Duration: Twenty-Five (25) Weeks – 125 days**

Equipment Type	Quantity	Avg Hours Per Day	Days Per Phase	Selected FTA/RCNM Equivalent	L_{max} at 50'	Usage Factor	L_{eq}, dBA
AC Rollers	2	4	50	Roller	85.0	20.0	80.2
Air Compressors Truck Mounted	2	4	60	Compressor (Air)	80.0	40.0	78.2
Concrete/Industrial Saws	2	4	20	Concrete Saw	90.0	20.0	85.2
Crawler Tractors	2	4	40	Tractor	85.0	40.0	83.2
Excavators (paving)	2	6	30	Excavator	85.0	40.0	83.2
Excavators (utilities)	2	6	60	Excavator	85.0	40.0	83.2
Graders	2	6	40	Grader	85.0	40.0	83.2
Oil Distributor	2	4	20	Flatbed Truck	84.0	40.0	82.2
Pavers	2	8	10	Paver	85.0	50.0	84.2
Plate Compactors (site phase)	2	4	60	Compactor	82.0	20.0	77.2
Rubber Tired Loaders (utilities)	4	6	60	Front End Loader	80.0	40.0	78.2
Rubber Tired Loaders (paving)	2	6	40	Front End Loader	80.0	40.0	78.2
Scrapers	2	4	20	Scrapers	85.0	40.0	83.2
Surfacing Equipment	2	6	60	Roller	85.0	20.0	80.2
Tack Truck	2	4	20	Flatbed Truck	84.0	40.0	82.2
Tractors/Loaders/Backhoes (utilities)	2	6	60	Tractor	85.0	40.0	83.2
Trenchers	1	6	60	Slurry Trenching Machine	82.0	50.0	81.2
Water Truck	2	4	20	Flatbed Truck	84.0	40.0	82.2

Phase 6 – Startup and Commissioning **Phase Duration: Seven (7) Weeks – 35 days**

Equipment Type	Quantity	Avg Hours Per Day	Days Per Phase	Selected FTA/RCNM Equivalent	L_{max} at 50'	Usage Factor	L_{eq}, dBA
Aerial Lifts (jlg)	1	6	30	Man Lift	85.0	20.0	80.2
Forklift (demobilization)	1	8	30	Backhoe	80.0	40.0	78.2
Rubber Tired Loaders (landscaping)	1	6	30	Front End Loader	80.0	40.0	78.2
Sweepers/Scrubbers	1	6	20	Vacuum Street Sweeper	80.0	10.0	72.2

See Report Table 5-1 for Phase-Based Equipment Assumptions

Predicted Onsite Construction Noise Levels at Studied Assessment Locations Per Project Construction Phase

Nearest Property Boundary

Construction Phase	Distance to Project Property Boundary	Combined L_{eq} at Distance
Demolition and Site Prep	255	74.1
Grading and Ground Improvements	255	72.1
Building Construction	255	70.6
Building Envelope and Interior Build Out	255	73.1
Sitework	255	74.1
Startup and Commissioning	255	68.2

Nearest Noise-Sensitive Land Use (Church)

Construction Phase	Distance to Nearest NSLU	Combined L_{eq} at Nearest NSLU
Demolition and Site Prep	725	65.0
Grading and Ground Improvements	725	63.0
Building Construction	725	61.5
Building Envelope and Interior Build Out	725	64.0
Sitework	725	65.0
Startup and Commissioning	725	59.1

Nearest Residential Noise-Sensitive Land Use

Construction Phase	Distance to Nearest Residence	Combined L_{eq} at Nearest Residence
Demolition and Site Prep	745	64.8
Grading and Ground Improvements	745	62.8
Building Construction	745	61.3
Building Envelope and Interior Build Out	745	63.8
Sitework	745	64.8
Startup and Commissioning	745	58.9

Predicted Aggregate Noise Level and Increase-Over-Existing Calculations Per Project Construction Phase

	Assessment Location	Existing Daytime L_{eq}, dBA	Condition	Predicted Hourly L_{eq}, dBA
Phase 1 Demolition and Site Prep	Construction Site Boundary	67.6	Construction Noise Level	74.1
			Combined Noise Level	75.0
			Increase over Existing	7.4
	Nearest Noise Sensitive Land Use (Church)	70.3	Predicted Const. Noise	65.0
			Aggregate Noise Level	71.4
			Increase over Existing	1.1
	Nearest Residential Noise Sensitive Land Use	70.3	Predicted Const. Noise	64.8
			Aggregate Noise Level	71.4
			Increase over Existing	1.1
Phase 2 Grading and Ground Improvements	Construction Site Boundary	67.6	Construction Noise Level	72.1
			Combined Noise Level	73.4
			Increase over Existing	5.8
	Nearest Noise Sensitive Land Use (Church)	70.3	Predicted Const. Noise	63.0
			Aggregate Noise Level	71.0
			Increase over Existing	0.7
	Nearest Residential Noise Sensitive Land Use	70.3	Predicted Const. Noise	62.8
			Aggregate Noise Level	71.0
			Increase over Existing	0.7
Phase 3 Building Construction	Construction Site Boundary	67.6	Construction Noise Level	70.6
			Combined Noise Level	72.4
			Increase over Existing	4.8
	Nearest Noise Sensitive Land Use (Church)	70.3	Predicted Const. Noise	61.5
			Aggregate Noise Level	70.8
			Increase over Existing	0.5
	Nearest Residential Noise Sensitive Land Use	70.3	Predicted Const. Noise	61.3
			Aggregate Noise Level	70.8
			Increase over Existing	0.5
Phase 4 Building Envelope and Interior Build Out	Construction Site Boundary	67.6	Construction Noise Level	73.1
			Combined Noise Level	74.2
			Increase over Existing	6.6
	Nearest Noise Sensitive Land Use (Church)	70.3	Predicted Const. Noise	64.0
			Aggregate Noise Level	71.2
			Increase over Existing	0.9
	Nearest Residential Noise Sensitive Land Use	70.3	Predicted Const. Noise	63.8
			Aggregate Noise Level	71.2
			Increase over Existing	0.9
Phase 5 Sitework	Construction Site Boundary	67.6	Construction Noise Level	74.1
			Combined Noise Level	75.0
			Increase over Existing	7.4
	Nearest Noise Sensitive Land Use (Church)	70.3	Predicted Const. Noise	65.0
			Aggregate Noise Level	71.4
			Increase over Existing	1.1
	Nearest Residential Noise Sensitive Land Use	70.3	Predicted Const. Noise	64.8
			Aggregate Noise Level	71.4
			Increase over Existing	1.1
Phase 6 Startup and Commissioning	Construction Site Boundary	67.6	Construction Noise Level	68.2
			Combined Noise Level	70.9
			Increase over Existing	3.3
	Nearest Noise Sensitive Land Use (Church)	70.3	Predicted Const. Noise	59.1
			Aggregate Noise Level	70.6
			Increase over Existing	0.3
	Nearest Residential Noise Sensitive Land Use	70.3	Predicted Const. Noise	58.9
			Aggregate Noise Level	70.6
			Increase over Existing	0.3

B.2 Construction Vibration Inputs and Calculations

Construction Equipment Activity	Reference PPV in/sec at 25 Feet	Assessment Location	Distance from Vibration Source (Feet)	Resulting PPV in/sec
Hoe Ram	0.089	Closest Adjacent Structure of Any Type	70	0.029

Construction Equipment Activity	Reference VdB at 25 Feet	Assessment Location	Distance from Vibration Source (Feet)	Resulting VdB
Loaded Trucks (Nighttime)	86	Closest Residential Land Use	440	49

B.3 Operation – Offsite Traffic Noise Sources and Inputs

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1A - INTERSECTION TURNING MOVEMENTS																Total All Approaches
		Northbound				Southbound				Eastbound				Westbound				
		Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
Existing Counts (June 2018)																		
1	Entrance @ Toland St		136		136		215		215				0				0	351
2	Entrance @ Selby St				0				0				0				0	0
3	Entrance @ Rankin St		35		35		52		52				0				0	87
4	Evans Ave / Napoleon St / Toland St	3	93	33	129	322	122	175	619	163	37	14	214	27	47	439	513	1,475
5	Jerrold Ave / Toland St	34	85	22	141	20	143	32	195	35	113	38	186	36	199	28	263	785
6	Kirkwood Ave / Toland St		136		136	2	215		217				0			5	5	358
7	McKinnon Ave / Toland St	16	92	6	114	25	173	17	215	13	14	15	42	9	19	31	59	430
8	Oakdale Av / Toland St				0	54		132	186	67	452		519		298	53	351	1,056
9	Kirkwood Ave / Rankin St	2	33		35		51	2	53	2		1	3				0	91
10	Kirkwood Ave / Selby St	0	0	0	0	1	0	1	2	0	2	0	2	0	4	0	4	8
11	McKinnon Ave / Selby St	5			5			2	2	5	35	5	45		52		52	104
Existing Baseline																		
1	Entrance @ Toland St		136	0	136	0	190		190				0	0		0	0	326
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	0	20		20		52	0	52	0		0	0				0	72
4	Evans Ave / Napoleon St / Toland St	3	93	33	129	322	122	175	619	163	37	14	214	27	47	439	513	1,475
5	Jerrold Ave / Toland St	34	80	22	136	20	143	32	195	35	113	38	186	36	199	35	270	787
6	Kirkwood Ave / Toland St		136	0	136	27	190		217				0				0	353
7	McKinnon Ave / Toland St	16	92		108		173	17	190	13		20	33	9	17	31	57	388
8	Oakdale Av / Toland St				0	59		132	191	67	466		533		298	47	345	1,069
9	Kirkwood Ave / Rankin St		20		20		51		51	35		1	36				0	107
10	Kirkwood Ave / Selby St		0	0	0	9	0		9	0	27	0	27				0	36
11	McKinnon Ave / Selby St	5	0	20	25	0	0	0	0				0	0	52	0	52	77
Project - All Autos+Vans																		
1	Entrance @ Toland St		95	0	95	2	0		2				0	49		114	162	259
2	Entrance @ Selby St	59	0	1	60	2	0	63	65	1	0	2	3	146	0	19	164	292
3	Entrance @ Rankin St	35	0		35		24	87	111	1		0	1				0	146
4	Evans Ave / Napoleon St / Toland St	0	58	0	58	0	88	0	88	0	0	0	0	0	0	0	0	146
5	Jerrold Ave / Toland St	132	58	0	190	43	46	0	88	0	20	21	41	0	0	0	0	319
6	Kirkwood Ave / Toland St		190	19	208	65	2		67				0				0	275
7	McKinnon Ave / Toland St	0	0		0		49	0	49	0		0	0	0	0	95	95	144
8	Oakdale Av / Toland St				0	41		8	49	0	9		9		8	0	8	65
9	Kirkwood Ave / Rankin St		1		1		111		111	38		0	38				0	149
10	Kirkwood Ave / Selby St		0	19	19	0	0		0	0	19	65	83				0	103
11	McKinnon Ave / Selby St	0	36	35	71	0	53	95	148				0	0	0	24	24	242

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1A - INTERSECTION TURNING MOVEMENTS																
		Northbound				Southbound				Eastbound				Westbound				Total All
		Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Approaches
	Project - All Buses+Trucks																	
1	Entrance @ Toland St		6	0	6	0	0		0				0	1		7	9	15
2	Entrance @ Selby St	3	0	0	3	0	0	6	6	0	0	1	1	7	0	2	9	20
3	Entrance @ Rankin St	2	0		2		1	7	8	0		0	0				0	10
4	Evans Ave / Napoleon St / Toland St	0	2	0	2	0	4	0	4	0	0	0	0	0	0	0	0	7
5	Jerrold Ave / Toland St	10	2	0	12	1	3	0	4	0	3	4	7	0	1	0	1	25
6	Kirkwood Ave / Toland St		12	1	13	7	0		7				0				0	20
7	McKinnon Ave / Toland St	0	0		0		1	0	1	0		0	0	0	0	6	6	7
8	Oakdale Av / Toland St				0	1		0	1	0	1		1		0	0	1	2
9	Kirkwood Ave / Rankin St		0		0		7		7	2		2	4				0	11
10	Kirkwood Ave / Selby St		0	2	2	0	0		0	0	1	6	8				0	10
11	McKinnon Ave / Selby St	0	2	2	4	0	3	6	8				0	0	0	1	1	13
	Project - All Vehicles																	
1	Entrance @ Toland St		101	0	101	2	0		2				0	50		121	171	274
2	Entrance @ Selby St	62	0	1	63	2	0	69	71	1	0	2	3	153	0	20	174	311
3	Entrance @ Rankin St	36	0		36		25	94	119	1		0	1				0	156
4	Evans Ave / Napoleon St / Toland St	0	60	0	60	0	92	0	92	0	0	0	0	0	0	0	0	152
5	Jerrold Ave / Toland St	142	60	0	202	44	48	0	92	0	23	25	48	0	1	0	1	344
6	Kirkwood Ave / Toland St	0	202	19	222	72	2	0	74	0	0	0	0	0	0	0	0	295
7	McKinnon Ave / Toland St	0	0	0	0	0	50	0	50	0	0	0	0	0	0	100	101	151
8	Oakdale Av / Toland St				0	42		8	50	0	9		9		8	0	8	67
9	Kirkwood Ave / Rankin St	0	1		1		117	0	117	40		2	42				0	160
10	Kirkwood Ave / Selby St	0	0	22	22	0	0	0	0	0	20	71	91	0	0	0	0	113
11	McKinnon Ave / Selby St	0	39	36	75	0	55	101	156	0	0	0	0	0	0	25	25	256
	Existing Baseline + All Project Vehicles																	
1	Entrance @ Toland St		237	0	237	2	190		192				0	50		121	171	600
2	Entrance @ Selby St	62	0	1	63	2	0	69	71	1	0	2	3	153	0	20	174	311
3	Entrance @ Rankin St	36	20		56		77	94	171	1		0	1				0	228
4	Evans Ave / Napoleon St / Toland St	3	153	33	189	322	214	175	711	163	37	14	214	27	47	439	513	1,627
5	Jerrold Ave / Toland St	176	140	22	338	64	191	32	287	35	136	63	234	36	200	35	271	1,131
6	Kirkwood Ave / Toland St	0	338	19	358	99	192	0	291	0	0	0	0	0	0	0	0	648
7	McKinnon Ave / Toland St	16	92	0	108	0	223	17	240	13	0	20	33	9	17	131	158	539
8	Oakdale Av / Toland St				0	101		140	241	67	475		542		306	47	353	1,136
9	Kirkwood Ave / Rankin St	0	21		21		168	0	168	75		3	78				0	267
10	Kirkwood Ave / Selby St	0	0	22	22	9	0	0	9	0	47	71	118	0	0	0	0	149
11	McKinnon Ave / Selby St	5	39	56	100	0	55	101	156	0	0	0	0	0	52	25	77	333

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1B - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
	Existing Counts (June 2018)													
1	Entrance @ Toland St	215	136	351	0	0	0	136	215	351	0	0	0	351
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	52	35	87	0	0	0	35	52	87	0	0	0	87
4	Evans Ave / Napoleon St / Toland St	619	695	1,314	513	392	905	129	163	292	214	225	439	1,475
5	Jerrold Ave / Toland St	195	148	343	263	155	418	141	217	358	186	265	451	785
6	Kirkwood Ave / Toland St	217	141	358	5	2	7	136	215	351	0	0	0	358
7	McKinnon Ave / Toland St	215	136	351	59	45	104	114	197	311	42	52	94	430
8	Oakdale Av / Toland St	186	120	306	351	506	857	0	0	0	519	430	949	1,056
9	Kirkwood Ave / Rankin St	53	35	88	0	0	0	35	52	87	3	4	7	91
10	Kirkwood Ave / Selby St	2	0	2	4	3	7	0	0	0	2	5	7	8
11	McKinnon Ave / Selby St	2	5	7	52	35	87	5	5	10	45	59	104	104
	Existing Baseline													
1	Entrance @ Toland St	190	136	326	0	0	0	136	190	326	0	0	0	326
2	Entrance @ Selby St	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Entrance @ Rankin St	52	20	72	0	0	0	20	52	72	0	0	0	72
4	Evans Ave / Napoleon St / Toland St	619	695	1,314	513	392	905	129	163	292	214	225	439	1,475
5	Jerrold Ave / Toland St	195	150	345	270	155	425	136	217	353	186	265	451	787
6	Kirkwood Ave / Toland St	217	136	353	0	27	27	136	190	326	0	0	0	353
7	McKinnon Ave / Toland St	190	136	326	57	0	57	108	202	310	33	50	83	388
8	Oakdale Av / Toland St	191	114	305	345	525	870	0	0	0	533	430	963	1,069
9	Kirkwood Ave / Rankin St	51	55	106	0	0	0	20	52	72	36	0	36	107
10	Kirkwood Ave / Selby St	9	0	9	0	36	36	0	0	0	27	0	27	36
11	McKinnon Ave / Selby St	0	0	0	52	20	72	25	0	25	0	57	57	77
	Project - All Autos+Vans													
1	Entrance @ Toland St	2	208	210	162	2	164	95	49	144	0	0	0	259
2	Entrance @ Selby St	65	19	84	164	3	167	60	148	208	3	122	125	292
3	Entrance @ Rankin St	111	1	111	0	0	0	35	24	58	1	121	122	146
4	Evans Ave / Napoleon St / Toland St	88	58	146	0	0	0	58	88	146	0	0	0	146
5	Jerrold Ave / Toland St	88	58	146	0	63	63	190	67	256	41	132	174	319
6	Kirkwood Ave / Toland St	67	190	256	0	83	83	208	2	210	0	0	0	275
7	McKinnon Ave / Toland St	49	95	144	95	0	95	0	49	49	0	0	0	144
8	Oakdale Av / Toland St	49	0	49	8	50	58	0	0	0	9	15	24	65
9	Kirkwood Ave / Rankin St	111	38	149	0	0	0	1	111	111	38	0	38	149
10	Kirkwood Ave / Selby St	0	0	0	0	38	38	19	65	84	83	0	83	103
11	McKinnon Ave / Selby St	148	60	208	24	35	58	71	53	124	0	95	95	242

San Francisco Gateway Project [June 2021]
Weekday PM Peak Hour (3 PM to 6 PM period)

#	Intersection Name	TABLE 1B - INTERSECTION APPROACH VOLUMES												
		North Leg			East leg			South Leg			West Leg			Total All
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Approaches
	Project - All Buses+Trucks													
1	Entrance @ Toland St	0	13	13	9	0	9	6	1	7	0	0	0	15
2	Entrance @ Selby St	6	2	9	9	0	10	3	8	11	1	9	10	20
3	Entrance @ Rankin St	8	0	9	0	0	0	2	1	3	0	9	9	10
4	Evans Ave / Napoleon St / Toland St	4	2	7	0	0	0	2	4	7	0	0	0	7
5	Jerrold Ave / Toland St	4	2	7	1	4	6	12	7	19	7	11	18	25
6	Kirkwood Ave / Toland St	7	12	19	0	8	8	13	0	13	0	0	0	20
7	McKinnon Ave / Toland St	1	6	7	6	0	6	0	1	2	0	0	0	7
8	Oakdale Av / Toland St	1	0	2	1	1	2	0	0	0	1	1	1	2
9	Kirkwood Ave / Rankin St	7	3	9	0	0	0	0	8	9	4	0	4	11
10	Kirkwood Ave / Selby St	0	0	0	0	4	4	2	6	9	8	0	8	10
11	McKinnon Ave / Selby St	8	3	11	1	2	3	4	3	7	0	6	6	13
	Project - All Vehicles													
1	Entrance @ Toland St	2	222	224	171	2	173	101	50	151	0	0	0	274
2	Entrance @ Selby St	71	22	93	174	3	177	63	156	219	3	131	134	311
3	Entrance @ Rankin St	119	1	120	0	0	0	36	25	61	1	130	131	156
4	Evans Ave / Napoleon St / Toland St	92	60	152	0	0	0	60	92	152	0	0	0	152
5	Jerrold Ave / Toland St	92	60	152	1	67	69	202	74	276	48	143	192	344
6	Kirkwood Ave / Toland St	74	202	276	0	91	91	222	2	224	0	0	0	295
7	McKinnon Ave / Toland St	50	101	151	101	0	101	0	50	51	0	0	0	151
8	Oakdale Av / Toland St	50	0	51	8	51	59	0	0	0	9	16	25	67
9	Kirkwood Ave / Rankin St	117	41	158	0	0	0	1	119	120	42	0	42	160
10	Kirkwood Ave / Selby St	0	0	0	0	42	42	22	71	93	91	0	91	113
11	McKinnon Ave / Selby St	156	63	219	25	36	61	75	56	130	0	101	101	256
	Existing Baseline + All Project Vehicles													
1	Entrance @ Toland St	192	358	550	171	2	173	237	240	477	0	0	0	600
2	Entrance @ Selby St	71	22	93	174	3	177	63	156	219	3	131	134	311
3	Entrance @ Rankin St	171	21	192	0	0	0	56	77	133	1	130	131	228
4	Evans Ave / Napoleon St / Toland St	711	755	1,466	513	392	905	189	255	444	214	225	439	1,627
5	Jerrold Ave / Toland St	287	210	497	271	222	494	338	291	629	234	408	643	1,131
6	Kirkwood Ave / Toland St	291	338	629	0	118	118	358	192	550	0	0	0	648
7	McKinnon Ave / Toland St	240	237	477	158	0	158	108	252	361	33	50	83	539
8	Oakdale Av / Toland St	241	114	356	353	576	929	0	0	0	542	446	988	1,136
9	Kirkwood Ave / Rankin St	168	96	264	0	0	0	21	171	192	78	0	78	267
10	Kirkwood Ave / Selby St	9	0	9	0	78	78	22	71	93	118	0	118	149
11	McKinnon Ave / Selby St	156	63	219	77	56	133	100	56	155	0	158	158	333

Peak-hour turning volumes were compiled per roadway segment and multiplied by a “k” factor of 10 to arrive at the estimated average daily traffic volumes below.

Street	Leg Dir.	Width Lanes	Width Paved	Existing ADT	Existing Peak Hour	Future Project ADT	Future Project Peak Hour
Jerrold Avenue east of Toland Street (westbound)	E	16	28	2,125	213	345	35
Jerrold Avenue east of Toland Street (eastbound)	E	16	28	2,125	213	345	35
Jerrold Avenue west of Toland Street	W	35	58	4,510	451	1,920	192
Kirkwood Avenue/Selby Street to Rankin Street	W	22	45	360	36	420	42
Kirkwood Avenue/Toland Street to Selby Street	E	22	45	270	27	910	91
McKinnon Avenue/Selby Street to Rankin Street	E	22	45	720	72	610	61
McKinnon Avenue/Toland Street to Selby Street	E	22	45	570	57	1,010	101
McKinnon Avenue west of Toland Street	W	22	45	830	83	0	0
Oakdale Avenue east of Toland Street	E	22	48	8,700	870	590	59
Oakdale Avenue west of Toland Street	W	24	60	9,630	963	250	25
Rankin Street entrance at Rankin Street to Kirkwood Avenue	N	22	45	720	72	1,200	120
Rankin Street/McKinnon Avenue to entrance at Rankin Street	S	22	45	720	72	610	61
Rankin Street/Kirkwood Avenue to Jerrold Avenue	N	22	45	1,060	106	1,580	158
Selby Street entrance at Selby Street to Kirkwood Avenue	N	22	36	0	0	930	93
Selby Street/McKinnon Avenue to entrance at Selby Street	N	22	36	0	0	2,190	219
Selby Street north of Kirkwood Avenue	N	22	36	90	9	0	0
Selby Street south of McKinnon Avenue	S	24	45	250	25	1,300	130
Toland Street entrance at Toland Street to Kirkwood Avenue	N	35	58	3,260	326	2,240	224
Toland Street/Jerrold Avenue to Evans Avenue	N	28	45	3,450	345	1,520	152
Toland Street/Kirkwood Avenue to Jerrold Avenue	N	28	48	3,530	353	2,760	276
Toland Street/McKinnon to entrance at Toland Street	N	28	50	3,260	326	1,510	151
Toland Street/Oakdale Avenue to McKinnon Avenue	S	28	50	3,100	310	510	51

General 24-Hour Project Traffic Mix per Travel Memo Table 11

24-hour Mix		
Auto	MT	HT
90.3%	6.9%	2.8%

On-Trac and Amazon Driveway Data Provided by Adavant Consulting

	OnTrac Driveways					Amazon Driveways				
Time Frame	**Auto**	**Van**	**Truck**	**Tractor Trailers**	**All Vehicles**	**Auto**	**Van**	**Truck**	**Tractor Trailers**	**All Vehicles**
7 AM to 7 PM volume % of total daily	480	163	125	4	772	793	244	49	17	1,103
	71%	85%	82%	13%	73%	76%	88%	88%	31%	77%
7 PM to 10 PM volume % of total daily	68	5	22	1	96	125	18	3	13	159
	10%	3%	14%	3%	9%	12%	6%	5%	24%	11%
10 PM to 7 AM volume % of total daily	128	24	6	25	183	132	16	4	25	177
	19%	13%	4%	83%	17%	13%	6%	7%	45%	12%
Totals:	676	192	153	30	1,051	1,050	278	56	55	1,439

	OnTrac Facility Breakdown		
	Daytime	**Evening**	**Nighttime**
%Auto	74%	8%	18%
%MT	82%	14%	4%
%HT	13%	3%	83%

	Amazon Driveway Breakdown		
	Daytime	**Evening**	**Nighttime**
%Auto	78%	11%	11%
%MT	88%	5%	7%
%HT	31%	24%	45%

	Combined (Avg) Distribution Per Period		
	Daytime	**Evening**	**Nighttime**
%Auto	76%	10%	14%
%MT	85%	10%	6%
%HT	22%	13%	64%

Detailed TNM Model Results Per Receiver ID

Rec ID	Daytime Model L_{eq}, dBA	Evening Model L_{eq}, dBA	Nighttime Model L_{eq}, dBA	Calculated CNEL, dBA
M1	45.0	43.9	43.7	50.5
M2	57.0	55.9	55.1	62.1
M3	51.3	49.8	48.3	55.5
M4	40.2	38.7	37.8	44.9
M5	52.9	50.7	49.1	56.5
M6	56.6	54.9	54.5	61.5
M7	51.7	49.3	47.3	54.9
M8	54.1	52.4	50.8	58.1
M9	49.7	47.4	45.3	52.9
M10	54.3	53.3	51.8	59.0
M11	54.6	53.2	52.3	59.4

B.4 Operation – Onsite Traffic Noise Sources and Inputs

Logistics Yard Source Characterization

Square Feet Per Level/Use

Use Scenario	L1	L2	L3	L4	Project Total
PDR Uses					
Light Manufacturing/Maker	35,000	0	0	0	3,5000
Parcel Delivery/Last Mile	0	381,000	369,600	8,800	759,400
Wholesale and Storage	372,400	0	0	0	372,400
Retail	8,400	0	0	0	8,400
Logistics Yard	0	72,400	73,400	0	145,800
Vehicle Circulation	13,800	112,800	95,400	17,600	239,600
Parking	111,800	0	0	487,600	599,400
				Total:	2,160,000

Percent of Use Type Per Level

Use	L1	L2	L3	L4	
PDR	34.9%	32.7%	31.7%	0.8%	
Retail	18.7%	0%	0%	81.3%	Roof % estimated

Daily Vehicle Volume Per Use (Traffic Memo Table 11)

Use	Auto	MT	HT
PDR	5,458	556	182
Retail/QSR	524	6	0

Square Foot Per Use Per Floor Per Building Use and Vehicle Classification	L1	L2	L3	L4
PDR Auto	206	506	491	1,527
PDR MT	132	73	71	2
PDR HT	31	30	29	1
Retail Auto	196	0	0	66
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Auto	402	506	491	1,593
Total MT	135	73	71	2
Total HT	31	30	29	1

Daily Quantities Per Vehicle Type Per Level Vehicle Type	L1 Idle in Log Yard	L2 Idle in Log Yard	L3 Idle in Log Yard
Total MT	68	37	36
Total HT	16	15	15

Percent Vehicles per Daytime/Evening/Nighttime Period

Type	% Day	% Eve	% Night
Auto	76%	10%	14%
MT	85%	10%	6%
HT	22%	13%	64%

Volume of Vehicles Per Level Per CNEL Period

Vehicle Class and Period	L1 Idle in Log Yard	L2 Idle in Log Yard	L3 Idle in Log Yard
MT Day	57	31	30
MT Evening	7	4	4
MT Night	4	2	2
HT Day	3	3	3
HT Evening	2	2	2
HT Night	10	10	9

Building Ramp Traffic Source Characterization

Square Foot Per Use Per Floor Per Building

Use Type and Vehicle Class	L1	L2	L3	L4
PDR Auto	206	506	491	1,527
PDR MT	132	73	71	2
PDR HT	31	30	29	1
Retail Auto	196	0	0	66
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Auto	402	506	491	1,593
Total MT	135	73	71	2
Total HT	31	30	29	1

Combined Daily Traffic Volumes

Vehicle Classification	Circulating Through L1	Ascend L1 to L2	Descend L2 to L1	Ascend L2 to L3	Descend L3 to L2	Ascend L3 to L4	Descend L4 to L3
Total Auto	2991	1295	1295	1042	1042	796	796
Total MT	281	73	73	36	36	1	1
Total HT	91	30	30	15	15	0	0

Hourly Volumes per Ramp per Period

Ramp Area	Vehicle Class	Daytime Period	Evening Period	Nighttime Period
Circulating Through Level 1	Auto	190	96	48
	MT	20	9	2
	HT	2	4	7
Ascend L1 to L2	Auto	82	41	21
	MT	5	2	0
	HT	1	1	2
Descend L2 to L1	Auto	82	41	21
	MT	5	2	0
	HT	1	1	2
Ascend L2 to L3	Auto	66	33	17
	MT	3	1	0
	HT	0	1	1
Descend L3 to L2	Auto	66	33	17
	MT	3	1	0
	HT	0	1	1
Ascend L3 to L4	Auto	50	25	13
	MT	0	0	0
	HT	0	0	0
Descend L4 to L3	Auto	50	25	13
	MT	0	0	0
	HT	0	0	0

B.5 Operation – HVAC Sources and Inputs Per Building

Serviced Area	Total Volume (GSF)	CFM per GSF Requirement	CFM Requirement Per System
Log Yard Ventilation Level 1	130,700	1.00	130,700
Log Yard Ventilation Level 2	92,600	1.00	92,600
Log Yard Ventilation Level 3	84,400	1.00	84,400
PDR Level 2 Interior Ventilation (roof)	127,000	1.00	127,000
PDR Level 3 Interior Ventilation (roof)	123,200	1.00	123,200
Level 1 Offices Split AC (roof)	67,900	0.25	16,975
Level 1 Retail Split AC (roof)	4,200	1.25	5,250
Level 2 Offices Split AC (roof)	63,500	0.25	15,875
Level 2 Offices Split AC (roof)	63,500	0.25	15,875

Serviced Area	Quantity Per Building	Equip. Manufacturer	Equip. Model	CFM Per Unit	Combined CFM Output
Log Yard Ventilation Level 1	2 (each x3 to meet CFM needs)	GREENHECK	EQB-33	25,600	153,600
Log Yard Ventilation Level 2	4	GREENHECK	EQB-33	23,170 (diff RPM)	92,680
Log Yard Ventilation Level 3	4	GREENHECK	EQB-33	23,170 (diff RPM)	92,680
PDR Level 2 Interior Ventilation (roof)	4	GREENHECK	GB-500	33,000	132,000
PDR Level 3 Interior Ventilation (roof)	4	GREENHECK	GB-500	33,000	132,000
Level 1 Offices Split AC (roof)	1	DATA AIRE	DARC 40	19,000	19,000
Level 1 Retail Split AC (roof)	1	DATA AIRE	DARC 17	9,800	9,800
Level 2 Offices Split AC (roof)	1	DATA AIRE	DARC 40	19,000	19,000
Level 2 Offices Split AC (roof)	1	DATA AIRE	DARC 40	19,000	19,000

Equipment	Manufacturer	Model	Unweighted Octave-Band (Hertz) Sound Power Level									Representative Quantity Modeled
			63	125	250	500	1000	2000	4000	8000	Total Unweighted Sound Power Level	
Logistics Yard Ventilation	Greenheck	EQB-33	92	91	91	91	87	85	82	71	98	14
Rooftop Ventilation	Greenheck	GB-500	94	98	91	86	85	84	80	70	100	8
Rooftop Split AC	Data Aire	DARC 40	80	78	85	83	82	79	73	71	89	3
Rooftop Split AC	Data Aire	DARC 17	77	75	82	80	79	76	70	68	87	1
Emergency Generator	Cummins	C2000D6RG	67	88	90	86	90	92	92	85	106	6

Appendix C Alternatives Analysis – Traffic Noise Assessment of Fleet Management Use Mix Alternative

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Project name:
SF Gateway

To:
San Francisco Environmental Planning

From:
Chris Kaiser, INCE

Date:
July 6, 2023

Subject: Alternatives Analysis - Traffic Noise Assessment of Fleet Management Use Mix Alternative

This memo briefly summarizes the comparative analysis of traffic noise generated by the proposed project and the Fleet Management Use Mix Alternative. The nighttime period was the primary focus for the comparison of impacts between the proposed project and the Fleet Management Use Mix Alternative because traffic during this period would have the greatest effect on the predicted community noise equivalent level. The draft EIR Chapter 5, Alternatives, in section 5.C.3.2, states that the Fleet Management Use Mix Alternative would result in the following:

- Reduction of onsite and offsite traffic volumes by approximately 14 percent (overall)[1]
- Reduction of heavy truck trips by approximately 50 percent during the nighttime period (10 p.m. to 7 a.m.) period[1]
- Increase of bus trips during the nighttime period (10 p.m. to 7 a.m.) resulting from public fleet operations of 425 percent (concentrated in the 5 a.m. and 7 a.m. period, when buses are leaving the facility to begin public transportation services)[1]
- Considering all of the above, the noise-reducing effects from the halving of nighttime heavy trucks assumed in the proposed project would offset the potential increase in bus noise, resulting in a net nighttime traffic noise reduction of approximately 0.1 dBA

The quantification of the 0.1 dBA reduction was performed using Table 3-3 of the 2013 Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS). This table provides a method to convert medium and heavy truck quantities into one standardized auto quantity for simplified comparisons. The table suggests that at 35 miles per hour, one medium and heavy truck is equivalent to 7.1 and 19.1 cars, respectively. Once converted, a 10*Log comparison of the car values can be used to roughly quantify the relative increase or reduction in traffic noise between the two scenarios as follows:

$$Change\ in\ Traffic\ Noise\ Level\ dB = 10 * Log(\frac{Equivalent\ \#\ Cars\ Alternative}{Equivalent\ \#\ Cars\ Project})$$

During the nighttime period, the proposed project would result in approximately 31 nighttime medium trucks and 117 nighttime heavy trucks, equating to approximately 2,456 equivalent-cars. The Fleet Management Use Mix Alternative would result in 12 nighttime medium trucks and 59 nighttime heavy trucks from the parcel delivery and last-mile delivery use, 39 nighttime medium trucks/buses from the private fleet use, and 130 medium trucks/buses from the public fleet use, equating to approximately 2,420 equivalent-cars. When entered into the formula above, the resulting difference from the 36 fewer equivalent-cars is -0.06 dB.

[1] The change in travel demand by vehicle types is based on the transportation analysis prepared for the project by Adavant Consulting/LCW Consulting, 2023, included as Appendix D to the EIR. Details from that analysis and assumptions used for this noise assessment of the Fleet Management Use Mix Alternative are presented on the next page.

Data Tables and Assumptions for Proposed Project and Fleet Management Use Mix Alternative

Proposed Project Daily Traffic

Project Use Type	Total Trips	Autos (Including Vans)	Medium Truck (MT)	Heavy Trucks (HT)	Nighttime MT	Nighttime HT
Commuter	3,030	3,030			-	-
All PDR	3,166	2,428	556	182	31	117
Retail	530	524	6	0	-	-

Fleet Management Use Mix Alternative Daily Traffic

Project Use Type	Total Trips	Autos (Including Vans)	Medium Truck (MT)	Heavy Trucks (HT)	Nighttime MT	Nighttime HT
Commuter (Auto)	2,822	2,822			-	-
Parcel Delivery and Last-Mile Delivery	1,858	1,543	223	92	12	59
Public Fleet	678	314	362	2	130	0

14% Reduction in total vehicles

50% HT – Nighttime reduction in trips compared to project

425% MT/Buses - Increase from public fleet only compared to project nighttime MTs

594% MT/Buses - Total increase (all uses) compared to project nighttime MTs

Caltrans TeNS Equivalent Calculation at 35 m.p.h. (Table 3-3)

Nighttime Scenario	MT / Equivalent	HT / Equivalent	Equivalent Cars Total	10*Log Equivalent Cars Difference (dB)
Equivalent Cars	7.1	19.1	1	
Proposed Project	31 / 217	117 / 2,239	2,456	-0.1
Fleet Management Use Mix Alternative	182 /1,290	59 / 1,130	2,420	

APPENDIX F
AIR QUALITY SUPPORTING INFORMATION

AECOM

Appendix F

San Francisco Gateway Project Air Quality Supporting Information

Final

August 2023

Delivering a better world

Prepared for:

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San Francisco Gateway Project

Air Quality and Health Risk Assessment Methodology Memorandum

To	Elizabeth White; Jessica Range	Pages	65
CC	Ken Sun; Courtney Bell		
Subject	San Francisco Gateway Project: Final Air Quality and Health Risk Assessment (HRA) Methodology Memorandum		
From	Mary Kaplan; Christopher Warren; Paola Peña; Suzanne McFerran Jillian Betro; Rod Jeung		
Date	March 5, 2020; revised September 2021, revised January 2022; revised July 2023		

AECOM Technical Services, Inc. (AECOM) has prepared this methodology memorandum to describe the preparation of the air quality assessment and Health Risk Assessment (HRA) for the proposed San Francisco Gateway Project (proposed project). This methodology memorandum is required by the San Francisco Planning Department Environmental Planning Division (planning department) for compliance with the California Environmental Quality Act (CEQA), and is consistent with the 2022 Bay Area Air Quality Management District (air district) CEQA Guidelines[1] and 2020 Citywide HRA.[2] This memorandum describes the proposed project, the approach to the HRA, and the modeling methodologies to be used to perform the analysis. The mass emissions estimates and HRA results will be provided in a separate Air Quality Results Memorandum. A third memorandum analyzing the air quality effects of the project alternatives will also be prepared. These memoranda together comprise the Air Quality Technical Report (AQTR) for the proposed project.

In accordance with the city's procedures, the modeling methodologies and assumptions must be approved prior to conducting the analyses and producing air quality and HRA results. The methodology memorandum was initially approved in 2020; however, as the analysis progressed, guidance from the city and the air district evolved, and project construction and operations details were refined, this memorandum has been revised several times. The methodological approaches and assumptions have been updated in this final version of the methodology memorandum and were used to produce the mass emissions estimates and HRA results. Because this memorandum was first prepared in 2020, it uses the future tense to describe the methodologies and assumptions that were intended to be used (e.g., the evaluation "will" analyze …). In finalizing this memorandum, the methodologies and assumptions have been updated to reflect how the air quality and HRA analyses *were* performed for the final Air Quality Results Memorandum and the draft Environmental Impact Report (EIR).

This memorandum addresses the following topics, as listed below by section:

- **Section 1.0 – Introduction** describes the project understanding and the objectives and methodology for the AQTR.
- **Section 2.0 – Emissions Estimates** describes the methods proposed to be used to estimate the emissions of criteria air pollutants, precursors, and toxic air contaminants (TACs) generated from project construction and operations.

[1] Bay Area Air Quality Management District (air district), 2022, *California Environmental Quality Act Air Quality Guidelines (Air District CEQA Guidelines)*, https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines, accessed June 2023.

[2] San Francisco Department of Public Health (SFDPH). September 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation, accessed May 2021.

- **Section 3.0 – Air Dispersion Modeling** describes the proposed methods for modeling pollutant dispersion and estimating pollutant concentration contributions from project sources.

- **Section 4.0 – Health Risk Assessment Analysis** provides an overview of the proposed methodology for estimating potential health risks to sensitive receptors.

- **Section 5.0 – Measures to Reduce Project Impacts** describes how measures to reduce project impacts will be identified in coordination with the planning department and the project sponsor, if required by the planning department.

- **Section 6.0 – Uncertainties** provides a discussion of uncertainties and limitations associated with the Health Risk Analysis.

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Acronyms and Abbreviations

°F	degrees Fahrenheit
$\mu g/m^3 (g/s)^{-1}$	micrograms per cubic meter per g/s
ADMRT	Air Dispersion Modeling and Risk Tool
AECOM	AECOM Technical Services, Inc.
AERMOD	American Meteorological Society/U.S. EPA Regulatory Model
air district	Bay Area Air Quality Management District
AQTR	Air Quality Technical Report
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CEQA	California Environmental Quality Act
DPM	diesel particular matter
EIR	Environmental Impact Report
EMFAC	EMission FACtors
ft/min	feet per minute
ft^3/min	cubic feet per minute
g/s	gram per second
HRA	Health Risk Assessment
I-	Interstate
IARC	International Agency for Research on Cancer
K	Kelvin
kV	kiloVolt
m/sec	meters per second
m^3/sec	cubic meters per second
NED	National Elevation Dataset
NO_X	oxides of nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
PDR	*production, distribution, and repair*
planning department	San Francisco Planning Department Environmental Planning Division
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
proposed project	San Francisco Gateway Project
ROG	reactive organic gas
TACs	toxic air contaminants
TOG	total organic gases
U.S. EPA	United States Environmental Protection Agency
U.S. 101	U.S. Highway 101
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

1.0 Introduction

At the request of the planning department, AECOM Technical Services, Inc. (AECOM) will conduct an analysis of local air quality and health impacts associated with the construction and operation of the proposed project at 749 Toland Street and 2000 McKinnon Avenue. This Air Quality and HRA Methodology Memorandum describes the approach for evaluation of air quality and health risk impacts from proposed project construction and operational sources, existing sources, and cumulative sources at the modeled sensitive receptors.

1.1 Project Understanding

The project sponsor, Prologis, L.P., proposes to redevelop two parcels in a core industrial area of the City and County of San Francisco. The proposed project would construct two new multi-story *production, distribution, and repair* (PDR)[3] buildings that would provide new industrial space for the city. The street addresses of the existing buildings are 749 Toland Street and 2000 McKinnon Avenue. Figure 1 shows the proposed project location. The project site consists of two parcels—Assessor's Block 5284A, Lot 008; and Block 5287, Lot 002—which are occupied by four existing structures totaling approximately 448,000 square feet of PDR space. The total gross site area is approximately 743,800 square feet (17.1 gross total acres).

The project sponsor proposes to build a flexible PDR space that can accommodate an evolving mix of users or tenants for a 100-year period or longer. Given that there are no identified tenants at this time, the environmental analysis for the proposed project evaluates a mix of PDR uses that are likely to occur based on the project sponsor's familiarity with leasing trends for PDR facilities in San Francisco and the Bay Area and that represent reasonably conservative assumptions about possible tenants' environmental impacts. The term "proposed project" means the construction and operation of the San Francisco Gateway facility, the operation of which is based on the analyzed tenant use mix, and the related streetscape improvements.

The proposed project would result in the demolition of four one-story, metal-clad buildings that currently occupy the project site; and the construction of two three-story buildings (plus active roof)[4]—buildings A and B. Each building would be approximately 97 feet tall, with a maximum height of 115 feet, including rooftop appurtenances. The two new buildings (including vehicular structures and ground-floor retail spaces) would comprise approximately 2,160,000 gross square feet,[5] of which 1,166,800 square feet would be PDR space; 984,800 square feet would be PDR support space for logistics yard, vehicle circulation, and parking; and 8,400 square feet would be ground-floor retail space. The proposed project would provide space for several main types of PDR uses: manufacturing and maker space, parcel delivery and last-mile delivery,[6] and wholesale and storage. Additionally, the project would allow for fleet management and laboratory uses permitted in the PDR-2 zoning district, although neither of these uses is part of the analyzed tenant use mix for the proposed project.[7]

[3] PDR use is a grouping of uses that includes but is not limited to all industrial and agricultural uses, ambulance services, animal hospitals, automotive service stations, automotive repair, automotive wash, arts activities, business services, cat boarding, catering services, commercial storage, kennels, motor vehicle tow services, livery stables, parcel delivery services, public utilities yards, storage yards, trade offices, trade shops, wholesale sales, and wholesale storage.

[4] The active roof is the top level (Level 4) of each building and consists of elevator and stair access structures, solar array, and a screened, open-air multi-purpose deck for parking and/or material and vehicle staging.

[5] Gross square footages and square footages presented for the existing and proposed uses are approximate.

[6] Last-mile delivery is defined as the movement of goods from a transportation hub to the final delivery destination (i.e., typically a personal residence or business).

[7] Laboratory uses permitted in the PDR-2 zoning district do not include life sciences laboratories.

Figure 1
Project Location



The project site is in southeastern San Francisco in the San Francisco Bay Area Air Basin, and is in the Air Pollutant Exposure Zone.[8] The project site is near a number of sensitive receptors, primarily to the southeast of the project site, that could be exposed to project-generated emissions; other sensitive receptors would be exposed to project-generated vehicle exhaust emissions along routes to and from the project site. The air district defines sensitive receptors as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with preexisting serious health issues affected by air quality.[9] Examples include schools, hospitals, and residential areas. Land uses such as schools, daycare centers, hospitals, and senior-care facilities are considered to be sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions.[10] Offsite workers may not always be considered sensitive receptors because all employers must follow regulations set forth by the Occupational Safety and Health Administration to ensure the health and well-being of their employees. However, for the purposes of this analysis, offsite workers (workers within 1,000 feet of the proposed project) will be considered sensitive receptors.

The closest residential dwelling is approximately 440 feet to the south of the project site (along Oakdale Avenue). There are existing schools within 1,900 feet of the project site, and within 50 feet (at the closest distance) of routes to and from the project. The closest child-care (Eva's Day Care) is approximately 950 feet to the southeast of the proposed project site and 50 feet from vehicle routes along Palou Avenue between Rankin Street and Quint Street. The closest offsite worker receptors are approximately 40 feet from the proposed project boundary in all directions. A description of the proposed air pollutant dispersion modeling and health risk analyses is provided in Section 3.0, "Dispersion Modeling," and Section 4.0, "Health Risk Analysis," respectively, of this document.

The proposed project has the potential to generate emissions during both the construction and operational phases. The construction phases would include demolition and site preparation; grading and ground improvements; building construction; building envelope and interior buildout; sitework; and startup and commissioning. Both proposed buildings would generally be completed at the same time (with some staggering due to logistics and equipment staging). Occupancy of both buildings is expected to begin at the same time. The operations phase would include increased vehicular traffic once the buildings are occupied; new area sources of emissions (i.e., landscape maintenance, periodic architectural coating, and consumer products); and new stationary sources of emissions (i.e., manufacturing and maker space, and two 400-kilovolt emergency power sources). The buildings would be constructed without natural gas infrastructure.

1.2 Objective and Approach

The project description, summarized in Section 1.1, Project Understanding, above and presented in detail in the San Francisco Gateway Project draft EIR (Case No. 2015-012491ENV), and responses to requests for information provided by the project sponsor were used as the basis for the air quality assumptions and proposed methodology presented in this document.

The purpose of the air quality analysis is to assess potential criteria air pollutant, ozone precursor, and TAC emissions impacts associated with construction and operation of the proposed project. Analyses will

[8] San Francisco Department of Public Health, Air Pollutant Exposure Zone Map, 2020, *https://www.sfdph.org/dph/files/EHSdocs/AirQuality/AirPollutantExposureZoneMap_2020.pdf*.

[9] Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, Appendix E: Recommended Methods for Screening and Modeling Local Risks and Hazards. April 25, 2023, p. E-14, *https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines*, accessed May 1, 2023.

[10] Bay Area Air Quality Management District, 2022. California Environmental Quality Act Air Quality Guidelines, *https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines*

be conducted consistent with guidance and methodologies from local, regional, state, and federal agencies, including the air district, the California Air Resources Board (air board), the Office of Environmental Health Hazard Assessment (OEHHA), and the United States Environmental Protection Agency (U.S. EPA).

Consistent with CEQA requirements, the analysis will evaluate:

1. the proposed project's short-term construction and long-term operational criteria air pollutant and ozone precursor emissions; and

2. excess cancer risk and impacts from particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) on existing and potential future offsite sensitive receptors, including nearby residents within 1,000 feet of project-generated construction emissions and future operations (i.e., receptors along the haul routes for construction and along transportation routes for operational traffic). As described above, for the purposes of this analysis, offsite workers (workers within 1,000 feet of the proposed project) will also be considered sensitive receptors.

The preliminary draft results will be presented to the planning department for review and will be shared with the project sponsor team. AECOM and the planning department will assess the results and determine whether modeling refinements are necessary. If required, feasible emissions reduction measures will be identified and evaluated in the environmental document to reduce significant air quality impacts.

1.3 Project Sources

The air quality analysis and HRA will evaluate the following sources of air pollutant emissions or exposures:

1. **Construction Emissions:** The proposed project's construction-related emissions potentially affecting regional air quality and local sensitive receptors. Emissions sources include off-road construction equipment, on-road vehicles, demolition of existing onsite structures, earthmoving activities, architectural coating activities, and off-gas from paving activities.

2. **Operational Emissions:** The proposed project's operational emissions potentially affecting regional air quality and local sensitive receptors. Emission sources include consumer products, new vehicle trips and associated transportation refrigeration units, onsite vehicle circulation and idling, onsite off-road material handling equipment, manufacturing and maker space activities, and the proposed two emergency generators.

2.0 Emissions Estimates

The proposed project's construction and operational air pollutant emissions will be quantified according to guidance and methods from the air district, air board, and U.S. EPA. The process for determining the parameters and assumptions used to model these emissions, along with the modeling methods, are described below.

2.1 Calculation Methodologies for Construction Emission Sources

Construction of the proposed project would generate emissions of criteria air pollutants, precursors, and TACs (i.e., diesel particular matter [DPM]) from a variety of sources, including off-road construction equipment, on-road vehicles, demolition of existing onsite structures, earthmoving activities, architectural coating activities, and off-gas from paving activities. Estimates of construction emissions would require the following project information:

- Schedule and duration of construction phases
- Types and sizes (site acreages and building square footages) of land uses to be demolished and developed
- Off-road construction equipment lists and activity schedules
- Construction-related haul-truck traffic volumes for removing demolition and debris, bringing construction equipment and materials to the project site, and concrete trucks.
- Construction worker traffic volumes
- Earthmoving activities (e.g., cut/fill quantities, grading area)
- Acres of asphalt paving
- Square footage of areas to receive onsite architectural coatings

This analysis will evaluate the construction emissions associated with the proposed project. Emissions estimates will be calculated using emission factors and calculation methodology equivalent to that used by California Air Pollution Control Officers Association's (CAPCOA's) California Emissions Estimator Model (CalEEMod[11]), with one exception for on-road mobile sources. The current emission factors from the air board's on-road emissions inventory model, EMission FACtors (EMFAC) 2021[12] will be substituted to estimate emissions associated with on-road mobile sources. Emissions will not be quantified directly within CalEEMod, because detailed project-specific inputs are available to inform the emissions estimates and because the current version of CalEEMod (version 2020.4.0) does not include the most recent air board emissions factors (OFFROAD 2017 and EMFAC 2021). The proposed project is a clean construction priority project pursuant to Planning Director Bulletin No. 2, thereby incorporating, at a minimum, use of the lowest diesel emission equipment (Tier 4) during construction.[13,14,15] Therefore, exhaust emissions from off-road construction equipment greater than 25 horsepower will be estimated using emissions factors for U.S. EPA Tier 4 (interim) emissions standards. Details regarding data inputs, emission factors, and calculation methodology are provided in Sections 2.1.1 through 2.1.4.

During construction of the proposed project, fugitive dust emissions associated with demolition and earthwork (grading, stockpiling, and truck loading) activities, and vehicle travel on paved roadways would be generated. Section 2.1.4 discusses the approach to quantitatively estimate fugitive dust emissions from these activities in order to inform the analysis of potential exposure of sensitive receptors to fugitive dust $PM_{2.5}$.

Construction of the proposed project is currently anticipated to take up to 27 months for each individual building, with the anticipated phases identified in Table 1. The start of construction for building A would be approximately 4 months before that for building B, so that the total construction duration for the proposed project would be approximately 31 months. The 31-month construction period will be modeled as 2.6 years, which is just slightly longer than 31-months. Work would typically occur five to six days per week for eight hours per day; however, average daily emission estimates will be conservatively estimated assuming a five-day construction work week. Some nighttime (8 p.m. to 7 a.m.) construction activities are anticipated; the project sponsor will obtain a permit from the San Francisco Department of Public Works or Department of Building Inspection to extend construction activities beyond allowable construction

[11] CalEEMod was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts and is a widely accepted model for estimating project-related emissions. The most current model is Version 2020.4.0. The model uses both default data and project-specific inputs that can be defined by the user when available to calculate both the criteria air pollutants and greenhouse gas emissions associated with construction and operational sources as part of development projects.

[12] EMFAC is California Air Resources Board's database of on-road vehicle activity data (e.g., emissions rates, vehicle population, vehicle miles traveled, etc.) for different regions throughout California (e.g., at the air basin, air district, county, or statewide level). Emission factors will be developed using EMFAC 2021 to generate emissions rates (in grams per mile) for the county of San Francisco.

[13] Prologis, *Application for Priority Application Processing for Director's Bulletin No. 2,* June 7, 2021.

[14] Prologis, *Priority Application Processing for Clean Construction Projects, Supplemental Application for Type 3 Priority Projects for Director's Bulletin No. 2,* June 7, 2021.

[15] San Francisco Planning Department, *Signed Application for Priority Application Processing for Director's Bulletin No. 2,* June 15, 2021.

hours, as required. Additional information on phasing, equipment and vehicles is included in the Responses to Request for Information from the project team dated September 18, 2018 and updated on September 24, 2019 and March 2, 2020, April 21, 2020, and April 28, 2020 (see Attachment A).

Table 1
Construction Phasing

Construction Phase	Duration (weeks)
Demolition and Site Preparation	8
Grading and Ground Improvements	16
Building Construction	61
Building Envelope and Interior Buildout	60
Site Work	25
Startup and Commissioning	7
Total	**31 Months**[1]

Note:

[1] Construction duration would total 31 months, which would include several months of overlapping phases primarily during Building Construction, Building Envelope and Interior Buildout, and Site Work. In addition, the start of construction for building A would be approximately 4 months before the start of construction for building B.

2.1.1 *Off-Road Construction Equipment*

Off-road construction equipment would generate exhaust-related criteria air pollutants, precursors, and TAC emissions. The data collection process will identify the number and types of construction equipment required for each construction phase and subphase. Other parameters needed to quantify construction equipment emissions include hours of operation per day, horsepower, and load factor for each respective piece of equipment. Project-specific equipment data will be provided by the project sponsor. When project-specific parameters are not available, default assumptions contained in CalEEMod will be used to quantify emissions, pursuant to the air district's guidance.

The analysis will be performed using emission factors for U.S. EPA Tier 4 (interim) emissions standards for equipment greater than 25 horsepower, consistent with equipment requirements for clean construction priority projects pursuant to Planning Director Bulletin No. 2. To calculate emissions, total equipment-use hours will be multiplied by the appropriate Tier 4 (interim) emissions factors. For equipment less than 25 horsepower, emissions will be estimated using equipment-specific emission factors and aggregate model years provided in OFFROAD2017.[16] If a project-specific equipment list is not available, assumptions for equipment type and number will be based on CalEEMod defaults for the proposed land use type and size.

For informational purposes, exhaust emissions from off-road construction equipment will also be calculated using emission factors for aggregate model years and horsepower provided in OFFROAD2017 and compared to the emissions associated with equipment that meets U.S. EPA Tier 4 (interim) emissions standards.

[16] OFFROAD2017 is a California Air Resources Board's emissions inventory database for off-road diesel engines, used to quantify the amount of pollutants from thousands of engines in equipment used in industrial applications, agriculture, construction, mining, oil drilling, power generation, and many other industries. OFFROAD2017 is anticipated to be the most current available and approved source to be used to generate emission factors for the different types of equipment anticipated to be used for the project.

2.1.2 *On-Road Vehicles*

On-road construction sources would include construction-worker vehicles, haul trucks, concrete trucks, material delivery trucks, and onsite work trucks. The proposed routes for the on-road vehicles are shown in Figure 2. The data collection process will identify the number of trips for each vehicle type during each construction subphase. Depending on the construction phase, the number of workers on a given day would range from approximately 45 up to 400. During the peak construction periods, approximately 400 to 500 workers are expected to travel to the site daily. Construction parking is anticipated to be onsite, and carpooling and use of public transportation would be encouraged. An offsite parking area and shuttle service will not be required. If certain project-specific information is not available, default assumptions for parameters such as construction trip generation, trip distance, and vehicle type will be obtained from CalEEMod. Emissions from on-road motor vehicles will be estimated using total vehicle trips, average trip distances, and EMFAC 2021 mobile source emission factors for the aggregate fleet mix, inclusive of running and starting exhaust emissions.

2.1.3 *Off-Gas Reactive Organic Gas Emissions*

Construction activities would generate reactive organic gas (ROG) emissions associated with off-gas from asphalt paving and architectural coating activities. ROG emissions from paving and architectural coatings will be calculated off-model using the CalEEMod default emission factors or project-specific information and assumptions provided by the project sponsor team that would otherwise be used within the CalEEMod software.

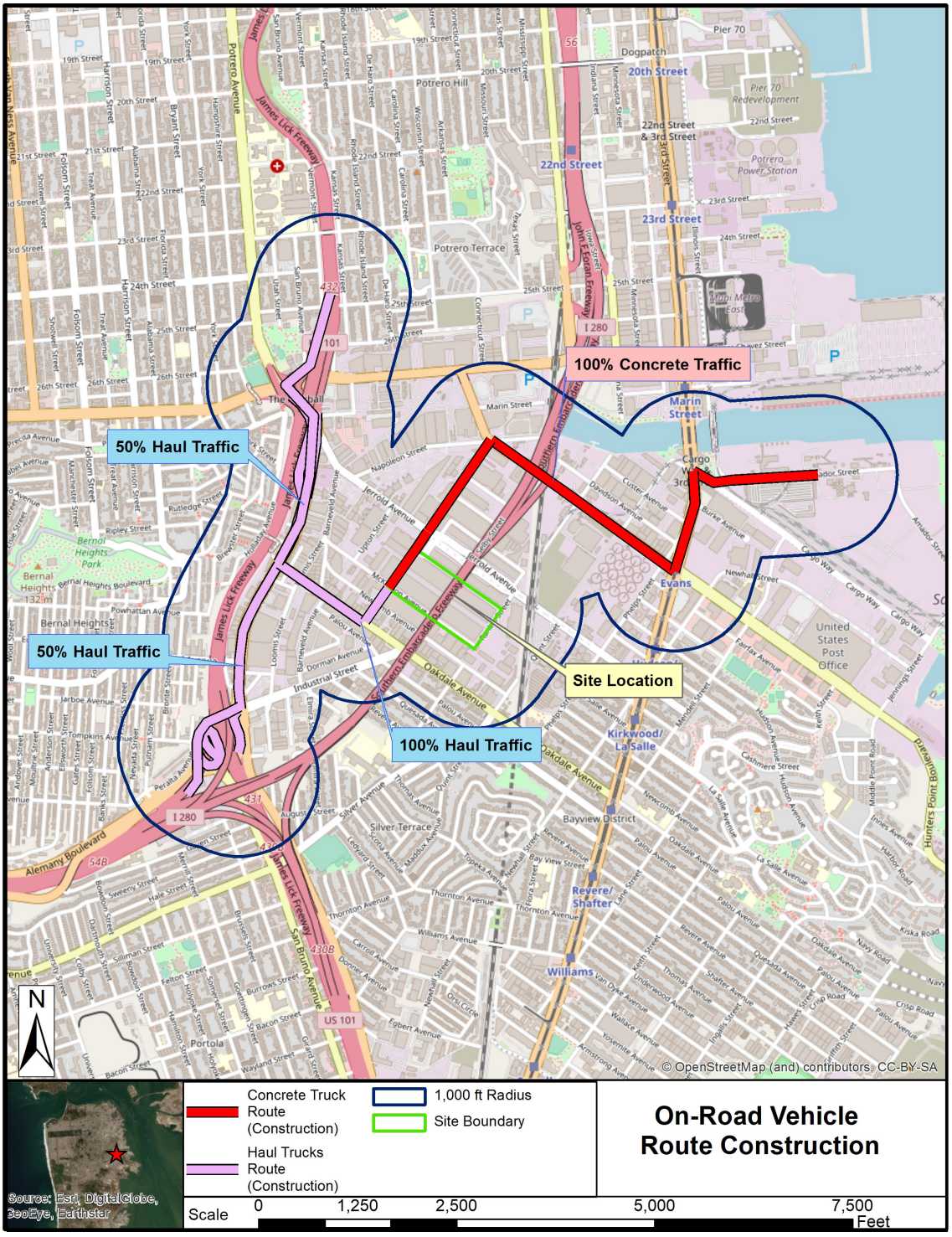
The data collection process will determine the acres of asphalt paving required; this project-specific data input will be used to determine associated ROG emissions. For interior architectural coatings, the analysis will use CalEEMod coating application assumptions and ROG emission factors for coatings based on the land use type and square footage of buildings to be constructed. For exterior architectural coatings, the analysis will use the proposed square footages of the building facades and information of the ROG content of the anticipated coatings to be used (e.g., anti-graffiti coatings and metal sealants). The sum of interior and exterior ROG emissions will be the total ROG emissions from architectural coatings.

2.1.4 *Fugitive Dust*

2.1.4.1 Demolition

Consistent with the methodology used in the CalEEMod, emissions will be calculated based on the Midwest Research Institute report prepared for the U.S. EPA for mechanical or explosive dismemberment and debris loading activities, based on the estimated building square footage to be demolished for the proposed project. Consistent with the city's Construction Dust Control Ordinance, enforced by the Department of Building Inspection under San Francisco Building Code – San Francisco Administrative Code, chapter 1A; and the San Francisco Department of Public Works under Public Works Code article 22B and San Francisco Department of Public Works order no. 171,378, the emission estimates will account for implementation of fugitive dust control practices during demolition activities (watering the demolition area twice per eight-hour workday).

Figure 2
Vehicle Routes for Construction



2.1.4.2 Truck Loading and Stockpiling

Consistent with the methodology used in the CalEEMod, emissions will be calculated using the methodology described in section 13.2, Introduction to Fugitive Dust Sources, of U.S. EPA's AP-42: Compilation of Air Emissions Factors, based on the amount of cut and fill of material required for onsite and street improvements. Consistent with the city's Construction Dust Control Ordinance section 1242(c)(1), the emission estimates will account for implementation of fugitive dust control practices during truck loading and stockpiling activities (watering areas around soil improvement operations, visibly dry disturbed soil surface areas, and visibly dry disturbed unpaved driveways at least three times per shift per day).

2.1.4.3 Earthwork

Consistent with the methodology used in the CalEEMod, emissions associated with scraping and grading activities will be calculated using the methodology described in section 11.9, of U.S. EPA's AP-42, based on the quantities of scrapers, graders, and crawler tractors during the sitework and grading phases of construction; and on the daily activity level for each type of equipment. Consistent with the city's Construction Dust Control Ordinance section 1242(c)(1), the emission estimates account for implementation of fugitive dust control practices during truck loading and stockpiling activities (watering areas around soil improvement operations, visibly dry disturbed soil surface areas, and visibly dry disturbed unpaved driveways at least three times per shift per day).

2.1.5 *Summary of Construction Criteria Pollutant Emissions*

AECOM will present annual construction-related emissions of ozone precursors (i.e., ROG and oxides of nitrogen [NO_x]) and criteria air pollutants (i.e., particulate matter less than or equal to 10 microns in diameter [PM_{10}] and $PM_{2.5}$ exhaust). The annual emissions for each construction year will be divided by the total number of construction work days for each respective year (based on the total number of weeks of construction to occur in the given year and conservatively assuming five construction workdays per week) to calculate average daily construction emissions for each individual year of construction.

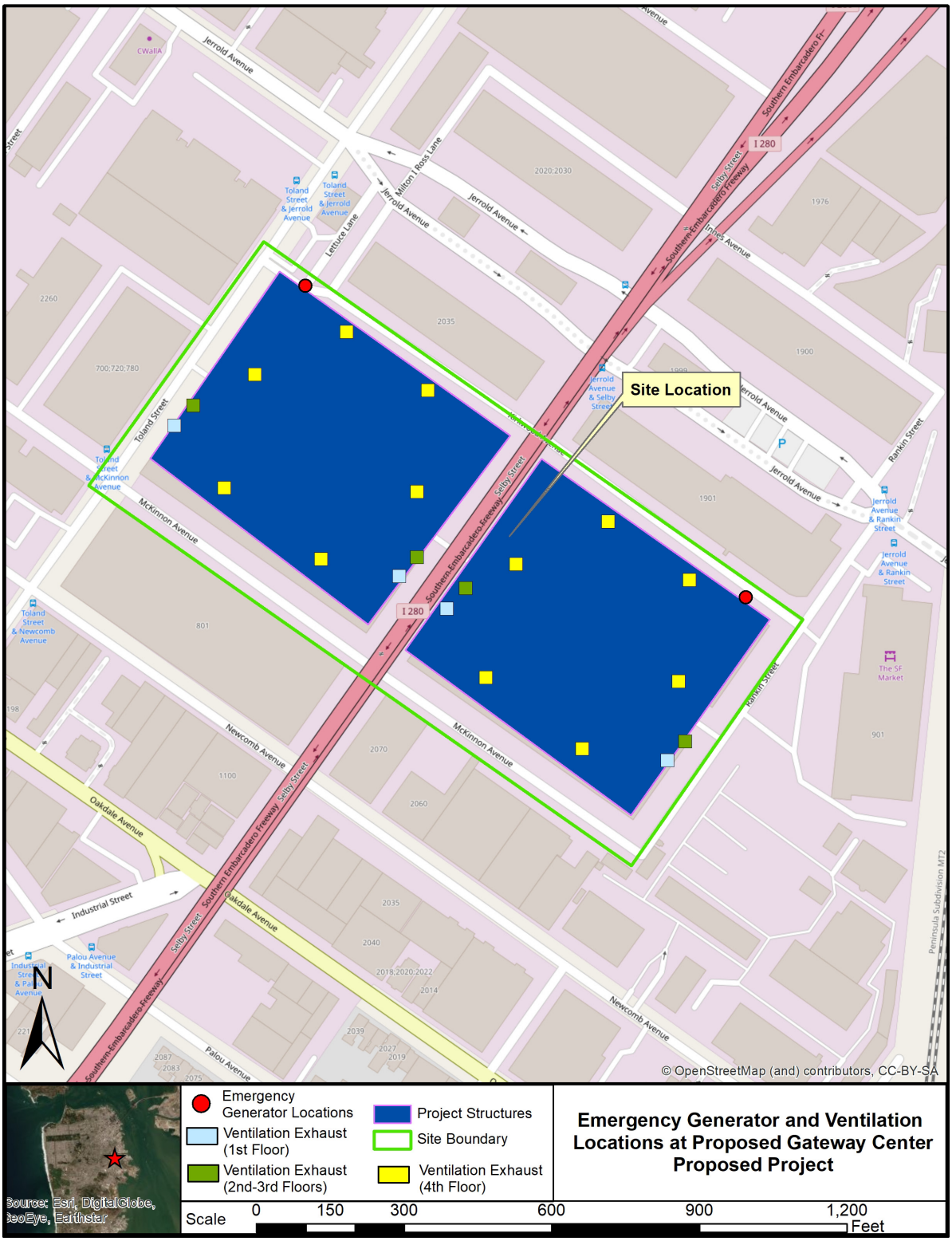
2.2 Calculation Methodologies for Operational Emission Sources

After construction of the proposed project, long-term operations would generate emissions of criteria air pollutants, ozone precursors, and TACs (i.e., DPM) from a variety of sources, including stationary sources, area sources, and mobile sources. Operational emissions will be calculated for the proposed project as described below.

2.2.1 *Stationary Sources*

The proposed project may include the installation and use of up to two 400 kiloVolt [kV] (440 horsepower) emergency generators—a source of criteria air pollutants and TACs. Figure 3 depicts the proposed locations of the emergency generators and ventilation exhaust for the proposed project. Emission factors and methods prescribed by the air board and the U.S. EPA (e.g., AP-42 Compilation of Air Pollutant Emission Factors) will be used to estimate emissions from the generators. The emergency generators would meet a minimum of Tier 3 emission standards when they are installed, in the year 2025; would comply with the air district Regulation 2, Rule 5 New Source Review for Toxic Air Contaminants; and would comply with the air district testing limits of no more than 50 hours per year per generator. These assumptions will be used to estimate emissions from the generators.

Figure 3
Emergency Generators and Ventilation Locations Associated with Proposed Project



Potential tenants in either of the multi-story PDR buildings may include manufacturing and maker space, consisting of food and beverage processing, apparel and other garment products, furniture and fixtures, printing (including three-dimensional), prototyping, and publishing. These uses may generate gaseous criteria pollutants, particulate matter, and TACs from the use of kilns, presses, refrigeration, varnishes, and welding. Example TAC profiles from existing manufacturing facilities in the Bay Area were obtained from the air district (Attachment B). Based on the proposed uses described in the project description, and discussions with city staff and the project sponsor, TAC profiles from a brewery, coffee roastery, bakery, furniture and cabinetry maker space, printing and graphic design, and graphic apparel facilities were selected as representative of the likely types of manufacturing and maker spaces for the proposed project. The emissions from these examples will be scaled based on square footage of the example to the 35,000 square feet of space for manufacturing and maker space in the analyzed tenant use mix for the proposed project. The modeling will include the highest emitting TAC profile type. A comparison of the carcinogenic TAC emissions is included in Attachment B, showing that the graphic apparel facility emissions would likely result in the highest CO and NO_X emissions, as well as the highest cancer risk, and the bakery facility would have the highest ROG and $PM_{2.5}$ emissions.

Although not part of the analyzed tenant use mix for the proposed project, laboratory space suitable for scientific research that would support engineering, development, quality assurance, and quality control is a permitted use in the PDR-2 zoning for the project site and laboratory tenants may occupy the site.[17] Laboratories onsite would not include those associated with chemical testing, biological research, or animal testing, and would generally be geared toward technological research. These uses may potentially include permitted sources of TAC emissions, because the air district regulates emissions from laboratories. If the laboratories have less than 50 fume hoods or less than 25,000 square feet of laboratory space, they are exempted from permitting requirements because emissions would be *de minimis*. Larger laboratories that exceed the fume hood count or the 25,000-square-foot *de minimis* criteria will be analyzed based on a performance standard. The performance standard will be developed in consultation with the planning department and the project sponsor following quantitative analysis results. The performance standard will focus on avoiding significant air quality impacts from the project as a whole, and if that is not feasible, reducing the air quality impact from the project to the degree feasible. Because laboratory use is not part of the analyzed tenant use mix for the proposed project, and the specific use of any potential future laboratory space, equipment, and fume hood count is unknown at this time, emissions from the laboratory space will not be quantitatively included in the mass emissions estimates or HRA.

2.2.2 *Area Sources*

CalEEMod will be used to estimate long-term operational area source emissions of criteria pollutants and ozone precursors under the proposed project. Area source emissions include consumer products, and landscape maintenance equipment. Emissions from area sources, except consumer products, will be estimated using CalEEMod default values based on the proposed size and type of land uses. Emissions from consumer products will be estimated using a ROG emissions factor of 0.0000151 pound per square foot per day.[18] This emission factor is based on San Francisco ROG emissions data and land use data.

In addition, area sources from existing onsite land uses, as detailed in Table 1 (p. 6) of the San Francisco Gateway Project Initial Study (Case No. 2015-012491ENV) will be similarly modeled using CalEEMod and deducted from the area source emissions of the proposed project to determine the net increase in area source emissions from implementation of the proposed project.

[17] The proposed project will be entitled through a special use district that would establish a consistency review process to ensure that permits are consistent with the project's development agreement; the planning code; the project's conditions of approval, including the mitigation measures adopted as part of the project's approval; and this EIR. If the uses are not consistent, further analysis may be required pursuant to CEQA.

[18] E-mail from Wade Wietgrefe to Alison Kirk and Sigalle Michael on March 17, 2014, provided in Attachment C.

2.2.3 *Mobile Sources*

Generally, mobile source emissions, inclusive of exhaust emissions and fugitive dust associated with vehicle travel on roads, will be calculated using emissions factors from the air board's EMFAC[19] 2021 and daily trip generation and vehicle miles traveled estimates from the project's travel demand memorandum by Adavant/LCW Consulting.[20] The one exception to this is the trip distance for parcel delivery and last-mile delivery visitor trips (i.e., motor vehicle trips to and from the project site by anyone that is not an onsite employee, including trips for pickups and deliveries). The project's travel demand memorandum recognizes that locating a parcel delivery and last-mile delivery facility closer to consumers results in a reduced trip distance for deliveries, compared to a facility located farther from the consumers. The transportation analysis accounts for the relative change in travel distance between the proposed project and the projected final consumers, compared to existing facilities that accommodate similar land uses, which are primarily located outside of San Francisco. Based on this approach, which is also consistent with the analysis conducted by Langan Engineering[21] that looked at the expected demand for distribution centers in the San Francisco Bay Area, the transportation analysis calculated a relative reduction in the trip distance for autos, vans, and small trucks (i.e., single-unit trucks) and a relative increase in the trip distance for large trucks (i.e., tractor trailer trucks). These relative trip distances were accounted for in the transportation analysis when calculating the project's vehicle miles traveled for the parcel delivery and last-mile delivery land use, resulting in a net reduction in vehicle miles traveled for trips by this land use. However, in order to disclose the change in criteria air pollutants that would occur as a result of this project, the air quality analysis does not take a mileage reduction (credit) for locating parcel delivery and last-mile delivery land uses closer to the San Francisco customer base.

Therefore, the air quality analysis will use the same trip distances by vehicle category for the parcel delivery and last-mile delivery land use as those identified for all other proposed land uses (i.e., does not take a credit or reduction in miles traveled).[22] Table 2 below provides the parcel delivery and last-mile delivery land use trip distances as applicable to the air quality analysis and those applicable to the transportation analysis.[23]

Table 2
Trip Distances Applicable to Parcel Delivery and Last-mile Delivery Land Use

Parcel Delivery and Last-mile Delivery Land Use	Distance used for Transportation Analysis (one- way)	Distance used for Air Quality Analysis (one-way)
Automobiles	-7.5	20 miles
Vans	-7.5	30 miles
Single-unit trucks	-7.5	40 miles
Tractor-Trailer Trucks	7.5	65 miles

Source: Adavant and LCW Consultants, 749 Toland Street and 2000 McKinnon Avenue Project, Final Estimation of Project Travel Demand, December 10, 2021.

Emissions factors will be for the operational year 2025, as the earliest possible operational year, and will use the aggregate model year for each of the specific vehicle categories identified in the project's travel

[19] EMFAC is California Air Resources Board's database of on-road vehicle activity data (e.g., emissions rates, vehicle population, vehicle miles traveled, etc.) for different regions throughout California (e.g., at the air basin, air district, county, or statewide level). The most recent available and approved version of EMFAC will be used; currently that is EMFAC 2021.

[20] Adavant and LCW Consultants, 749 Toland Street and 2000 McKinnon Avenue Project, Final Estimation of Project Travel Demand, December 10, 2021. This memorandum is included in Appendix D, Transportation Supporting Information, of the draft EIR.

[21] Urban E-commerce Distribution Facility Selection Criteria Technical Memorandum, from Daniel D. Disario (Langan Engineering) to Ken Sun (Prologis); February 26, 2021.

[22] Total criteria air pollutant mass emissions that account for a credit or reduction in miles traveled that is reflective of the project's efficiency demonstrated by the Traffic Impact Analysis will also be provided in the final air quality results for informational purposes. These mass emissions results will not be applied to the project's health risk analysis nor used to determine project significance as it relates to air quality impacts.

[23] One-way distances for each vehicle category applied to estimate the vehicle miles traveled for the parcel delivery and last-mile delivery use are based on Appendix D, Transportation Supporting Information (p. D-79), of the draft EIR .

demand memorandum. The fuel type-mix will be assumed to reflect the aggregate fleet mix from EMFAC 2021 for each vehicle category. Maps showing the roadway segments to be modeled for parcel delivery and last-mile delivery are presented in Figure 4 and Figure 5, respectively.

Vehicles traveling within buildings A and B will also be modeled using the air board's EMFAC 2021 model emission factors for each respective vehicle category for the speed bins of 5 miles per hour and 10 miles per hour, as vehicles traverse the internal ramp and parking areas on each floor. Emissions associated with onsite vehicle starts and idling will similarly be calculated using EMFAC 2021 emission factors and assuming one start per vehicle trip to the project site and up to 5 minutes of idling per vehicle arrival to and departure from the site. Emissions associated with internal vehicle circulation will be apportioned by floor based on the relative percentage of each proposed land use anticipated to occupy each floor and the associated vehicles anticipated to serve each land use type. Emissions from on-road mobile sources will include fuel combustion, tire and brake wear, and resuspended roadway dust. Mobile-source emissions from existing onsite operational uses will be estimated using methodology similar to that described above for the proposed mobile sources traveling to and from the project site.

Total mobile source emissions from existing onsite land uses will be deducted from the mobile source emissions of the proposed project, including both offsite and onsite travel, to determine the net increase in mobile source emissions from implementation of the proposed project.

A portion of the trucks serving the proposed land uses are anticipated to require transportation refrigeration units. Emissions associated with these units will be calculated based upon the percentage of daily truck trips anticipated to include transportation refrigeration units, reflective of the anticipated percentage of refrigeration required by land use type. Emissions will be calculated for in-transit operational time of each transportation refrigeration unit, reflective of the on-road truck travel information from the travel demand memorandum, assumed operational time at the project site as the host truck travels to and from the docking or parking site based on travel speeds and distances through the buildings' ramp and parking areas, and idling for up to 15 minutes per transportation refrigeration unit per trip per day. Emission factors will be obtained from the air board's OFFROAD emissions database for the aggregate model year equipment fleet and using the average horsepower and load factor from the air board's 2021 transportation refrigeration unit emissions inventory documentation.

Onsite off-road equipment is also anticipated to be required for materials movement and handling, but will be all electric, and therefore will not generate criteria pollutant emissions and will not contribute toward the onsite operational emissions estimates.

2.2.4 *Summary of Project Operational Criteria Pollutant Emissions*

Maximum annual and average daily operational emissions of criteria air pollutants and ozone precursors will be presented in separate air quality and HRA results memorandum.

3.0 Air Dispersion Modeling

The air toxics analysis will evaluate health risks and $PM_{2.5}$ concentrations resulting from the proposed project on the surrounding community. The American Meteorological Society/U.S. EPA Regulatory Model (AERMOD) dispersion model (Version 21112) will be used to estimate pollutant concentrations at specific distances from project emission sources using one year (2008) of hourly meteorological data from the Mission Bay station, consistent with the 2020 Citywide HRA. The Mission Bay station is approximately 2 miles north-northeast of the project site. The Mission Bay station is the most representative of the meteorological conditions at the project site and would provide meteorological data consistent with the 2020 Citywide HRA.

Figure 4
Operational Parcel Delivery Routes

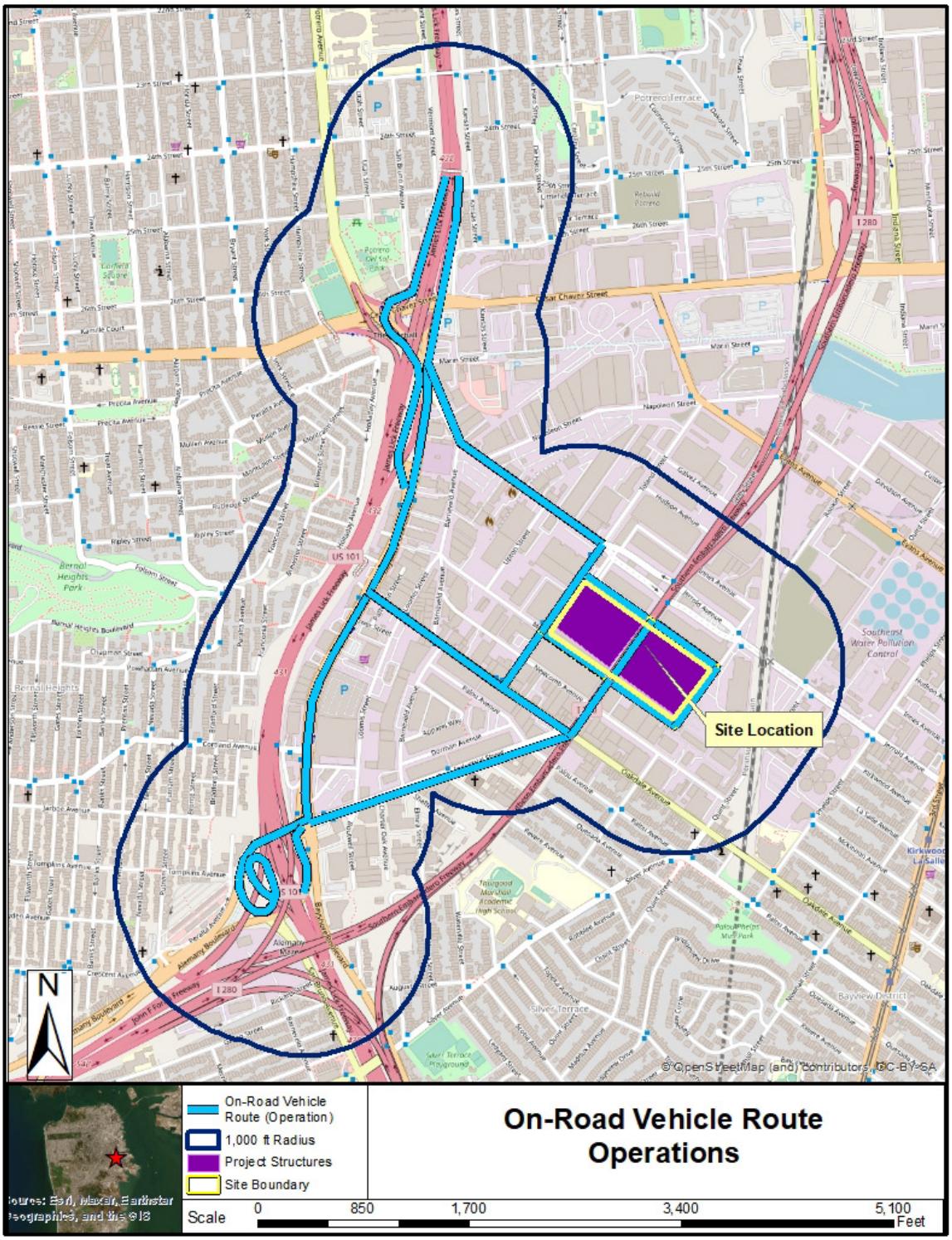
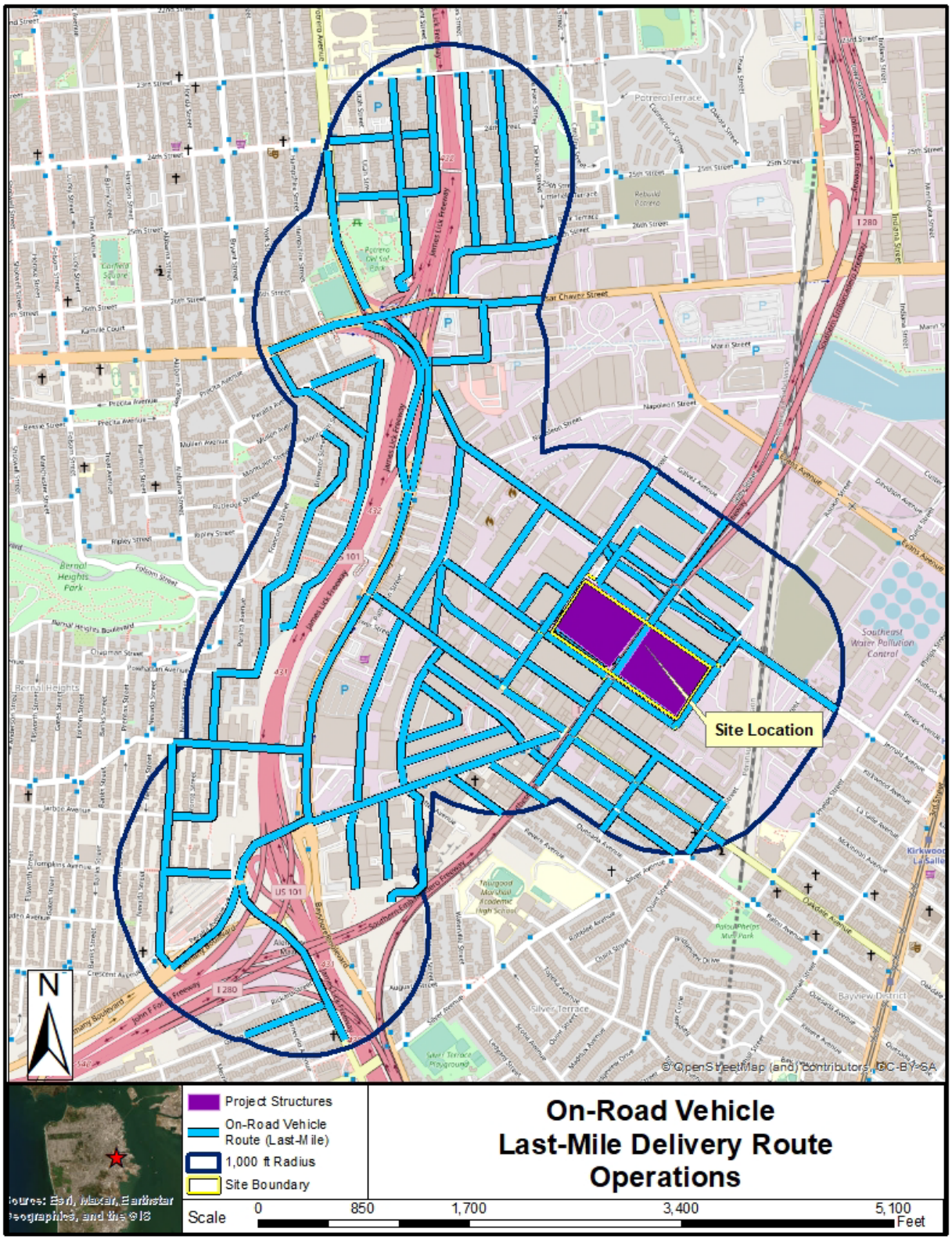


Figure 5
Operational Last Mile Delivery Routes



Terrain elevations will be obtained from commercially available digital terrain elevations developed by the United States Geological Survey (USGS) National Elevation Dataset (NED). The NED data provide terrain elevations with 1-meter vertical resolution and 10-meter (1/3 arc-second) horizontal resolution based on a Universal Transverse Mercator (UTM) coordinate system. The USGS specifies coordinates in North American Datum 83, UTM Zone 10. Lakes Environmental software will be used to process the NED data and assign elevations to the receptor locations and sources.

3.1 Receptor Locations

Consistent with the 2020 Citywide HRA, a grid of receptors with 20-meter spacing (approximately 66 feet) will be modeled for receptors from the 2020 Citywide HRA geodatabase that reside within 1,000 feet of the project site. To account for the offsite high-traffic nature of the proposed project, additional receptors from the 2020 Citywide HRA geodatabase will be included that reside within 1,000 feet of proposed traffic routes between the project site and U.S. 101 and Interstate (I-)280. The proposed receptors for modeling are shown in Figure 6 and Figure 7. Figure 6 shows a 1,000-foot radius from the project site and also includes the receptors along the construction traffic routes to where the on- and off-ramps merge onto or exit U.S. Highway 101 (U.S. 101) or I-280. The concrete haul trucks would follow Toland Street north to turn right onto Evans Avenue towards the concrete plant, while the construction haul trucks and material delivery trucks would go south to Oakdale Avenue then split to go north and south on Bayshore Boulevard to the highway interchanges. Since the concrete haul truck route is only applicable to the construction phase, receptors within 1,000 feet of this route are not included in the proposed future operations modeling scenario (Figure 7). The land uses along the concrete route are composed primarily of industrial land uses. When the project is complete and operational, potential last-mile delivery routes from the project site within 1,000 feet of the project, in addition to routes to and from U.S. 101 and I-280, are included.

The receptors will be assigned a flagpole height of 1.8 meters (approximately 6 feet) for the ground-level residences and 3.8 meters (approximately 12 feet) for second floor residences. All receptor points will be modeled. The sensitive receptor location with the highest modeled concentration will be evaluated to determine if the location is a sensitive receptor. If the highest modeled concentration is not a sensitive receptor location, the next highest modeled concentration will be evaluated to determine if it is a sensitive receptor location, and so on. The highest modeled concentration that corresponds with a sensitive receptor location will be labeled as the maximally exposed individual sensitive receptor. The closest sensitive receptors are approximately 440 feet to the south of the project site along Oakdale Avenue, east of I-280 and west of Rankin Street. There are also sensitive receptors to the northwest of the project site in the block bordered by Upton Street and Barneveld, McKinnon, and Jerrold avenues. The closest school is the Big City Montessori School on Industrial Avenue, approximately 2,200 feet from the project site and is located on the route to and from U.S. 101 and I-280 interchange to the south. Further information regarding exposure scenarios evaluated for these receptor locations is provided in Section 4.0, “Health Risk Analysis.”

Figure 6
Preliminary Receptors for HRA Modeling – Construction Phase

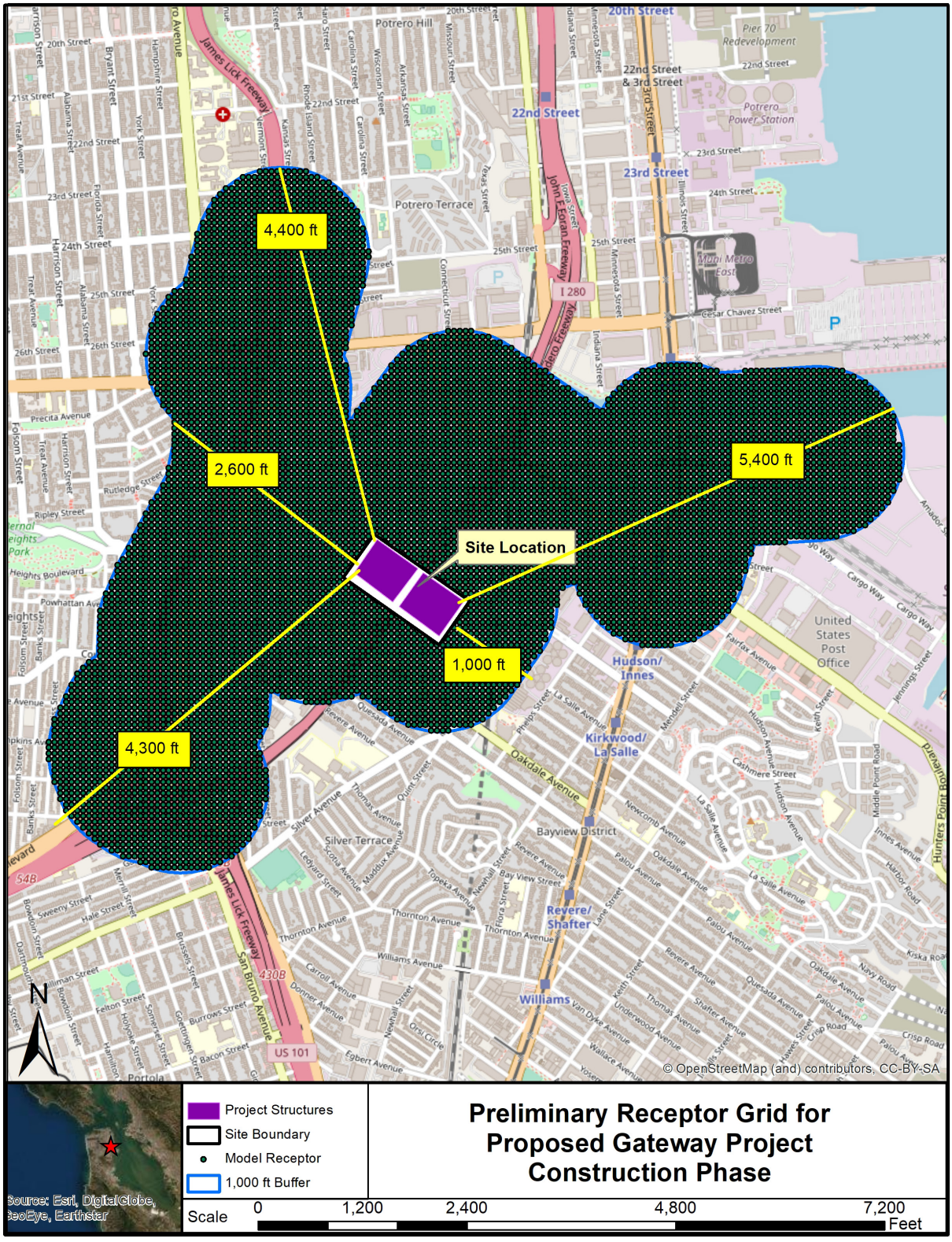
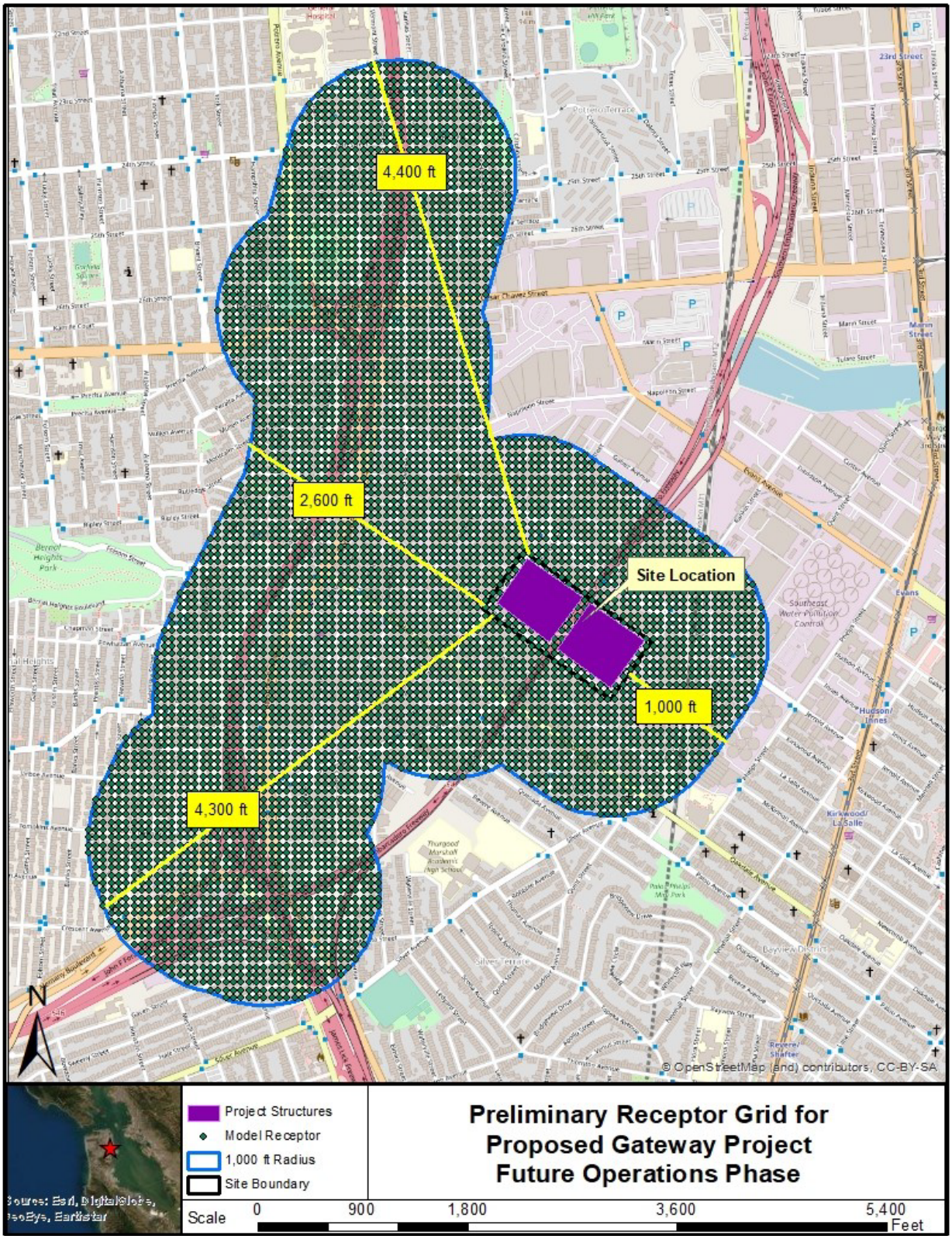


Figure 7
Preliminary Receptors for HRA Modeling – Operations Phase



3.2 Construction Sources

Diesel exhaust associated with off-road construction equipment will be represented by adjacent volume sources. The volume sources will cover the footprint of the proposed project site for all phases of construction. Fugitive dust emissions associated with demolition, excavation, and rough and fine grading will be represented by an area source of the same footprint as the project site. For construction of the project buildings, adjacent volume sources will be applied and located over areas of the project site where the buildings are proposed. To account for potential turbulent mixing that can occur with construction equipment exhaust release, an initial vertical dimension of 1.4 meters (approximately 4.6 feet) for each volume source will be used. The 1.4-meter vertical dimension is based on South Coast Air Quality Management District Localized Significance Threshold Methodology,[24] because the air district does not provide a specific value to use.

On-road emissions from construction-worker vehicles, haul trucks, material delivery trucks, and onsite work trucks traveling to and from the project site will be modeled as adjacent volume sources. To be consistent with the 2020 Citywide HRA, the release height of these sources will be set to 2 meters (approximately 6.6 feet), which is half the height of a typical truck height. The initial vertical dimension will be set to 2.3 meters (approximately 7.5 feet), based on a 5-meter (approximately 16 feet) release height divided by 2.15. The initial lateral dimensions will vary depending on roadway width. According to the transportation consultants, Adavant/LCW Consulting, construction-worker vehicles would approach the project site using the same routes that would be used by personnel when the project is operational. On-road traffic will be modeled to and from the U.S. 101 and I-280 on- and off-ramps and the project site.

For the purpose of the air quality analysis, the modeling will use a 10-hour period from 7 a.m. to 5 p.m., on average (3,120 hours per year). Nighttime (8 p.m. to 7 a.m.) construction activities are not anticipated during construction phases of demolition, site preparation, grading and commissioning, based on information provided by the project sponsor. During building construction and architectural coating phases, nighttime activity could occur up to 12 percent of the time. During the paving site improvements phase, nighttime activity could occur up to 25 percent of the time. Therefore, the model will use these maximum percentages for their respective phases for hours between 8 p.m. and 7 a.m. These assumptions for hours of construction will be used to model project emissions in AERMOD. This would include construction DPM and $PM_{2.5}$ emissions.

3.3 Operational Sources

Operational emission sources evaluated in the dispersion modeling will include on-road vehicles; onsite vehicles on multi-story ramps to and from the PDR spaces (manufacturing and maker space); and the two emergency generators. AECOM will model the on-road emissions from operational vehicles associated with the project site as adjacent volume sources. The release height of the on-road vehicle sources will be set to 2 meters (approximately 6.6 feet) and the initial vertical dimension will be set to 2.3 meters (approximately 7.5 feet), as recommended by 2020 Citywide HRA. The initial lateral dimensions will vary depending on roadway width. On-road traffic will be modeled to and from the U.S. 101 and I-280 on- and off-ramps and the project site. AECOM will use the EMFAC Gasoline Total Organic Gases Speciation to model TACs from non-diesel vehicles, as shown in Table 3.

[24] South Coast Air Quality Management District, July 2008, Localized Significance Threshold Methodology (Final), *http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.*

Table 3
Proposed EMFAC Gasoline TOG Speciation

Toxic Compounds	EMFAC Gasoline TOG Speciation (% of TOG)
Acetaldehyde	0.28%
Acrolein	0.13%
Benzene	2.47%
1,3-Butadiene	0.55%
Ethylbenzene	1.05%
Formaldehyde	1.58%
Hexane	1.60%
Methanol	0.12%
Methyl ethyl ketone	0.02%
Naphthalene	0.05%
Propylene	3.06%
Styrene	0.12%
Toluene	5.76%
Xylenes	4.80%

Source: EMFAC2017 Model (2018)

Notes:

EMFAC = EMission FACtors
TOG = total organic gases

On-road vehicles and associated transportation refrigeration units that are expected to use the multi-level ramps will also be modeled. These ramps will include half-walls that will allow air and exhaust to circulate through these open areas. Since vehicle exhaust would be emitted out of the buildings from both the exhaust vents and openings along the ramps, an analysis of onsite traffic will be conducted to quantitatively determine the split of vehicle and transportation refrigeration unit exhaust between vents and ramps during onsite transit within the buildings. The vehicle travel times for interior and ramp sections for each level of the project structures are included in Attachment A. Based on this analysis, a split of 60 percent via vents and 40 percent via ramps will be used to allocate vehicle and transportation refrigeration unit exhaust emissions from onsite travel.

In the modeling, AECOM will allocate 20 percent exhaust vents on each of the first three floors (for a total of 60 percent). Emission from the exhaust vents will be further distributed between the exhaust vents located on each floor (two vents for first floor and four vents each on the second and third floors) and the six exhaust vents on the roof (per building). For example, the 20 percent of exhaust emissions allocated to the first floor will be evenly distributed through the two first floor vents and six roof vents. The remaining 40 percent of vehicle exhaust from the openings along the ramps and the active roof will be modeled according to the following breakdown: 15 percent to the first floor, 12 percent to the second floor, 8 percent to the third floor, and 5 percent to the active roof. The first floor was assigned the highest percentage because all vehicles would originate here. The percentages gradually decrease as floors increase, reflecting how fewer vehicles would travel to the upper floors.

Idling of onsite vehicles and associated transportation refrigeration units (includes maneuvering for parking and docking) are assumed to occur within the interior sections of the project buildings. Based on

this assumption, the modeling will assume 90 percent of idling emissions exhaust from the vents and 10 percent exit from the openings along the ramps.

The release height of the onsite ramp vehicles will be set to 2 meters (approximately 6.6 feet) and the initial vertical dimension will be set to 2.3 meters (approximately 7.5 feet). The initial lateral dimensions will vary depending on the ramp type (i.e., sloped versus flat). The straight sections of the ramps are expected to be approximately 28 feet in width, while the curved sections of the ramps are expected to be approximately 22 feet wide. The modeling will divide the ramps into segments (straight and curve sections) because the emission rates will vary with speed. Slower speeds are expected at curved ramp segments. Base elevations for each ramp will be incorporated into the modeling of ramp traffic. This will include assigning elevations consistent with the proposed building drawing heights provided by Prologis, L.P.

AECOM assumes that TAC emissions associated with vehicle exhaust will be emitted from 16 exhaust vents for each building. Two horizontal exhaust vents on the first floor, four horizontal exhaust vents on the second and third floors each, and six vertical exhaust vents on the active roof. The vehicle staging and logistic yard on each of the first three floors will have continuous exhaust of a minimum of 1 cubic foot per minute per square foot, calculated to be 49 cubic meters per second, and the exhaust vents will be 1 meter or less in diameter. Plot plans show that the mechanical units will be above the logistic yards/parking areas in the truss structure of the ceiling on each level. Proposed stack parameters for the vehicle exhaust vents are presented in Table 4. AECOM assumes that the two emergency generators will be located next to the buildings at ground level. They will be modeled as point sources, with a stack height equal to 12 feet (3.66 meters). The exhaust will exit the stack vertically. Other proposed stack parameters include the values presented in Table 5, consistent with the 2020 Citywide HRA.

In the model, TAC emissions associated with manufacturing and maker space are assumed to exhaust from four of the six rooftop exhaust vents (the northern four vents are not located above the ramp section of the buildings). Stack parameters for these emissions are the same as those outlined in Table 4 for the active roof.

Table 4
Proposed Logistic Yard Horizontal Exhaust Stack Parameters

Stack Parameter	First Floor[2]	Second Floor[2]	Third Floor[2]	Active Roof
Stack Height	9.14 meters (30 feet)	18.59 meters (61 feet)	28.35 meters (93 feet)	30.18 meters (99 feet)
Stack Diameter[1]	1.0 meters (3.28 feet)			
Stack Temperature	293 K/Ambient (~72 F)			
Flow Rate[1]	49 m^3/sec (103,800 ft^3/min)			
Stack Velocity[1]	38.48 m/sec (7,574.8 feet/min)			

Notes:

°F = degrees Fahrenheit
ft/min = feet per minute
ft^3/min = cubic feet per minute
K = Kelvin
m/sec = meters per second
m^3/sec = cubic meters per second

1 Source: JLA 2018
2 Modeled as a horizontal stack (AERMOD keyword POINTHOR)

Table 5
Proposed Emergency Generator Stack Parameters[1]

Stack Parameter	Default Value
Stack Height	3.66 meters (12 feet)
Stack Diameter	0.183 meters (0.6 feet)
Stack Temperature	739.8 K (872 F)
Stack Velocity	45.33 m/sec (8,923 ft/min)

Notes: °F = degrees Fahrenheit; K = Kelvin; ft/min = feet per minute; m/sec = meters per second

[1] Source: Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Police Department, 2020

4.0 Health Risk Analysis

4.1 Pollutant Concentrations

AERMOD will be run using unit emissions; that is, each source will be modeled assuming emissions of 1 gram per second (g/s). The unitized AERMOD results for each source are output in micrograms per cubic meter per g/s [$(\mu g/m^3)(g/s)^{-1}$]. Maximum hourly and period average plot files generated by AERMOD as described above will be input to HARP2, with corresponding TAC emission rates for each phase of construction as well as the proposed project operational emissions to calculate project concentration contributions. These concentrations will then be used to estimate the acute and long-term health effects on sensitive receptors.

4.2 Receptor Exposure and Health Risk Calculations

Exposure factors will be used to calculate dose associated with exposure to the estimated unit concentration results obtained using AERMOD. The air board created the HARP2 software to assist in the development of emissions inventories, dispersion modeling, and risk assessment. For this project, HARP2 will be used solely to estimate cancer risk via HARP2's Air Dispersion Modeling and Risk Tool (ADMRT Version 21081), which was developed to encapsulate the exposure factors and guidance of the 2015 OEHHA Air Toxics Hot Spots Program Guidance Manual.[25] AECOM will evaluate the cancer risk for sensitive receptors exposed to 30 years (residential) and 25 years (worker) of project emissions through the inhalation pathway, as recommended in OEHHA 2015. Factors that affect the dose that a receptor would receive include, but are not limited to, age-specific daily breathing rates and exposure time, frequencies, and duration. The general formula for calculating residential inhalation risk is as follows:

$$\mathbf{RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH}$$

Where:

$RISK_{inh\text{-}res}$ = Residential inhalation cancer risk
$DOSE_{air}$ = Daily inhalation dose (milligrams/kilogram [mg/kg]-day)
CPF = Inhalation cancer potency factor $(mg/kg\text{-}day^{-1})$
ASF = Age sensitivity factor for a specified age group (unitless)
ED = Exposure duration (in years) for a specified age group
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

[25] Office of Environmental Health Hazard Assessment (OEHHA), February 2015, *Air Toxics Hot Spots Program Guidance Manual*.

The inhalation risk will be calculated in HARP2 using the OEHHA 2015-recommended default values for these parameters:

CPF	= Substance-specific
A^{SF}	= 10 for 3rd trimester of pregnancy to age 2, 3 for age 2 to 16, 1 for age 16 to 30
ED	= 0.25 year for 3rd trimester, 2 years for age 0 to 2, 7 years for age 2 to 9, 14 years for age 2 to 16, 14 years for age 16 to 30
AT	= 30 years
FAH	= 1.0 (no adjustment)

The daily inhalation dose for a resident receptor is defined as:

$$\mathbf{DOSE_{air} = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}}$$

Where:

$DOSE_{air}$	= Dose through inhalation (mg/kg-day)
C_{air}	= Concentration in air ($\mu g/m^3$)
{BR/BW}	= Daily Breathing rate normalized to body weight (Liters/kilogram body weight per day)
A	= Inhalation absorption factor (unitless)
EF	= Exposure frequency (unitless), days/365 days
10^{-6}	= Micrograms to milligrams conversion, liters to cubic meters conversion

The daily inhalation dose will be calculated in HARP2 using OEHHA 2015-recommended default values for these parameters:

C_{air}	= Concentration as calculated from AERMOD
{BR/BW}	= RMP derived method (i.e., 95th percentile) estimates (361 for 3rd trimester of pregnancy, 1,090 for age 0 to 2, 745 for age 2 to 16, 335 for age 16 to 30)
A	= 1
EF	= 0.96 (350 days/365 days in a year for a resident)

The general formula for calculating worker inhalation risk is as follows:

$$\mathbf{RISK_{inh\text{-}work} = DOSE_{air} \times CPF \times ASF \times ED/AT}$$

Where:

$RISK_{inh\text{-}work}$	= Worker inhalation cancer risk
$DOSE_{air}$	= Daily inhalation dose (milligrams per kilogram per day [mg/kg-day])
CPF	= Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
ASF	= 1 for working age 16-70 years (unitless)
ED	= 25 (years)
AT	= 70 (years)

The daily inhalation dose for a worker receptor is defined as:

$$\mathbf{DOSE_{air} = (C_{air} \times WAF) \times \{BR/BW\} \times A \times EF \times 10^{-6}}$$

Where:

$DOSE_{air}$ = Dose through inhalation (mg/kg-day)
C_{air} = Concentration in air ($\mu g/m^3$)
WAF = Worker air concentration adjustment factor (unitless)
{BR/BW} = Daily Breathing rate normalized to body weight (liters/kilogram body weight per day)
A = Inhalation absorption factor (unitless)
EF = Exposure frequency (unitless), days/365 days
10^{-6} = Micrograms to milligrams conversion, liters to cubic meters conversion

The daily inhalation dose will be calculated in HARP2 using OEHHA 2015-recommended default values for these parameters:

C_{air} = Concentration as calculated from AERMOD
WAF = 4.2 based on (24 hrs/day / 8 hrs/day) x (7 days/week / 5 days/week)
{BR/BW} = OEHHA derived method (i.e., 95th percentile) estimates for age 16 to 41)
A = 1
EF = 0.68 (250 days/365 days in a year for a worker)

AERMOD and HARP2 programs represent the most advanced model/tool used to assess risk in the State of California, according to the air board and OEHHA.

4.3 Summary of Health Risks

Health risks will be calculated for all receptors and for the maximally exposed individual at a sensitive receptor location. Two scenarios each will be presented for resident and worker receptors:

- *Residential Scenario 1:* This scenario will include project emissions from both construction activities and operation of the proposed project. Cancer risk will be assessed over a 30.6-year period, with construction occurring during the first 2.6 years, and operations for the remaining 28 years.
- *Residential Scenario 2:* This scenario will include only operation of the proposed project for a 30-year period.
- *Worker Scenario 1:* This scenario will include project emissions from both construction activities and operation of the proposed project. Cancer risk will be assessed over a 25.6-year period, with construction occurring during the first 2.6 years, and operations for the remaining 23 years.
- *Worker Scenario 2:* This scenario will include only operation of the proposed project for a 25-year period.

Two scenarios will be analyzed to determine which scenario would be more impactful. The approximately 30-year residential exposure scenarios 1 and 2, and the 25-year worker exposure scenarios 1 and 2 are consistent with 2015 OEHHA health risk guidance.[26]

[26] California Environmental Protection Agency, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment*, February 2015, *http://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf*, accessed July 15, 2021.

For residential exposure, the starting age for the first year of construction will be the third trimester in utero, with operations having a starting age of 2 years. The second scenario (Uncontrolled Scenario 2) assumes future operations for an exposure period of 30 years, with a starting age of third trimester in utero.

For worker exposure, the starting age for the first year of construction will be 16 years of age, with operations having a starting age of 18 years. The second scenario (Uncontrolled Scenario 2) assumes future operations for an exposure period of 25 years, with a starting age of 16 years.

For both scenarios, existing plus project cancer risks and total project annual average $PM_{2.5}$ concentrations will be estimated by adding these project contributions to the 2020 Citywide HRA background risks and concentrations. An Excel database file will be provided that includes the project health risk and $PM_{2.5}$ concentrations in addition to existing and total risks. Isopleths will be presented for both scenarios from the proposed project.

4.4 Cumulative Projects

Once the project maximally exposed individual sensitive resident and worker receptors are identified, AECOM and the project sponsor will work with the planning department to identify projects to include as part of the cumulative analysis.

For projects with a completed air quality analysis, AECOM will add the cancer risk and annual $PM_{2.5}$ values calculated in those analyses to the project's maximally exposed individual sensitive resident and worker receptors. Where quantitative information from cumulative projects is not known, the health risks and $PM_{2.5}$ contributions from those projects will be discussed qualitatively.

5.0 Measures to Reduce Project Impacts

If, based on the analysis outlined above and in consultation with the planning department, it is determined that the proposed project may exceed significance thresholds, AECOM will coordinate with the planning department and the project sponsor to develop feasible control measures to incorporate into the proposed project, and appropriate methodologies for assessing the effectiveness of such measures at reducing emissions, which may include qualitative and/or quantitative analysis. AECOM will present the proposed measure(s), methodology for assessing the reductions from those measures, and a summary of project findings.

6.0 Uncertainties

This section summarizes the main uncertainties associated with the emissions estimation, air dispersion modeling, and risk estimation components of the HRA methodology.

6.1 Emissions Estimates

There are uncertainties associated with the estimation of emissions from construction equipment. Where project-specific data are not available, CalEEMod default values or conservative (worst-case) input assumptions will be used. Similarly, operational activities could vary from day-to-day, but worst-case input assumptions will be used to inform the most conservative maximum average daily and maximum annual emissions that would result from long-term operations of the proposed project.

6.2 Air Dispersion Modeling

The limitations of the air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to U.S. EPA, errors due to the limitation of the algorithms implemented in the

air dispersion model in the highest estimated concentrations of ±10 percent to 40 percent are typical.[27] AECOM's methodologies use conservative assumptions and techniques to produce conservative (worst-case) results; therefore, predicted exposure concentrations are likely to be at or above actual exposure concentrations. The source parameters used to model emission sources also add uncertainty. For all emission sources, AECOM will use source parameters that are either recommended as defaults or expected to produce more conservative results. Discrepancies might exist between the actual emissions characteristics of a source and its representation in the model; exposure concentrations used in this assessment represent approximate exposure concentrations.

6.3 Health Risk Analysis

Numerous assumptions must be made to estimate human exposure to pollutants. These assumptions include parameters such as breathing rates, exposure time and frequency, exposure duration, and human activity patterns. Although a mean value derived from scientifically defensible studies is the best estimate of central tendency, most of the exposure variables used in this HRA are conservative estimates. For example, it is assumed that residential receptor exposure to project emissions occurs during the entire construction duration, and that exposure to the emissions sources occurs 24 hours per day for 350 days per year—a highly conservative assumption, because most residents do not remain in their homes for this period of time. The combination of several high-end estimates used as exposure parameters may substantially overestimate chemical intake. The excess lifetime cancer risks calculated in this assessment are therefore likely to be higher than may be necessary to be protective of public health.

The OEHHA CPF for DPM is used to estimate cancer risks associated with exposure to DPM from the proposed project. However, the CPF derived by OEHHA for DPM is highly uncertain in both the estimation of response and dose. In the past, due to inadequate animal test data and epidemiology data on diesel exhaust, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization, had classified DPM as Probably Carcinogenic to Humans (Group 2); the U.S. EPA had also concluded that the existing data did not provide an adequate basis for quantitative risk assessment.[28] However, based on two scientific studies,[29,30] IARC re-classified DPM as Carcinogenic to Humans to Group 1.[31] This means that the agency has determined that there is "sufficient evidence of carcinogenicity" of a substance in humans and represents the strongest weight-of-evidence rating in IARC's carcinogen classification scheme. This determination by the IARC may provide additional impetus for the U.S. EPA to identify a quantitative dose-response relationship between exposure to DPM and cancer.

OEHHA states that the conservative assumptions used in a risk assessment are intended to avoid underestimation of actual risks posed by a site, and are designed to err on the side of health protection.[32] The estimated risks for this HRA will be based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. Although it is difficult to quantify the uncertainties associated with all the assumptions made in this risk assessment, the use of conservative assumptions is likely to result in substantial overestimates of exposure, and hence risk.

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[27] U.S. EPA, 2018 – U.S. EPA. January 2018. *Guideline on Air Quality Models (Revised). 40 Code of Federal Regulations, Part 51, Appendix W.* Office of Air Quality Planning and Standards.

[28] United States Environmental Protection Agency (U.S. EPA), May 2002, *Health Assessment Document for Diesel Engine Exhaust*, National Center for Environmental Assessment, Office of Research and Development, Washington, DC. EPA/600/8-90/057F.

[29] Benbrahim-Tallaa, L. et al., July 2012, Carcinogenicity of Diesel-engine and Gasoline-engine Exhausts and Some Nitroarenes, *Lancet Oncology*.

[30] Attfield MD, Schleiff PL, Lubin JH, Blair A, Stewart PA, Vermeulen R, Coble JB, Silverman DT. 2012. The Diesel Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust. J Natl Cancer Inst.

[31] International Agency for Research on Cancer (IARC), June 2012, Press Release No. 213. IARC: Diesel Engine Exhaust Carcinogenic.

[32] OEHHA, February 2015, *Air Toxics Hot Spots Program Guidance Manual*.

Attachment A

Information Provided by the Project Sponsor

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RESPONSE TO RFI - CEQA Analysis Construction RFIs

DATE
09.18.18

PROJECT
San Francisco Gateway

CEQA Analysis Construction RFIs

TO
AECOM

PROJECT No.
1501.07

PAGES
6

To: AECOM
From: JLA

RFI #: Varies
Request date: Varies
Original Response: Varies
Revision: 09.18.18

The following are revised responses to construction related RFI items as issued in the RFI Request from AECOM for CEQA analysis and scope of work/project description documentation. RFI numbers reference the numbers used in the request spreadsheet.

Description:

Note: For the purposes of these RFI responses, the Base Project and Fleet Management Variant responses are similar in many cases. Where the Fleet Management is the subject of the questions or if the response to a question differs in a significant way, a specific response tailored to the Fleet Management Variant is provided.

RFIs

7. Expected start date, duration, days per week, and hours per day of construction activity

   Response:
   See attached Base Project & Fleet Management Variant Construction Comparison document

8. Number of construction workers anticipated

   Response:
   See attached Base Project & Fleet Management Variant Construction Comparison document

9. Construction phasing, including duration of each phase

   Response:
   See attached Base Project & Fleet Management Variant Construction Comparison document

10. Truck routing and estimated daily truck volumes per phase

    Response:
    See attached Base Project & Fleet Management Variant Construction Comparison document

14. Number of worker trips for each phase

    Response:
    See attached Base Project & Fleet Management Variant Construction Comparison document

15. Construction equipment list (equipment type, number of units, horsepower, load factor, operating hours per day, days of operation) for each phase.

    Response:
    See Section b of attached San Francisco Planning Department Memo – Attachment B. Project Construction Information document.

16. Cubic yards of soil excavated - subdivide between street improvements & onsite improvements

    Response:
    See attached Base Project & Fleet Management Variant Construction Comparison document

17. Cubic yards of soil reused

    Response:
    See attached Base Project & Fleet Management Variant Construction Comparison document

18. Cubic yards of soil exported

    Response:
    See attached Base Project & Fleet Management Variant Construction Comparison document

19. Cubic yards of soil imported

Response:
See attached Base Project & Fleet Management Variant Construction Comparison document

20. Confirmation of excavation depth bgs (confirm 10 ft bgs)

Response Base Project:
Confirmed. A maximum excavation depth below grade surface of 10 feet for grade beam construction. This does not include ground improvements

Response Fleet Management Variant:
The FMV contains a basement level at a portion of building C. In this area below grade surface excavation will be 14 feet

53. Are any dewatering activities proposed as part of construction?

Response Base Project:
Yes, temporary dewatering during construction will be required for foundation excavation.

Response Fleet Management Variant:
Yes, temporary dewatering during construction will be required for foundation excavation and during basement construction at building C.

54. Describe the "commissioning" phase of construction.

Response:
The "commissioning" phase of the project occurs during the last couple months of construction. Activities include:

- *Start-up and checkout of all equipment*
- *Inspection of mechanical and electrical systems and signed off*
- *Life Safety (Fire Alarm) testing, including elevator sign-off*
- *AHJ Inspections and sign-offs – municipal, utilities, etc.*
- *Final Inspection and Sign-off (TCO & C of O)*

55. Are shuttles planned for the proposed project during construction? Where would the construction workers be shuttled from? Where would the construction workers park?

Response:
The project is not anticipating requiring the use of shuttles for construction worker transportation. There is sufficient parking at and around the site to accommodate the workers.

During year 1 of construction & craft workers will park around the perimeter of the building and parking will be coordinated with demo, building pad and digging and pouring foundations activities. (range 90 -200 craft workers)

During the 2nd year of construction, we will utilize a combination of parking around the perimeter of building as well as parking inside of the buildings.

56. Where would soil be exported to?

Response:
Soil is expected to be exported to the Recology Facility at Tunnel Avenue in Brisbane, California.

81. Has there been any more information on pile driving activities during construction? Describe construction method, pile type, depth of piles etc. (the 4/19 RFI indicated further studies are being completed to determine foundation type for variant etc.)

Response:
See attached Base Project & Fleet Management Variant Construction Comparison document

82. Do you anticipate "exceptional circumstances" from 4/19 RFI would occur during construction? Is it appropriate to state "no nighttime work is anticipated during construction" or is it more appropriate to state "no nighttime work is anticipated, however if extraordinary circumstances arise, the project sponsor would obtain the proper documentation from the City"?

Response:
See attached Base Project & Fleet Management Variant Construction Comparison document response to RFI #7 for normal working hours.

There are a few “exceptional circumstances” that may require nighttime work during construction.

This includes:

1) Large Concrete Pours - These could be scheduled as early as 1am because of traffic. The project would apply for the necessary permits to be coordinated with the City of San Francisco.
2) Delivery of Oversized Loads – There are a number of oversized loads (structural trusses, precast members etc) that may special permitting and or truck delivery times, in order to avoid traffic. The project would apply for the necessary permits to be coordinated with the City of San Francisco.

83. The City would like to see more information about the construction worker shuttles. The 4/19 RFI states "Parking and shuttle service logistics are yet to be established" - has this been further analyzed?

Response:
See response to RFI #55 above

84. Would a traffic control plan be necessary during construction for work in the public ROW? What work in the public ROW is anticipated? Describe any changes to pedestrian access where/during what phases; street closures; parking space closures (how many, where)

Response:
Yes, as part of the project, repaving of portions of the public right of way to install new underground utilities and new city street and sidewalk sections will occur. No sidewalks currently exist adjacent to the project.

1) A new sidewalk adjacent to the project and half the width of city street of Rankin Street, McKinnon Avenue & Toland Street will be repaved. The full width of Kirkwood Avenue will be repaved with a new curb added on the north side of Kirkwood Avenue. (About 292,000 sf of city street will be repaved and 4,440 lf of sidewalk will be installed.)

97. Please identify the laydown and staging areas and describe the construction phases more

Response:
Trailers will be set up on the west end of the project, with parking being along the side of McKinnon, Toland, Rankin & Kirkwood right of ways in the area that is created between the current fence line and the existing buildings. This will change as work flow changes. Staging area for truck unloading, of precast and or steel, will be staged in this area as well**.**

San Francisco Gateway
749 Toland Street & 2000 McKinnon Avenue
9.18.18

Environmental Evaluation Construction Comparision

RFI Reference	Description		Base Project			Fleet Management Variant		
7	**Construction Timeframe**							
	Construction Start Date:		January 2021			Same as BP		
	Construction Duration:		Approx 24 months			Approx 28 months		
	Construction Days per Week, hrs per day:		Mon-Friday, 12 hrs (6:00am - 6:00pm)			Same as BP		
			Saturday, 8 hrs (7:00am - 3:00pm)			Same as BP		
8 & 9	**Construction phasing & worker expectations**							
	Phase 1 - (months 1 -4)	Demo, Site Prep, Earthwork & Grading	90 personel approx			Same as BP		
	Phase 2 - (months 5 -7)	Building Pad, Foundation work & underground Utilities	90 - 200 personel approx			Same as BP		
	Phase 3 - (months 8 -12)	Complete foundations & slab on grade, Structural precast, steel and deck pours	200 - 350 personel approx			Same as BP		
	Phase 4 - (months 13 -24)	Complete structure, exterior closure, roof, interiorselavators, finishes & comissioning	350 - 600 personel approx			Same as BP		
	Phase 5 - (months 24 -26)	Tenant Fit Out	0 personel approx			90 - 300 personel approx		
10	**Truck Routing & Daily Truck Volumes**			Total Days	ave/day		Total Days	ave/day
	Phase 1		14,460 Total Trucks	80 days	181	Same as BP		
	Phase 2		7,344 Total Trucks	60 days	122	Same as BP		
	Phase 3		7,400 Total Trucks	80 days	93	Same as BP		
	Phase 4		8,610 Total Trucks	240 days	36	Same as BP		
	Phase 5		0 Total Trucks	0 days	-	700 Total Trucks	80 days	9
14	**Worker Trips for each phase**							
	Phase 1		7,200 trips per phase	80 days	90	Same as BP		
	Phase 2		9,000 trips per phase	60 days	150	Same as BP		
	Phase 3		22,400 trips per phase	80 days	280	Same as BP		
	Phase 4		115,200 trips per phase	240 days	480	Same as BP		
	Phase 5		0 trips per phase	0 days	-	16,000 trips per phase	80 days	200
16	**Cubic yards of soil excavated**							
	On site		134,000 cubic yards			148,933 cubic yards		
	Street Improvements	(1/2 width of Rankin & McKinnon. Entirity of Selby, full width to back of curb at Kirkwood)	6,600 cubic yards			Same as BP		
17	**Cubic yards of soil reused**	This is existing warehouse fill	36,000 cubic yards			18,000 cubic yards		
18	**Cubic yards of soil Exported**		98,000 cubic yards			130,933 cubic yards		
19	**Cubic Yards of soil imported**	allowance only	2,000 cubic yards			Same as BP		
81	**Pile driving activities**							
	Vibratory replacement stone columns		7,000 stone columns, 25 feet deep			Same as BP		
	Auger Cast piles		900 auger cast piles, 60 feet deep			Same as BP		

Attachment B. Project Construction Information

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

To: Brian Liles, Jackson Liles Architecture
From: Elizabeth White, San Francisco Planning Department
Date: June 27, 2017
Case No.: 2015-012491ENV
Project Address: **749 Toland Street and 2000 McKinnon Avenue**

To inform the air quality analysis for the 749 Toland Street and 2000 McKinnon Avenue Project, the San Francisco Planning Department requires more information about construction activities. Please answer the questions listed below.

Construction Schedule. Please estimate the following information regarding the project's construction schedule:

a. Overall construction schedule (number of months or weeks).
b. Cubic yards of material transport, separated by import and export.

Construction Phasing and Equipment. Please provide estimates for the following information.

a. Phases using the following categories:

Construction Phase	Definition	Associated Schedule	Total Acres Disturbed	Material Imported/Exported
Demolition (Identify the square footage of buildings to be demolished.)	Involves tearing down of buildings or structures.	Jan - Mar 2021	12.92 acres (563,146 sf)	Export: 448,000 gsf of demolition 44,000 cy of debris
Site Preparation	Involves clearing vegetation (grubbing and tree/stump removal) and stones prior to grading	Jan 2021	2.66 acres (116,000 sf)	Export: 4,000 cy of debris
Grading	Involves the cut and fill of land to ensure the proper base and slope for the construction foundation	Mar - May 2021	12.92 acres (563,146 sf)	Export: 54,000 cy (BP) Export: 87,000 (FMV) Import: 0 cy (BP) Import: 0 cy (FMV)
Building Construction	Involves the construction of structures and buildings	Apr 2021 - Apr 2022	12.92 acres (563,146 sf) 2,451,316 gsf	Import: 164,000 cy Export: 38,000 cy
Architectural Coatings	Involves the application of coatings to both the interior and exterior of buildings or structures	Sep 2021 - Nov 2022	12.92 acres (563,146 sf) 2,451,316 gsf	Import: 4,000 cy
Paving	Involves the laying of concrete or asphalt such as in parking lots or roads	June - Nov 2022	5.78 acres (252,000 sf)	Export: 6,600 cy Import: 9,200 cy (above quantities are to half street width only ~~except Kirkwood &~~ Selby)
Other: TENANT FIT OUT - FMV ONLY	Provide a general description if the phase does not fit within the above definitions	Nov 2022 - Feb 2023	6.46 acres (281,573 sf)	

PHASE: DEMOLITION

NOTES:
1. NUMBERS GIVEN REFER TO ENTIRE PROJECT SITE, INCLUDING BOTH SIDES OF HIGHWAY 280

b. Equipment Type

Equipment Type	Associated Horsepower	No. of Equipment[1]		Associated Construction Phase	Hours per Day	Total Number of Days in Construction[1]	
		BP	FMV			BP	FMV
Aerial Lifts	42 hp	4	4	DEMOLITION	6 hrs	44	44
Air Compressors							
Bore/Drill Rigs							
Cement and Mortar Mixers							
Concrete/Industrial Saws							
Cranes							
Crawler Tractors	220 hp	4	4	DEMOLITION	8 hrs	44	44
Crushing/Proces. Equipment							
Dumpers/Tenders		14	14	DEMOLITION	6 hrs	44	44
Excavators	300 hp	10	10	DEMOLITION	8 hrs	44	44
Forklifts	42 hp	4	4	DEMOLITION	6 hrs	44	44
Generator Sets							
Graders							
Off-Highway Tractors							
Off-Highway Trucks							
Other Construction Equipment							
Other General Industrial Equipment							
Other Material Handling Equipment							
Pavers							
Paving Equipment							
Plate Compactors							
Pressure Washers							
Pumps							
Rollers							
Rough Terrain Forklifts							
Rubber Tired Dozers							
Rubber Tired Loaders							
Scrapers							
Signal Boards							
Skid Steer Loaders							
Surfacing Equipment							
Sweepers/Scrubbers							
Tractors/Loaders/Backhoes	124 hp	12	12	DEMOLITION	6 hrs	44	44
Trenchers							

PHASE: GRADING

NOTES:
1. NUMBERS GIVEN REFER TO ENTIRE PROJECT SITE, INCLUDING BOTH SIDES OF HIGHWAY 280

b. Equipment Type

Equipment Type	Associated Horsepower	No. of Equipment[1]		Associated Construction Phase	Hours per Day	Total Number of Days in Construction[1]	
		BP	FMV			BP	FMV
Aerial Lifts							
Air Compressors							
Bore/Drill Rigs							
Cement and Mortar Mixers							
Concrete/Industrial Saws							
Cranes							
Crawler Tractors	220 hp	2	2	GRADING	8 hrs	22	30
Crushing/Proces. Equipment							
Dumpers/Tenders							
Excavators	483 hp	2	2	GRADING	9 hrs	18	22
Forklifts							
Generator Sets							
Graders	240 hp	2	2	GRADING	9 hrs	22	30
Off-Highway Tractors							
Off-Highway Trucks							
Other Equipment Water Truck	280 hp	2	2	GRADING	8 hrs	22	30
Other Equipment Street Sweeper	275 hp	2	2	GRADING	8 hrs	22	30
Other General Industrial Equipment							
Other Material Handling Equipment							
Pavers							
Paving Equipment							
Plate Compactors							
Pressure Washers							
Pumps							
Rollers	174 hp	2	2	GRADING	7 hrs	22	30
Rough Terrain Forklifts							
Rubber Tired Dozers							
Rubber Tired Loaders	100 hp	2	2	GRADING	6 hrs	22	30
Scrapers	940 hp (at mass excav) 490 hp (grading)	4	4	GRADING	8 hrs	22	30
Signal Boards							
Skid Steer Loaders							
Surfacing Equipment							
Sweepers/Scrubbers							
Tractors/Loaders/Backhoes							
Trenchers							

PHASE: BUILDING CONSTRUCTION

NOTES:
1. NUMBERS GIVEN REFER TO ENTIRE PROJECT SITE, INCLUDING BOTH SIDES OF HIGHWAY 280

b. Equipment Type

Equipment Type	Associated Horsepower	No. of Equipment[1]		Associated Construction Phase	Hours per Day	Total Number of Days in Construction[1]	
		BP	FMV			BP	FMV
Aerial Lifts	49 hp	12	12	BUILD CONST - PRECAST	6 hrs	80	80
Air Compressors	49 hp	4	4	BUILD CONST - PRECAST	4 hrs	80	80
Bore/Drill Rigs							
Cement and Mortar Mixers							
CRANES	500 hp	4	4	BUILD CONST - PRECAST	8 hrs	80	80
	500 hp	2	2	BUILD CONST - STEEL	8 hrs	60	60
	241 hp	2	2	BUILD CONST - MEP/FS	8 hrs	100	100
	500 hp	2	2	BUILD CONST - CLADDING	8 hrs	120	120
FORKLIFTS	115 hp	4	4	BUILD CONST - PRECAST	6 hrs	80	80
	62 hp	4	4	BUILD CONST - PRECAST	6 hrs	80	80
	125 hp	4	4	BUILD CONST - STEEL	8 hrs	80	80
	130 hp	10	10	BUILD CONST - MEP/FS	8 hrs	120	120
Generator Sets	102 hp	4	4	BUILD CONST - PRECAST	6 hrs	80	80
Graders							
Off-Highway Tractors							
Off-Highway Trucks							
Other Construction Equipment							
Other General Industrial Equipment							
Other Material Handling Equipment							
Pavers							
Paving Equipment							
Plate Compactors	6.5 hp	4	4	BUILD CONST - MEP/FS	8 hrs	120	120
Pressure Washers							
Pumps CONC PUMP TRUCKS	430 hp	4	4	BUILD CONST - CIP CONC	6 hrs	100	100
Rollers							
Rough Terrain Forklifts							
Rubber Tired Dozers							
Rubber Tired Loaders							
Scrapers							
Signal Boards							
Skid Steer Loaders							
Surfacing Equipment							
Sweepers/Scrubbers							
TRACTORS/LOADERS/ BACKHOES	300 hp	2	2	BUILD CONST - STEEL	8 hrs	80	80
	119 hp	4	4	BUILD CONST - MEP/FS	8 hrs	120	120

PHASE: ARCHITECTURAL COATINGS

NOTES:
1. NUMBERS GIVEN REFER TO ENTIRE PROJECT SITE, INCLUDING BOTH SIDES OF HIGHWAY 280

b. Equipment Type

Equipment Type	Associated Horsepower	No. of Equipment[1]		Associated Construction Phase	Hours per Day	Total Number of Days in Construction[1]	
		BP	FMV			BP	FMV
Aerial Lifts							
Air Compressors							
Bore/Drill Rigs							
Cement and Mortar Mixers							
Concrete/Industrial Saws							
Cranes							
Crawler Tractors							
Crushing/Proces. Equipment							
Dumpers/Tenders							
Excavators							
Forklifts	130 hp	20	20	ARCHITECTURAL COATINGS	4 hrs	250	250
Generator Sets	65 hp	8	8	ARCHITECTURAL COATINGS	8 hrs	250	250
Graders							
Off-Highway Tractors							
Off-Highway Trucks							
Other Construction Equipment							
Other General Industrial Equipment							
Other Material Handling Equipment							
Pavers							
Paving Equipment							
Plate Compactors							
Pressure Washers							
Pumps							
Rollers							
Rough Terrain Forklifts							
Rubber Tired Dozers							
Rubber Tired Loaders							
Scrapers							
Signal Boards							
Skid Steer Loaders							
Surfacing Equipment							
Sweepers/Scrubbers							
Tractors/Loaders/Backhoes	250 hp	2	2	ARCHITECTURAL COATINGS (LANDSCAPING)	6 hrs	40	40
Trenchers	50 hp	2	2	ARCHITECTURAL COATINGS (LANDSCAPING)	6 hrs	40	40

PHASE: PAVING & UTILITIES

NOTES:
1. NUMBERS GIVEN REFER TO ENTIRE PROJECT SITE, INCLUDING BOTH SIDES OF HIGHWAY 280

b. Equipment Type

Equipment Type	Associated Horsepower	No. of Equipment[1]		Associated Construction Phase	Hours per Day	Total Number of Days in Construction[1]	
		BP	FMV			BP	FMV
Aerial Lifts							
Air Compressors							
Bore/Drill Rigs							
Cement and Mortar Mixers							
Concrete/Industrial Saws	65 hp	2	2	UTILITIES - OFFISTE	4 hrs	20	20
Cranes							
Crawler Tractors	150 hp	2	2	UTILITIES - ONSITE	4 hrs	40	40
Crushing/Proces. Equipment							
Dumpers/Tenders							
EXCAVATORS	271 hp	2	2	UTILITIES	6 hrs	60	60
	370 hp	2	2	PAVING	6 hrs	30	30
Generator Sets							
Graders	260 hp	2	2	PAVING	6 hrs	40	40
Off-Highway Tractors							
Off-Highway Trucks							
AC ROLLER	20 hp	2	2	UTILITIES	4 hrs	50	50
COMPRESSORS ON TRUCK	49 hp	2	2	UTILITIES	4 hrs	60	60
DUMP TRUCK	350 hp	2	2	UTILITIES	4 hrs	50	50
Other General Industrial Equipment							
WATER TRUCK	380 hp	2	2	PAVING	4 hrs	20	20
TACK TRUCK	200 hp	2	2	PAVING	4 hrs	20	20
OIL DISTRIBUTOR	325 hp	2	2	PAVING	4 hrs	20	20
Pavers							
Paving Equipment							
Plate Compactors	8.5 hp	2	2	UTILITIES	4 hrs	60	60
Pressure Washers							
Pumps							
Rollers	100 hp	2	2	PAVING	4 hrs	40	40
Rough Terrain Forklifts							
RUBBER TIRED LOADERS	245 hp	4	4	UTILITIES	6 hrs	60	60
	78 hp	2	2	PAVING	6 hrs	40	40
Scrapers	275 hp	2	2	PAVING	4 hrs	20	20
Signal Boards	SOLAR	8	8	UTILITIES - OFFSITE	9 hrs	30	30
Skid Steer Loaders	62 hp	2	2	UTIITIES	4 hrs	60	60
Surfacing Equipment	65 hp	2	2	UTILITIES - OFFSITE	4 hrs	20	20
Sweepers/Scrubbers							
Tractors/Loaders/Backhoes	86 hp	2	2	UTILITIES	6 hrs	60	60
Trenchers							

PHASE: TENANT FIT OUT

NOTES:
1. NUMBERS GIVEN REFER TO ENTIRE PROJECT SITE, INCLUDING BOTH SIDES OF HIGHWAY 280

b. Equipment Type

Equipment Type	Associated Horsepower	No. of Equipment[1]		Associated Construction Phase	Hours per Day	Total Number of Days in Construction[1]	
		BP	FMV			BP	FMV
Aerial Lifts							
Air Compressors							
Bore/Drill Rigs							
Cement and Mortar Mixers							
Concrete/Industrial Saws							
Cranes							
Crawler Tractors							
Crushing/Proces. Equipment							
Dumpers/Tenders							
Excavators							
Forklifts	130 hp	0	5	TENANT FIT OUT	6 hrs	0	80
Generator Sets							
Graders							
Off-Highway Tractors							
Off-Highway Trucks							
Other Construction Equipment							
Other General Industrial Equipment							
Other Material Handling Equipment							
Pavers							
Paving Equipment							
Plate Compactors							
Pressure Washers							
Pumps							
Rollers							
Rough Terrain Forklifts							
Rubber Tired Dozers							
Rubber Tired Loaders							
Scrapers							
Signal Boards							
Skid Steer Loaders							
Surfacing Equipment							
Sweepers/Scrubbers							
Tractors/Loaders/Backhoes							
Trenchers							

Jackson Liles
ARCHITECTURE

2325 Third Street #206
San Francisco, CA 94107
Tel 415.621.1799

RESPONSE TO RFI

DATE
06.28.19

PROJECT
San Francisco Gateway

CEQA Analysis

PROJECT No.
1501.07

PAGES
2

To: AECOM
From: JLA

RFI #:
Request date: 06.28.19
Original Response: 06.28.19
Revision: -

The following are responses to RFI items as issued by email from AECOM. Emails dated 6.26.19 and 6.27.19

1. Would there still be painting, fueling, etc. somewhere in the building?
   Response:
   No painting or fueling

2. Confirm generators are the same.
   Response:
   Yes, the generators remain unchanged

3. Confirm pile numbers are the same.
   Response:
   Yes, currently the pile numbers are the same.

4. Need start date for construction, we will need to plug that into the AQ model
   Response:
   Construction start date is: 06.01.2021.

5. Please confirm that the construction routes have not changed. Attached is a figure showing the previous routes. If the routes have changed, please provide a map.
   Response:
   Yes, construction routes remain unchanged.

6. The revised PD indicates that construction (including demo) will now take 30 months instead of the previous 25 months. Table 4 “Construction Phasing” of the revised PD implies that none of the phases will occur concurrently. Please confirm as previously that some phases will overlap.
   Response:
   Construction durations and overlap remain unchanged.

DRAFT

7. Based on the revised PD, the Manufacturing and Maker Space would be 35,000 gsf combined between buildings A and B. There are now only 4 types (Food & Beverage Processing, Apparel & Other Garment Products, Furniture & Fixtures, and Printing & Publishing including 3-D) of the uses listed. Therefore, we would propose a breakdown of 25% for each type resulting in 8,750 gsf per type (4,375 gsf for each building). Does this seem like a reasonable breakdown in the Manufacturing and Maker Space?

   Response:

   The Manufacturing and Maker Space is 35,000 sf (3% of the total area). This should be evaluated in a method that would allow for flexibility for the specific type of maker/manufacturing use. The four (4) types are illustrative examples and do not represent a specific mix of maker users. The concept discussed to date is to bound or limit Maker use by compliance existing regulatory restrictions related to noise and air quality.

San Francisco Gateway

Allocation of Onsite Vehicle Exhaust for HRA Modeling					
Building Level	Interior Travel Distance (ft)	Ramped Travel (ramp + landing) Distance (ft)	Ratio		
			Interior		Ramp
Level 1	295	776	28%	:	72%
Level 2	1402	1336	64%	:	36%
Level 3	1402	1252	65%	:	35%
Roof	563	181	84%	:	16%
		Avg Split	60%	:	40%

Source: Prologis 2022

Attachment B

Example TAC Profiles

Graphic Sportswear (P# 16739)

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
5000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr
2.27E-04	Benzene (41)	9.46E-06	8.29E-02
4.38E+03	Carbon Dioxide, non-biogenic CO2 (6960)	1.83E+02	1.60E+06
1.25E+00	Carbon Monoxide (CO) pollutant (4990)	5.20E-02	4.56E+02
2.67E-03	Formaldehyde (124)	1.11E-04	9.75E-01
4.00E-02	Glycols (131)	1.67E-03	1.46E+01
1.60E-02	Isopropyl alcohol (157)	6.66E-04	5.84E+00
6.76E-02	Methane (CH4) (6970)	2.82E-03	2.47E+01
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00
4.97E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	2.07E-01	1.81E+03
8.23E-03	Nitrous Oxide (N2O) (2030)	3.43E-04	3.00E+00
2.40E-02	Organic liquid evap - other/not spec (201)	1.00E-03	8.76E+00
2.04E-01	Organics (other, including CH4) (990)	8.49E-03	7.44E+01
1.07E-01	Particulates (part not spec elsewhere) (1990)	4.45E-03	3.90E+01
2.03E-02	Sulfur Dioxide (SO2) (3990)	8.44E-04	7.39E+00
1.21E-04	Toluene (293)	5.05E-06	4.42E-02

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105AD&SPN=SIP105AD&F_AREA=CA&F_EICSUM=240

		PM PROFILE			OG PROFILE			
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
2402688400000	0	2204	0.925	0.96	517	1	1	

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

	g/s
PM2.5	5.19E-04

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	7.22E-05	6.32E-01
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	4.76E-05	4.17E-01
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	6.70E-06	5.87E-02
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	3.00E-07	2.63E-03
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	5.90E-06	5.17E-02
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	7.00E-07	6.13E-03
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	4.00E-07	3.51E-03
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.30E-06	1.14E-02
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.00E-07	8.76E-04
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	4.18E-05	3.67E-01
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.00E-07	8.76E-04
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.00E-07	8.76E-04
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	3.50E-06	3.07E-02
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.00E-04	1.75E+00
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.00E-04	1.75E+00
517	Printing evaporation loss- general	43336	0.0006	Octanol	6.00E-07	5.26E-03
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.00E-06	8.76E-03
517	Printing evaporation loss- general	43566	0.0009	Trimethylcyclopentanone	9.00E-07	7.89E-03
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	3.80E-06	3.33E-02
517	Printing evaporation loss- general	45105	0.02242	Isomers Of Butylbenzene	2.24E-05	1.96E-01
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.34E-05	1.18E-01
517	Printing evaporation loss- general	45202	0.003	Toluene	3.00E-06	2.63E-02
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.10E-06	1.84E-02
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	9.41E-06	8.25E-02
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.36E-05	1.19E-01
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	5.90E-06	5.17E-02
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	1.90E-06	1.67E-02
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	6.00E-07	5.26E-03
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	2.30E-06	2.02E-02
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.00E-06	8.76E-03
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	9.00E-07	7.89E-03
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	1.60E-06	1.40E-02
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.00E-06	8.76E-03
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	3.00E-07	2.63E-03
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	3.00E-07	2.63E-03
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	3.30E-06	2.89E-02
517	Printing evaporation loss- general	46753	0.0036	T-Decahydronaphthalene	3.60E-06	3.15E-02
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	2.50E-05	2.19E-01
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	5.50E-06	4.82E-02
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	2.60E-06	2.28E-02
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.00E-06	8.76E-03
517	Printing evaporation loss- general	90069	0.0057	Dimethylethylcyclohexane	5.70E-06	5.00E-02
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.40E-06	1.23E-02
517	Printing evaporation loss- general	90072	0.03592999	Methyl Propylcyclohexanes	3.59E-05	3.15E-01
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	1.70E-06	1.49E-02
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	1.49E-05	1.31E-01
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.30E-06	1.14E-02
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.00E-06	1.75E-02
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	6.00E-07	5.26E-03
517	Printing evaporation loss- general	90083	0.02561998	Ethylmethylcyclohexanes	2.56E-05	2.25E-01
517	Printing evaporation loss- general	90090	0.003	Ethyl Propylcyclohexanes	3.00E-06	2.63E-02
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.10E-06	1.84E-02
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.10E-06	1.84E-02
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.00E-07	8.76E-04
517	Printing evaporation loss- general	90098	0.0033	Tetramethylcyclopentane	3.30E-06	2.89E-02
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.01E-05	8.86E-02
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	4.60E-06	4.03E-02
517	Printing evaporation loss- general	90107	0.004	Methyldecene	4.00E-06	3.51E-02
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	3.30E-06	2.89E-02
517	Printing evaporation loss- general	90110	0.0033	Diethylmethylcyclohexanes	3.30E-06	2.89E-02
517	Printing evaporation loss- general	90111	0.0026	Isopropylmethylcyclohexane	2.60E-06	2.28E-02
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	6.00E-07	5.26E-03
517	Printing evaporation loss- general	90113	0.001	Pentylindenecyclohexane	1.00E-06	8.76E-03
517	Printing evaporation loss- general	90114	0.0003	Dimethylbutylcyclohexane	3.00E-07	2.63E-03
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	6.00E-07	5.26E-03
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.27E-05	1.11E-01
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	6.00E-07	5.26E-03
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.29E-05	1.13E-01
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.10E-06	1.84E-02
517	Printing evaporation loss- general	98048	0.002	Indene	2.00E-06	1.75E-02
517	Printing evaporation loss- general	98059	0.0028	Trans-1,3-Dimethylcyclohexane	2.80E-06	2.45E-02
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.21E-05	1.06E-01
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	2.70E-06	2.37E-02
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	3.30E-06	2.89E-02
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	8.91E-06	7.81E-02
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	3.53E-05	3.10E-01
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	3.89E-05	3.41E-01
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	2.51E-05	2.20E-01
517	Printing evaporation loss- general	99915	0.0023	1-Methyl-2-Ethylbenzene	2.30E-06	2.02E-02

Freund Baking Company (P# 10991)

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
10000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr
1.96E-05	Benzene (41)	8.15E-07	7.14E-03
2.51E+03	Carbon Dioxide, non-biogenic CO2 (6960)	1.05E+02	9.16E+05
6.90E-01	Carbon Monoxide (CO) pollutant (4990)	2.87E-02	2.52E+02
1.96E-01	Ethyl alcohol (105)	8.15E-03	7.14E+01
2.31E-04	Formaldehyde (124)	9.61E-06	8.42E-02
1.00E-02	Methane (CH4) (6970)	4.17E-04	3.66E+00
2.77E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	1.15E-01	1.01E+03
4.56E-03	Nitrous Oxide (N2O) (2030)	1.90E-04	1.66E+00
8.47E-01	Organics (other, including CH4) (990)	3.53E-02	3.09E+02
7.40E-01	Particulates (part not spec elsewhere) (1990)	3.08E-02	2.70E+02
1.12E-02	Sulfur Dioxide (SO2) (3990)	4.67E-04	4.09E+00
1.04E-05	Toluene (293)	4.34E-07	3.80E-03

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

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	g/s
PM2.5	1.63E-03

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	3.53E-02	3.09E+02

Anchor Brewing

lbs/day	Pollutant
1.03E-04	Benzene (41)
4.19E+03	Carbon Dioxide, biogenic CO2 (6961)
6.02E+03	Carbon Dioxide, non-biogenic CO2 (6960)
1.47E+00	Carbon Monoxide (CO) pollutant (4990)
3.69E-03	Formaldehyde (124)
9.34E-02	Methane (CH4) (6970)
6.39E+00	Nitrogen Oxides (part not spec elsewhere) (2990)
1.14E-02	Nitrous Oxide (N2O) (2030)
2.73E-01	Organics (other, including CH4) (990)
1.47E-01	Particulates (part not spec elsewhere) (1990)
2.79E-02	Sulfur Dioxide (SO2) (3990)
1.67E-04	Toluene (293)

97866	Anchor Brewing Square Footage
5000	Brewing Maker Space Square Footage

Brewing Maker Space

lbs/day	Pollutant	lb/hr	lb/yr
5.26E-06	Benzene (41)	2.19E-07	1.92E-03
2.14E+02	Carbon Dioxide, biogenic CO2 (6961)	8.92E+00	7.81E+04
3.08E+02	Carbon Dioxide, non-biogenic CO2 (6960)	1.28E+01	1.12E+05
7.51E-02	Carbon Monoxide (CO) pollutant (4990)	3.13E-03	2.74E+01
1.89E-04	Formaldehyde (124)	7.86E-06	6.88E-02
4.77E-03	Methane (CH4) (6970)	1.99E-04	1.74E+00
3.26E-01	Nitrogen Oxides (part not spec elsewhere) (2990)	1.36E-02	1.19E+02
5.82E-04	Nitrous Oxide (N2O) (2030)	2.43E-05	2.13E-01
1.39E-02	Organics (other, including CH4) (990)	5.81E-04	5.09E+00
7.51E-03	Particulates (part not spec elsewhere) (1990)	3.13E-04	2.74E+00
1.43E-03	Sulfur Dioxide (SO2) (3990)	5.94E-05	5.20E-01
8.53E-06	Toluene (293)	3.56E-07	3.11E-03

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5 /TPM	PM10 /TPM	OG PROFILE NUMBER	ROG /TOG	VOC /TOG
42041460100000	0	325	0.4	0.54	211	1	1

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	g/s
PM2.5	1.58E-05

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	5.81E-04	5.09E+00

Plantation Coffee Roastery (P# 12736)

1 Coffee Roasting Oven (Roaster)

C1660189	
Benzene 41	2.50E-07
Formaldehyde 124	2.94E-06
Toluene 293	1.33E-07
Organics (other, including 990	2.24E-04
Particulates (part not spe 1990	1.17E-04
Nitrous Oxide (N2O) 2030	9.04E-06
Nitrogen Oxides (part not 2990	5.48E-03
Sulfur Dioxide (SO2) 3990	2.22E-05
Carbon Monoxide (CO) pollu 4990	1.37E-03
Carbon Dioxide, non-biogen 6960	4.79E+00
Methane (CH4) 6970	7.44E-05
G1011078	
Organics (other, including 990	5.39E-04
Particulates (part not spe 1990	1.38E-03

Pollutant	lb/day	lb/hr	lb/yr
Benzene 41	2.50E-07	1.04E-08	9.13E-05
Formaldehyde 124	2.94E-06	1.23E-07	1.07E-03
Toluene 293	1.33E-07	5.54E-09	4.85E-05
Organics (other, including 990	7.63E-04	3.18E-05	0.278495
Particulates (part not spe 1990	1.50E-03	6.24E-05	5.46E-01
Nitrous Oxide (N2O) 2030	9.04E-06	3.77E-07	3.30E-03
Nitrogen Oxides (part not 2990	5.48E-03	2.28E-04	2.00E+00
Sulfur Dioxide (SO2) 3990	2.22E-05	9.25E-07	8.10E-03
Carbon Monoxide (CO) pollu 4990	1.37E-03	5.71E-05	5.00E-01
Carbon Dioxide, non-biogen 6960	4.79E+00	2.00E-01	1.75E+03
Methane (CH4) 6970	7.44E-05	3.10E-06	2.72E-02

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5 /TPM	PM10 /TPM	OG PROFILE NUMBER	ROG /TOG	VOC /TOG
42041860200000	0	327	0.61	0.62	600	0.6986	0.6986

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	g/s
PM2.5	4.79E-06

OG PROFILE NAME	OG PROFILE NUMBER	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
Species unknown- all category composite	600	43105	0.0286	Isomers Of Hexane	6.35196E-07	0.005564
Species unknown- all category composite	600	43108	0.0251	Isomers Of Nonane	5.57462E-07	0.004883
Species unknown- all category composite	600	43122	0.1178	Isomers Of Pentane	2.6163E-06	0.022919
Species unknown- all category composite	600	43201	0.25	Methane	5.55241E-06	0.048639
Species unknown- all category composite	600	43202	0.0514	Ethane	1.14158E-06	0.0100
Species unknown- all category composite	600	43203	0.0327	Ethylene	7.26256E-07	0.006362
Species unknown- all category composite	600	43204	0.0465	Propane	1.03275E-06	0.009047
Species unknown- all category composite	600	43212	0.15	N-Butane	3.33145E-06	0.029183
Species unknown- all category composite	600	43214	0.029	Isobutane	6.4408E-07	0.005642
Species unknown- all category composite	600	43220	0.0569	N-Pentane	1.26373E-06	0.01107
Species unknown- all category composite	600	43231	0.0375	Hexane	8.32862E-07	0.007296
Species unknown- all category composite	600	43232	0.0267	N-Heptane	5.92997E-07	0.005195
Species unknown- all category composite	600	43242	0.0235	Cyclopentane	5.21927E-07	0.004572
Species unknown- all category composite	600	43276	0.0428	2,2,4-Trimethylpentane	9.50573E-07	0.008327
Species unknown- all category composite	600	45202	0.0815	Toluene	1.81009E-06	0.015856

Ralph King Furniture and Cabinetry (P# 18714)

2 Spray Booth		lb/day
SG22C522		
Butyl alcohol	49	0.00E+00
Butyl cellosolve	522	0.00E+00
SG42C455		
Methyl isobutyl ketone (MI	170	0.00E+00
Acetone	455	0.00E+00
SG62C157		
Ethyl alcohol	105	2.87E-01
Isopropyl alcohol	157	2.87E-01
SG700307		
Xylene	307	7.95E-02
SG700455		
Acetone	455	1.09E-01
SG700598		
** Unknown Pollutant **	598	4.15E-02
SG82C048		
Butyl acetate	48	0.00E+00
Xylene	307	0.00E+00
SG82D307		
Butyl alcohol	49	4.84E-03
Organic liquid evap - othe	201	1.02E-02
Xylene	307	9.19E-03
SG92A293		
Methyl ethyl ketone (MEK)	169	0.00E+00
Toluene	293	0.00E+00
SG92B401		
Organic liquid evap - othe	201	0.00E+00
Stoddard solvent	401	4.59E-01
SG92C157		
Isopropyl alcohol	157	0.00E+00
Toluene	293	0.00E+00
SG92C184		
Mineral spirits	184	0.00E+00
Organic liquid evap - othe	201	0.00E+00
SG92C201		
Organic liquid evap - othe	201	0.00E+00
SG92C293		
Methyl alcohol	179	0.00E+00
Toluene	293	0.00E+00
SG92C522		
Organic liquid evap - othe	201	1.28E-01
Alcohol - pri-sec C2+, oth	228	1.38E-02
Butyl cellosolve	522	5.52E-02
SG92D293		
Toluene	293	0.00E+00
Acetone	455	0.00E+00

Pollutant		lb/day
Butyl alcohol	49	4.84E-03
Butyl cellosolve	522	5.52E-02
Methyl isobutyl ketone (MI	170	0.00E+00
Acetone	455	1.09E-01
Ethyl alcohol	105	2.87E-01
Isopropyl alcohol	157	2.87E-01
Xylene	307	8.87E-02
Butyl acetate	48	0.00E+00
Organic liquid evap - othe	201	1.38E-01
Methyl ethyl ketone (MEK)	169	0.00E+00
Toluene	293	0.00E+00
Stoddard solvent	401	4.59E-01
Mineral spirits	184	0.00E+00
Alcohol - pri-sec C2+, oth	228	1.38E-02
Methyl alcohol	179	0.00E+00

Ralph King Square Footage	24256
Furniture Maker Space Square Footage	10000

Pollutant		lb/day	lb/hr	lb/yr
Butyl alcohol	49	2.00E-03	8.31E-05	7.28E-01
Butyl cellosolve	522	2.28E-02	9.48E-04	8.31E+00
Methyl isobutyl ketone (MI	170	0.00E+00	0.00E+00	0.00E+00
Acetone	455	4.49E-02	1.87E-03	1.64E+01
Ethyl alcohol	105	1.18E-01	4.93E-03	4.32E+01
Isopropyl alcohol	157	1.18E-01	4.93E-03	4.32E+01
Xylene	307	3.66E-02	1.52E-03	1.33E+01
Butyl acetate	48	0.00E+00	0.00E+00	0.00E+00
Organic liquid evap - othe	201	5.70E-02	2.37E-03	2.08E+01
Methyl ethyl ketone (MEK)	169	0.00E+00	0.00E+00	0.00E+00
Toluene	293	0.00E+00	0.00E+00	0.00E+00
Stoddard solvent	401	1.89E-01	7.88E-03	6.91E+01
Mineral spirits	184	0.00E+00	0.00E+00	0.00E+00
Alcohol - pri-sec C2+, oth	228	5.69E-03	2.37E-04	2.08E+00
Methyl alcohol	179	0.00E+00	0.00E+00	0.00E+00

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=450

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5 /TPM	PM10/TPM	OG PROFILE NUMBER	ROG /TOG	VOC /TOG
45099502300000	0	900	0.42	0.7	600	0.6986	0.6986

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NAME	OG PROFILE NUMBER	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
Species unknown- all category composite	600	43105	0.0286	Isomers Of Hexane	4.74E-05	4.16E-01
Species unknown- all category composite	600	43108	0.0251	Isomers Of Nonane	4.16E-05	3.65E-01
Species unknown- all category composite	600	43122	0.1178	Isomers Of Pentane	1.95E-04	1.71E+00
Species unknown- all category composite	600	43201	0.25	Methane	4.15E-04	3.63E+00
Species unknown- all category composite	600	43202	0.0514	Ethane	8.52E-05	7.47E-01
Species unknown- all category composite	600	43203	0.0327	Ethylene	5.42E-05	4.75E-01
Species unknown- all category composite	600	43204	0.0465	Propane	7.71E-05	6.76E-01
Species unknown- all category composite	600	43212	0.15	N-Butane	2.49E-04	2.18E+00
Species unknown- all category composite	600	43214	0.029	Isobutane	4.81E-05	4.21E-01
Species unknown- all category composite	600	43220	0.0569	N-Pentane	9.44E-05	8.27E-01
Species unknown- all category composite	600	43231	0.0375	Hexane	6.22E-05	5.45E-01
Species unknown- all category composite	600	43232	0.0267	N-Heptane	4.43E-05	3.88E-01
Species unknown- all category composite	600	43242	0.0235	Cyclopentane	3.90E-05	3.41E-01
Species unknown- all category composite	600	43276	0.0428	2,2,4-Trimethylpentane	7.10E-05	6.22E-01
Species unknown- all category composite	600	45202	0.0815	Toluene	1.35E-04	1.18E+00

California Model & Design Group Inc (P# 12233)

SG42C318	lb/day
Organic liquid evap - othe 201	0.00E+00
Hydrocarbon - mixtures, ot 318	2.19E-01
SG62C170	
Methyl isobutyl ketone (MI 170	5.54E-03
Organic liquid evap - othe 201	2.22E-02
SG62C318	
Organic liquid evap - othe 201	0.00E+00
Hydrocarbon - mixtures, ot 318	0.00E+00
SG700318	
Hydrocarbon - mixtures, ot 318	4.79E-01
SG92A318	
Organic liquid evap - othe 201	0.00E+00
Hydrocarbon - mixtures, ot 318	3.35E-03
SG92C041	
Benzene 41	0.00E+00
Acetone 455	0.00E+00
SG92C049	
Butyl alcohol 49	2.61E-03
Organic liquid evap - othe 201	4.09E-03
SG92C263	
Organic liquid evap - othe 201	6.87E-04
Styrene 263	5.15E-04
Acetone 455	5.15E-04
SG92C307	
Xylene 307	0.00E+00
Ethylbenzene 333	0.00E+00
SG92C455	
Organic liquid evap - othe 201	5.98E-03
Xylene 307	3.13E-03
Acetone 455	1.94E-02
SG92C734	
Organic liquid evap - othe 201	1.93E-02
Acetone 455	7.71E-02
p-chlorobenzotrifluoride 734	9.64E-02
SG92C???	
Organic liquid evap - othe 201	4.82E-02

Pollutant	lb/day
Organic liquid evap - othe 201	1.00E-01
Hydrocarbon - mixtures, ot 318	7.01E-01
Methyl isobutyl ketone (MI 170	5.54E-03
Benzene 41	0.00E+00
Acetone 455	9.70E-02
Butyl alcohol 49	2.61E-03
Styrene 263	5.15E-04
Xylene 307	3.13E-03
Ethylbenzene 333	0.00E+00
p-chlorobenzotrifluoride 734	9.64E-02

California Model Square Footage	3852
Printing Maker Space Square Footage	5000

Pollutant	lb/day	lb/hr	lb/yr
Organic liquid evap - othe 201	1.30E-01	5.43E-03	4.76E+01
Hydrocarbon - mixtures, ot 318	9.10E-01	3.79E-02	3.32E+02
Methyl isobutyl ketone (MI 170	7.19E-03	3.00E-04	2.62E+00
Benzene 41	0.00E+00	0.00E+00	0.00E+00
Acetone 455	1.26E-01	5.25E-03	4.60E+01
Butyl alcohol 49	3.39E-03	1.41E-04	1.24E+00
Styrene 263	6.68E-04	2.79E-05	2.44E-01
Xylene 307	4.06E-03	1.69E-04	1.48E+00
Ethylbenzene 333	0.00E+00	0.00E+00	0.00E+00
p-chlorobenzotrifluoride 734	1.25E-01	5.21E-03	4.57E+01

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105AD&SPN=SIP105AD&F_AREA=CA&F_EICSUM=240

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG	Column1
24099580000000	0	2203	0.925	0.96	517	1	1	

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	3.92E-04	3.43E+00
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	2.58E-04	2.26E+00
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	3.64E-05	3.19E-01
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	1.63E-06	1.43E-02
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	3.21E-05	2.81E-01
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	3.80E-06	3.33E-02
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	2.17E-06	1.90E-02
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	7.06E-06	6.19E-02
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	5.43E-07	4.76E-03
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	2.27E-04	1.99E+00
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	5.43E-07	4.76E-03
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	5.43E-07	4.76E-03
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	1.90E-05	1.67E-01
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	1.09E-03	9.53E+00
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	1.09E-03	9.53E+00
517	Printing evaporation loss- general	43336	0.0006	Octanol	3.26E-06	2.86E-02
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	5.43E-06	4.76E-02
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	4.89E-06	4.28E-02
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	2.06E-05	1.81E-01
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzene	1.22E-04	1.07E+00
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	7.29E-05	6.38E-01
517	Printing evaporation loss- general	45202	0.003	Toluene	1.63E-05	1.43E-01
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	1.14E-05	9.99E-02
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	5.11E-05	4.48E-01
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	7.39E-05	6.48E-01
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	3.21E-05	2.81E-01
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	1.03E-05	9.04E-02
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	3.26E-06	2.86E-02
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	1.25E-05	1.09E-01
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	5.43E-06	4.76E-02
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	4.89E-06	4.28E-02
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	8.69E-06	7.62E-02
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	5.43E-06	4.76E-02
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	1.63E-06	1.43E-02
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	1.63E-06	1.43E-02
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	1.79E-05	1.57E-01
517	Printing evaporation loss- general	46753	0.0036	r-Decahydronaphthalene	1.96E-05	1.71E-01
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	1.36E-04	1.19E+00
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	2.99E-05	2.62E-01
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	1.41E-05	1.24E-01
517	Printing evaporation loss- general	90066	0.001	Nonadiene	5.43E-06	4.76E-02
517	Printing evaporation loss- general	90069	0.0057	iimethylethylcyclohexan	3.10E-05	2.71E-01
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	7.61E-06	6.66E-02
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	1.95E-04	1.71E+00
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	9.24E-06	8.09E-02
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	8.10E-05	7.10E-01
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	7.06E-06	6.19E-02
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	1.09E-05	9.52E-02
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	3.26E-06	2.86E-02
517	Printing evaporation loss- general	90083	0.02561998	:thylmethylcyclohexane	1.39E-04	1.22E+00
517	Printing evaporation loss- general	90090	0.003	:thyl Propylcyclohexane	1.63E-05	1.43E-01
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	1.14E-05	9.99E-02
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	1.14E-05	9.99E-02
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	5.43E-07	4.76E-03
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	1.79E-05	1.57E-01
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	5.49E-05	4.81E-01
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	2.50E-05	2.19E-01
517	Printing evaporation loss- general	90107	0.004	Methyldecene	2.17E-05	1.90E-01
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	1.79E-05	1.57E-01
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexane	1.79E-05	1.57E-01
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	1.41E-05	1.24E-01
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	3.26E-06	2.86E-02
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexane	5.43E-06	4.76E-02
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	1.63E-06	1.43E-02
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	3.26E-06	2.86E-02
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	6.91E-05	6.05E-01
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	3.26E-06	2.86E-02
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	7.01E-05	6.14E-01
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	1.14E-05	9.99E-02
517	Printing evaporation loss- general	98048	0.002	Indene	1.09E-05	9.52E-02
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	1.52E-05	1.33E-01
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	6.58E-05	5.76E-01
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	1.47E-05	1.29E-01
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	1.79E-05	1.57E-01
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	4.84E-05	4.24E-01
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	1.92E-04	1.68E+00
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	2.12E-04	1.85E+00
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	1.36E-04	1.20E+00
517	Printing evaporation loss- general	99915	0.0023	-Methyl-2-Ethylbenzene	1.25E-05	1.09E-01

Attachment C

ROG Calculations and Mitigation

From: Alison Kirk
To: Wietgrefe, Wade (CPC)
Cc: Sigalle Michael
Subject: RE: ROG Calculations and Mitigation
Date: Monday, March 24, 2014 11:05:09 AM

Hello,

My understanding of electric loading docks is basic – it allows trucks to plug in at docks so they don't need to idle to keep cool or warm. This is particularly a concern if carrying items that need to be temperature controlled, like food. It also allows the driver to continue to use air conditioning, etc. in the cab while waiting to unload or unloading.

Unfortunately, we don't have any VOC programs at this time.

Alison Kirk
415-749-5169

From: Wietgrefe, Wade (CPC) [mailto:wade.wietgrefe@sfgov.org]
Sent: Monday, March 24, 2014 8:57 AM
To: Alison Kirk
Cc: Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

Hi Allison,

Thank you. Sorry for not getting back to you; I was at a conference Thursday and Friday. Regarding your questions.

1. Can you elaborate what an electric loading dock is and how it reduces idling?
2. The project-specific transportation study takes into account development scale, density of project, density of uses, and design of project; all factors that may influence travel behavior. Currently, we do not have any substantial evidence to support quantifying the efficacy of TDM programs for land use projects in San Francisco. That being said, you are correct, the proposed project would include a number of TDM measures (e.g., bike parking, car share, parking maximum, etc.).
3. I am not aware of any programs in SF that reduce VOC, but I am checking with our Department of Public Health to see if they are aware of a program. I was hoping the BAAQMD may have such a program.

Wade Wietgrefe, AICP

From: Alison Kirk [mailto:AKirk@baaqmd.gov]
Sent: Wednesday, March 19, 2014 9:56 AM
To: Wietgrefe, Wade (CPC)
Cc: Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

Hello,

You wrote:
"San Francisco's ROG emissions from consumer products was 5.30 tons in 2008 (Source: ARB, same source as statewide ROG emissions). San Francisco's square footage was 703,541,231 square feet (Source: 2011 SF Land Use data). Therefore, the emission factor would be (5.30 tons/day * 2000 lbs/ton)/703,541,231 = **1.51e-5 lbs/(sq.ft-day)**. In your opinion, does this seem appropriate to use as an emission factor given it utilizes local, more accurate building data?"

Yes, we support the use of more accurate and local data. I think this is appropriate here.

Regarding reducing operational VOC, I haven't come up with any easy ways to reduce emissions. The uses described would result in some truck deliveries, so here are some ideas:

1. Electric loading docs to reduce idling (mainly used to reduce PM, but would reduce VOC, too)
2. San Francisco has progressive TDM programs – anyway to take this further for this site? Say, further reductions in private parking in favor of more bike parking, more car share, bulk transit pass purchase for residents or employees?
3. On-site reductions are preferred, but are there any possibilities of off-site reductions to reduce VOC elsewhere in SF?

We can certainly discuss this further.

Alison Kirk
415-749-5169

From: Wietgrefe, Wade (CPC) [mailto:wade.wietgrefe@sfgov.org]
Sent: Monday, March 17, 2014 9:20 AM
To: Alison Kirk
Cc: Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

It could mean a bunch of things (retail, office, cultural, educational, arts uses), but for the purposes of CalEEMod we assumed regional shopping center.

Wade Wietgrefe, AICP

From: Alison Kirk [mailto:AKirk@baaqmd.gov]
Sent: Monday, March 17, 2014 9:16 AM
To: Wietgrefe, Wade (CPC)
Cc: Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

Forgive me – what is "active Ground floor use"?

Alison Kirk
415-749-5169

From: Wietgrefe, Wade (CPC) [mailto:wade.wietgrefe@sfgov.org]
Sent: Monday, March 17, 2014 9:13 AM
To: Alison Kirk
Subject: RE: ROG Calculations and Mitigation

Yes,
There are two project options being studied:

Option 1, Office Scheme: 1,827,000 gross square feet (gsf) or renovated existing buildings and new construction, comprising up to:

- 871,900 gsf of office uses (554,200 gsf net new office space)
- 802,500 gsf of residential uses (914 dwelling units)
- 152,600 gsf of active ground floor uses

Option 2, Residential Scheme: 1,808,800 gsf of renovated existing buildings and new construction, comprising up to:

- 598,500 gsf of office uses (280,800 gsf of net new office space)
- 1,057,700 gsf of residential uses (1,209 dwelling units)
- 152,600 gsf of active ground floor uses

Wade Wietgrefe, AICP

From: Alison Kirk [mailto:AKirk@baaqmd.gov]
Sent: Monday, March 17, 2014 9:04 AM
To: Wietgrefe, Wade (CPC); Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

Quick question: can you tell me the uses and square feet of each use? Thanks.

Alison Kirk
415-749-5169

From: Wietgrefe, Wade (CPC) [mailto:wade.wietgrefe@sfgov.org]
Sent: Monday, March 17, 2014 8:11 AM
To: Alison Kirk; Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

Hello,

Thank you for getting back to me. Yes, I mean operational VOC. First, in regards to the default CalEEMod uses, I was considering using a different default for San Francisco based on SF specific data:

> San Francisco's ROG emissions from consumer products was 5.30 tons in 2008 (Source: ARB, same source as statewide ROG emissions). San Francisco's square footage was 703,541,231 square feet (Source: 2011 SF Land Use data). Therefore, the emission factor would be (5.30 tons/day * 2000 lbs/ton)/703,541,231 = **1.51e-5 lbs/(sq.ft-day)**. In your

opinion, does this seem appropriate to use as an emission factor given it utilizes local, more accurate building data?

Second in terms of mitigation, the proposed project is a large mixed-use project, so the heavy-duty vehicle mitigation would not be applicable. CalEEMod estimates area sources as approximately 75 percent of the proposed project's total ROG emissions, of which consumer products are approximately 85 percent of the estimated area source ROG emissions. The vehicle trip generation number used in CalEEMod is based on a project-specific transportation study, which takes into account project location, so this will not be adjusted either. The proposed project would not include fireplaces. As shown by the calculation above, consumer product estimates are a function of total square footage. Therefore, a way to reduce this would be to reduce the size of the project; however, the market demand for this square footage may just be displaced to another project in the Air Basin. Thus, I was curious if the BAAQMD had any programs that could reduce this regional air pollutant for an individual project.
Thank you again for your help on this,

Wade Wietgrefe, AICP

From: Alison Kirk [mailto:AKirk@baaqmd.gov]
Sent: Friday, March 14, 2014 11:15 AM
To: Wietgrefe, Wade (CPC); Sigalle Michael
Subject: RE: ROG Calculations and Mitigation

Hello,

I asked our Emissions Inventory staff and we know of any other estimates for VOC in the SFBAAB and we do not. Emissions Inventory staff reports that our consumer product emissions inventory will match ARB's inventory, category by category.

As for mitigations, we are definitely open to discussion about this and would like to hear your ideas. It sounds like you mean operational VOC so I don't know if requiring cleaner-than-required heavy-duty equipment would help, but here are a few ideas:

1. Cleaner than required heavy-duty vehicles (electric, hybrid, etc.)
2. Reduced VOC paint, architecture coatings
3. Reduced VOC cleaning supplies

Reducing VOC may be difficult, but again, we are open to suggestions.
Let me know if you would like to discuss further.

Alison Kirk
415-749-5169

From: Wietgrefe, Wade (CPC) [mailto:wade.wietgrefe@sfgov.org]
Sent: Thursday, March 13, 2014 8:43 AM
To: Sigalle Michael; Alison Kirk
Subject: ROG Calculations and Mitigation

Hi Sigalle and Alison,

I am reviewing an air quality analysis for a proposed project that has estimated high ROG emissions, driven primarily by consumer products emissions using CalEEMod. The CalEEMod defaults are described in Appendix E of the User's Guide (page 23). The calculation is statewide daily VOC (ROG) emissions* divided by statewide total building square footage.
-Has a similar calculation ever been done for the Bay Area using SFBAAB VOC emissions? **
-Either way, do you have any recommendations for feasible mitigation for ROG (e.g., offset fee program)?

**See link for statewide ROG emissions from consumer products:*
http://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_YR=2008&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=CA#AREAWIDE
***See link for SFBAAB ROG emissions from consumer products:*
http://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_YR=2008&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=CO&F_CO=38&F_COAB=Y#2

Thank you and let me know if you have any questions,

Wade Wietgrefe, AICP
San Francisco Planning Department
1650 Mission Street, Suite 400, San Francisco, CA 94103
t. 415.575.9050 • f. 415.558.6409
www.sfplanning.org

San Francisco Gateway Project

Air Quality and Health Risk Assessment Results Memorandum

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Attachments

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Acronyms and Abbreviations

AECOM	AECOM Technical Services, Inc.
air board	California Air Resources Board
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CBTP	Bayview Community-Based Transportation Plan
city	City and County of San Francisco
EIR	Environmental Impact Report
HI	hazard index
HRA	Health Risk Assessment
m	meter
methodology memorandum	Air Quality and Health Risk Assessment Methodology Memorandum
$\mu g/m^3$	micrograms per cubic meter
NO_X	oxides of nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
OEMP	Operational Emissions Management Plan
planning department	San Francisco Planning Department
PM_{10}	particulate matter less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
proposed project	San Francisco Gateway Project
results memorandum	Air Quality Results Memorandum
SFDPH	San Francisco Department of Public Health
ROG	reactive organic gas
TAC	toxic air contaminants
U.S. EPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled

1. Introduction

At the request of the San Francisco Planning Department (planning department), AECOM Technical Services, Inc. (AECOM) conducted an analysis of local air quality and health impacts associated with the construction and operation of the proposed buildings for the San Francisco Gateway Project (proposed project) at 749 Toland Street and 2000 McKinnon Avenue. The Air Quality and Health Risk Assessment (HRA) Methodology Memorandum (methodology memorandum) describes the approach for evaluation of air quality and health impacts from construction and operational sources, existing sources, and cumulative sources at modeled sensitive receptors (see preceding memorandum in this appendix). The results of the detailed calculations used to apply the analysis approach and data inputs described in the methodology memorandum are provided in this Air Quality Results Memorandum (results memorandum).

Section 1.1, Project Understanding, of the methodology memorandum summarizes the project description for the proposed project. Chapter 2, Project Description, of the San Francisco Gateway Project Draft EIR (Case No. 2015-012491ENV) describes the proposed project in detail.

2. Modeling Results

This section presents the proposed project's criteria air pollutant emissions, as well as results of the project's HRA and concentrations of particulate matter less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$) at sensitive receptors.

To address criteria air pollutant emissions generated as a result of the proposed project's operations, operational emissions control measures were identified, and operational emissions with implementation of such control measures were quantified. The proposed project's controlled operational emissions are also presented below.

The detailed calculations based on the analysis approach and data inputs described in the methodology memorandum are provided in Attachments A and B to this results memorandum.

2.1 Criteria Air Pollutant Emissions

2.1.1 Proposed Project without Emissions Control Strategies

Sections 2.1.1.1 and 2.1.1.2 present the average daily and maximum annual emissions that would result from construction and operation of the proposed project, without implementation of emissions control strategies. Section 2.1.2 then presents the emissions control strategies evaluated to reduce emissions associated with the proposed project, the methodology to estimate emissions reductions that would be achieved through implementation of such strategies, and the resulting criteria air pollutant emissions.

2.1.1.1 Construction Emissions

Table 1 through Table 3 summarize the proposed project's average daily construction emissions of criteria air pollutants and ozone precursors (without emission reduction measures) for each year of construction (2022 through 2024).[1]

Table 1 Summary of Year 1 (2022) Proposed Project Total and Average Daily Construction Emissions (Without Emission Reduction Measures)

Year 1 (2022) Emissions Source	ROG	NO_X	PM_{10} (Exhaust Only)	$PM_{2.5}$ (Exhaust Only)	$PM_{2.5}$ (Fugitive Dust)[2]
Off-Road Equipment (tons)	0.12	2.21	0.02	0.02	-
On-Road Equipment (tons)	0.04	0.44	0.01	0.01	0.02
Fugitive Dust (Earthwork, Demolition, Scraping/Grading, Truck Loading/Stockpiling) Activities (tons)	-	-	-	-	0.04
Year 1 (2022) Total Emissions (tons)	**0.16**	**2.65**	**0.03**	**0.03**	**0.06**
Average Daily (2022) Emissions (pounds per day) [1]	**2.02**	**34.24**	**0.36**	**0.35**	**0.81**

Notes:
Ground disturbance activities associated with building A would occur in 2022; while ground disturbance activities associated with building B would occur in 2022 and 2023. All demolition activities would occur in 2022.
1. Average daily emission estimates are based on 155 construction workdays in 2022.
2. Fugitive dust totals presented account for implementation of fugitive dust control measures in accordance with requirements of the San Francisco Construction Dust Control Ordinance (Health code article 22B and San Francisco Building Code section 106.A.3.2.6)
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
- = not applicable

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

[1] The emissions analysis conservatively assumed a construction start year of 2022. Considering that exhaust emissions from construction equipment and on-road vehicles are expected to decrease over time as stricter standards take effect—and advancements in engine technology, retrofits, and turnover in the equipment fleets occur—construction activities are anticipated to result in lower levels of emissions as construction occurs in later years.

Table 2 Summary of Year 2 (2023) Proposed Project Total and Average Daily Construction Emissions (Without Emission Reduction Measures)

Year 2 (2023) Emissions Source	ROG	NO_X	PM_{10} (Exhaust Only)	$PM_{2.5}$ (Exhaust Only)	$PM_{2.5}$ (Fugitive Dust)[2]
Off-Road Equipment (tons)	0.24	4.65	0.06	0.06	-
On-Road Equipment (tons)	0.04	0.41	0.01	0.01	0.03
Fugitive Dust (Earthwork, Scraping/Grading, Truck Loading/Stockpiling) Activities (tons)	-	-	-	-	<0.01
Architectural Coatings (tons)	0.69	-	-	-	-
Year 2 (2023) Total Emissions (tons)	**0.97**	**5.05**	**0.07**	**0.07**	**0.03**
Average Daily (2023) Emissions (pounds per day) [1]	**7.47**	**38.85**	**0.53**	**0.52**	**0.23**

Notes:

Ground disturbance activities associated with Building 2 would occur in 2022 and 2023. Architectural coating activities would occur in 2023 and 2024.

1. Average daily emission estimates are based on 260 construction workdays in 2023.
2. Fugitive dust totals presented account for implementation of fugitive dust control measures in accordance with requirements of the San Francisco Construction Dust Control Ordinance (Health code article 22B and San Francisco Building Code section 106.A.3.2.6)

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

- = not applicable

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 3 Summary of Year 3 (2024) Proposed Project Total and Average Daily Construction Emissions (Without Emission Reduction Measures)

Year 3 (2024) Emissions Source	ROG	NO_X	PM_{10} (Exhaust Only)	$PM_{2.5}$ (Exhaust Only)	$PM_{2.5}$ (Fugitive Dust)
Off-Road Equipment (tons)	0.25	4.65	0.04	0.04	-
On-Road Equipment (tons)	0.04	0.30	<0.01	<0.01	0.02
Architectural Coatings (tons)	1.39	-	-	-	-
Paving Activities (tons)	0.02	-	-	-	-
Year 3 (2024) Total Emissions (tons)	**1.69**	**4.95**	**0.05**	**0.04**	**0.02**
Average Daily (2024) Emissions (pounds per day) [1]	**13.28**	**38.79**	**0.36**	**0.35**	**0.18**

Notes:

All ground disturbance activities modeled to occur in 2022 and 2023. Architectural coating activities would occur in 2023 and 2024.

All paving activities would occur in 2024.

1. Average daily emission estimates are based on 255 construction workdays in 2024.

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

- = not applicable

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

2.1.1.2 Operational Emissions

Table 4 summarizes the proposed project's daily operational emissions of criteria air pollutants and ozone precursors (without emission reduction measures). The operational emissions represent the proposed project at full buildout—without accounting for a reduction in emissions at the site that would be removed due to build out of the proposed project, and without emissions control measures. As described in Section 1.1, Project Understanding, in the methodology memorandum, and summarized in Table 5, the project site is currently occupied. Uses at the site generate existing daily operational emissions that are considered part of the baseline existing conditions of the site; these emissions would be eliminated with the demolition of existing onsite land uses as part of the proposed project.[2] Table 6 presents the net increase in operational emissions (without emission reduction measures) as a result of the proposed project (i.e., the delta between existing site operational emissions and those of the proposed project without emissions control measures).

Table 4 Summary of Proposed Project Daily Operational Emissions (Without Emission Reduction Measures) (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	21.6	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	3.0	34.8	1.8	1.1
Stationary Sources[3]	1.5	4.0	0.2	0.2
Mobile[4]	9.9	110.2	44.9	13.0
Transportation Refrigeration Units[5]	17.1	16.9	0.5	0.4
Total Proposed Project Daily Operational Emissions (Without Emission Reduction Measures)[6]	*53.0*	*165.9*	*47.4*	*14.7*

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses. The project would be designed without natural gas; therefore, no emissions would occur from energy sources.
2. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors.
4. Mobile emissions account for onsite activity and trips to/from the site based on the project-specific vehicle miles traveled analysis and relevant travel assumptions, as detailed in the Air Quality Methodology Memorandum. Emissions account for PM generated by exhaust emissions and brake wear, tire wear, and resuspended roadway dust, and were calculated using CARB EMFAC 2021 emission factors for exhaust, brake wear and tire wear, and U.S. EPA AP-42 methodology for resuspended roadway dust.
5. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory.
6. Totals may not add due to rounding.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

[2] As of August 2020, the project sponsor submitted building permit applications for an interim use on the project site. The interim use is a parcel delivery service use, focusing on last-mile e-commerce delivery, and occupies one-half of the site (the two buildings west of Interstate 280). Analyzing the change in the environment from the uses that occupied the site in 2017 to the proposed use is considered conservative, or worst-case, because the interim use is more intensive than the uses that existed on site in 2017; therefore, the impact of the project would be greater when compared to the uses that existed on the site in 2017.

Table 5 Existing Site Daily Operational Emissions (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	7.9	<0.1	<0.1	<0.1
Energy[1]	0.2	1.4	0.1	0.1
Mobile[2]	1.3	16.1	6.3	1.8
Total Existing Daily Operational Emissions[3]	*9.3*	*17.5*	*6.4*	*2.0*

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the existing onsite land uses.
2. Existing daily VMT estimates calculated as part of the Transportation Demand Memorandum for the proposed project were used to inform the mobile emissions estimates. In addition, mobile emissions account for PM generated by exhaust emissions and brake wear, tire wear, and resuspended roadway dust, and were estimated using CARB EMFAC 2021 emission factors for exhaust, brake wear, and tire wear, and U.S. EPA AP-42 methodology for resuspended roadway dust..
3. Totals may not add due to rounding.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 6 Net New Daily Operational Emissions (Without Emission Reduction Measures) (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Total Proposed Project Daily Operational Emissions (Without Emission Reduction Measures)[1]	53.0	165.9	47.4	14.7
Total Existing Daily Operational Emissions[2]	9.3	17.5	6.4	2.0
Total Net New Daily Operational Emissions (Without Emission Reduction Measures)[3]	*43.7*	*148.4*	*41.0*	*12.8*

Notes:

1. See Table 4 for additional details.
2. See Table 5 for additional details.
3. Totals may not add due to rounding.

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

Similarly, Table 7, Table 8, and Table 9 present the parallel set of operational emissions (i.e., proposed project operational emissions (without emission reduction measures), existing site operational emissions, and proposed project net increase in operational emissions (without emission reduction measures), respectively), but for total annual rather than daily emissions, presented in tons.

Table 7 Summary of Proposed Project Annual Operational Emissions (Without Emission Reduction Measures) (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	3.9	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	0.4	4.6	0.2	0.1
Stationary Sources[3]	<0.1	0.1	<0.1	<0.1
Mobile[4]	1.8	20.1	8.2	2.4
Transportation Refrigeration Units[5]	3.1	3.1	0.1	0.1
Total Proposed Project Annual Operational Emissions (Without Emission Reduction Measures)[6]	*9.3*	*27.9*	*8.5*	*2.6*

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses. The project would be designed without natural gas; therefore, no onsite natural gas combustion emissions would be generated by the proposed project.
2. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors.
4. Mobile emissions account for onsite activity and trips to/from the site based on the project-specific VMT analysis and relevant travel assumptions, as detailed in the Air Quality Methodology Memorandum. Emissions account for PM generated by exhaust emissions and brake wear, tire wear, and resuspended roadway dust, and were calculated using CARB EMFAC 2021 emission factors for exhaust, brake wear and tire wear, and U.S. EPA AP-42 methodology for resuspended roadway dust.
5. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory.
6. Totals may not add due to rounding.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 8 Existing Site Annual Operational Emissions (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	1.4	<0.1	<0.1	<0.1
Energy[1]	>0.1	0.3	<0.1	<0.1
Mobile[2]	0.2	2.9	1.1	0.3
Total Existing Annual Operational Emissions[3]	*1.7*	*3.2*	*1.2*	*0.4*

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the existing onsite land uses.
2. Existing VMT estimates calculated as part of the Transportation Demand Memorandum for the proposed project were used to inform the mobile emissions estimates, as detailed in the Air Quality Methodology Memorandum. Mobile emissions account for PM generated by exhaust emissions and brake wear, tire wear, and resuspended roadway dust, and were estimated using CARB EMFAC 2021 emission factors and U.S. EPA AP-42 methodology for resuspended roadway dust.
3. Totals may not add due to rounding.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 9 Net New Annual Operational Emissions (Without Emission Reduction Measures) (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Total Proposed Project Annual Operational Emissions (Without Emission Reduction Measures)[1]	9.3	27.9	8.5	2.6
Total Existing Annual Operational Emissions[2]	1.7	3.2	1.2	0.4
Total Net New Annual Operational Emissions (Without Emission Reduction Measures)[3]	*7.6*	*24.6*	*7.4*	*2.2*

Notes:

1. See Table 7 for additional details.
2. See Table 8 for additional details.
3. Totals may not add due to rounding.

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

Over time, certain emissions control technologies will advance, and regulations will become more stringent with regard to air pollutant standards, resulting in a reduction in long-term operational emissions with no change in operational activity. Although it is speculative to estimate emissions reductions associated with some sources, such as reactive organic gas emissions from consumer products, California Air Resources Board (air board) provides mobile source emissions factors for vehicle activity in future years, reflecting how mobile source emissions will change over time with fleet turnover and changes in regulations and technology. Air board emissions factors for the years 2035 and 2050 were used to estimate future emissions associated with the proposed project's mobile and transportation refrigeration unit sources; emissions generated by all other sources associated with the proposed project were assumed to remain constant in future years. Table 10 through Table 13 summarize the proposed project's daily and annual operational emissions of criteria air pollutants and ozone precursors (without emission reduction measures). Total emissions associated with project operations in 2035 and 2050, as well as the net increase in emissions that accounts for elimination of existing onsite emissions from demolition, are provided in each table.

Table 10 Summary of Proposed Project and Net Daily Operational Emissions in Year 2035 (Without Emission Reduction Measures) (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	21.6	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	3.0	34.8	1.8	1.1
Stationary Sources[3]	1.5	4.0	0.2	0.2
Mobile[4]	5.1	66.8	43.9	12.3
Transportation Refrigeration Units[5]	17.6	16.3	0.1	0.1
2035 Total Proposed Project Daily Operational Emissions (Without Emission Reduction Measures)[6]	*48.7*	*121.9*	*46.0*	*13.7*
Total Existing Daily Operational Emissions[7]	9.3	17.5	6.4	2.0
2035 Total Net New Daily Operational Emissions (Without Emission Reduction Measures)	***39.4***	***104.4***	***39.6***	***11.7***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses. The project would be designed without natural gas; therefore, no emissions would occur from energy sources.
2. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 4, but were calculated using CARB EMFAC 2021 emission factors for the operational year 2035.
5. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory for the operational year 2035.
6. Totals may not add due to rounding.
7. See Table 5 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 11 Summary of Proposed Project and Net Annual Operational Emissions in Year 2035 (Without Emission Reduction Measures) (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	3.9	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	0.4	4.6	0.2	0.1
Stationary Sources[3]	<0.1	0.1	0.1	<0.1
Mobile[4]	0.9	12.2	8.0	2.2
Transportation Refrigeration Units[5]	3.2	3.0	<0.1	<0.1
2035 Total Proposed Project Annual Operational Emissions (Without Emission Reduction Measures)[6]	*8.5*	*19.9*	*8.3*	*2.4*
Total Existing Annual Operational Emissions[7]	1.7	3.2	1.2	0.4
2035 Total Net New Annual Operational Emissions (Without Emission Reduction Measures)	***6.8***	***16.7***	***7.1***	***2.0***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses. The project would be designed without natural gas; therefore, no onsite natural gas combustion emissions would be generated by the proposed project.
2. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 7, but were calculated using CARB EMFAC 2021 emission factors for the operational year 2035.
5. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory for the operational year 2035.
6. Totals may not add due to rounding.
7. See Table 8 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 12 Summary of Proposed Project and Net Daily Operational Emissions in Year 2050 (Without Emission Reduction Measures) (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	21.6	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	3.0	34.8	1.8	1.1
Stationary Sources[3]	1.5	4.0	0.2	0.2
Mobile[4]	3.6	47.4	43.1	11.8
Transportation Refrigeration Units[5]	17.6	16.3	0.1	0.1
2050 Total Proposed Project Daily Operational Emissions (Without Emission Reduction Measures)[6]	*47.2*	*102.5*	*45.2*	*13.2*
Total Existing Daily Operational Emissions[7]	9.3	17.5	6.4	2.0
2050 Total Net New Daily Operational Emissions (Without Emission Reduction Measures)	***37.9***	***85.0***	***38.8***	***11.2***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses. The project would be designed without natural gas; therefore, no emissions would occur from energy sources.
2. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 4, but were calculated using CARB EMFAC 2021 emission factors for operational year 2050.
5. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory for operational year 2050.
6. Totals may not add due to rounding.
7. See Table 5 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 13 Summary of Proposed Project and Net Annual Operational Emissions in Year 2050 (Without Emission Reduction Measures) (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	3.9	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	0.4	4.6	0.2	0.1
Stationary Sources[3]	<0.1	0.1	<0.1	<0.1
Mobile[4]	0.7	8.6	7.9	2.2
Transportation Refrigeration Units[5]	3.2	3.0	<0.1	<0.1
2050 Total Proposed Project Annual Operational Emissions (Without Emission Reduction Measures)[6]	*8.2*	*16.2*	*8.1*	*2.3*
Total Existing Annual Operational Emissions[7]	1.7	3.2	1.2	0.4
2050 Total Net New Annual Operational Emissions (Without Emission Reduction Measures)	***6.5***	***13.0***	***6.9***	***1.9***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses. The project would be designed without natural gas; therefore, no onsite natural gas combustion emissions would be generated by the proposed project.
2. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors, consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 7, but were calculated using CARB EMFAC 2021 emission factors for operational year 2050.
5. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory for operational year 2050.
6. Totals may not add due to rounding.
7. See Table 8 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

2.1.2 Proposed Project with Emissions Reduction Measures

This section summarizes the feasible emissions reduction measures that can be quantitatively evaluated, and the related calculation methodology. This section also presents an analysis of the effectiveness of the reduction measures in reducing the project's criteria air pollutant emissions.

2.1.2.1 Quantitative Analysis of Construction Emission Reduction Measures

The construction emissions reduction measures and the methodology to estimate emissions reductions are described in the following paragraphs:

- *Require off-road equipment with engines greater than 25 horsepower be rated Tier 4 Final,[3] as certified by CARB.* Emissions reductions were estimated using the Tier 4 Final engine standards by equipment horsepower category for the proposed equipment fleet mix, rather than Tier 4 Interim standards.
- *To the maximum extent feasible during each construction phase and activity, require electric engines for all equipment that is readily available as plug-in or battery-electric equipment.* Emission reductions were estimated by assuming that the concrete/industrial saws, sweepers/scrubbers, concrete pumps, aerial lifts, pressure washers, and welders would be electric-powered rather than diesel-powered (i.e., removing the emissions associated with this equipment because electric equipment would not generate criteria pollutant exhaust emissions).

These measures can be quantitatively evaluated, and have been assumed for the purposes of this analysis to reduce project construction emissions. Table 14 through Table 16 summarize the proposed project total and average daily construction emissions inclusive of the quantified reduction measures described above.

Additional emissions reduction measures applicable to construction of the proposed project but for which emissions reductions cannot be feasibly quantified at this time are also presented below in Section 2.1.2.2.

[3] The project applied for project approval as a Type 3 Clean Construction Project, committing to use the lowest diesel-emission equipment (Tier 4) during construction, which was assumed to be U.S. EPA Tier 4 Interim standards for the purposes of the emissions (without emission reduction measures). Emissions reductions were estimated by using the more stringent Tier 4 Final engine standards by equipment horsepower category for the proposed equipment fleet mix, rather than the Tier 4 Interim standards. The San Francisco Planning Department approved the proposed project's application on June 15, 2021.

Table 14 Summary of Year 1 (2022) Proposed Project Total and Average Daily Construction Emissions with Reduction Measures

Year 1 (2022) Emissions Source	ROG	NO_X	PM_{10} (Exhaust Only)	$PM_{2.5}$ (Exhaust Only)	$PM_{2.5}$ (Fugitive Dust)[2]
Off-Road Equipment (tons)	0.07	0.37	0.01	0.01	-
On-Road Equipment (tons)	0.04	0.44	0.01	0.01	0.02
Fugitive Dust (Earthwork, Demolition, Scraping/Grading, Truck Loading/Stockpiling) Activities (tons)	-	-	-	-	0.04
Year 1 (2022) Total Emissions (tons)	**0.10**	**0.81**	**0.02**	**0.02**	**0.06**
Average Daily (2022) Emissions (pounds per day) [1]	**1.35**	**10.44**	**0.22**	**0.22**	**0.81**

Notes:

Ground disturbance activities associated with building A would occur in 2022; while ground disturbance activities associated with. building B would occur in 2022 and 2023. All demolition activities would occur in 2022.

1. Average daily emission estimates are based on 155 construction workdays in 2022.
2. Fugitive dust totals presented account for implementation of fugitive dust control measures in accordance with requirements of the San Francisco Construction Dust Control Ordinance (Health code article 22B and San Francisco Building Code section 106.A.3.2.6)

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

- = not applicable

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 15 Summary of Year 2 (2023) Proposed Project Total and Average Daily Construction Emissions with Reduction Measures

Year 2 (2023) Emissions Source	ROG	NO_X	PM_{10} (Exhaust Only)	$PM_{2.5}$ (Exhaust Only)	$PM_{2.5}$ (Fugitive Dust)[2]
Off-Road Equipment (tons)	0.11	0.55	0.02	0.02	-
On-Road Equipment (tons)	0.04	0.41	0.01	0.01	0.03
Fugitive Dust (Earthwork, Scraping/Grading, Truck Loading/Stockpiling) Activities (tons)	-	-	-	-	<0.01
Architectural Coatings (tons)	0.69	-	-	-	-
Year 2 (2023) Total Emissions (tons)	**0.85**	**0.95**	**0.02**	**0.02**	**0.03**
Average Daily (2023) Emissions (pounds per day) [1]	**6.52**	**7.34**	**0.17**	**0.17**	**0.23**

Notes:

Ground disturbance activities associated with building B would occur in 2022 and 2023. Architectural coating activities would occur in 2023 and 2024.

1. Average daily emission estimates are based on 260 construction workdays in 2023.
2. Fugitive dust totals presented account for implementation of fugitive dust control measures in accordance with requirements of the San Francisco Construction Dust Control Ordinance (Health code article 22B and San Francisco Building Code section 106.A.3.2.6)

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

- = not applicable

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 16 Summary of Year 3 (2024) Proposed Project Total and Average Daily Construction Emissions with Reduction Measures

Year 3 (2024) Emissions Source	ROG	NO_X	PM_{10} (Exhaust Only)	$PM_{2.5}$ (Exhaust Only)	$PM_{2.5}$ (Fugitive Dust)
Off-Road Equipment (tons)	0.16	0.72	0.02	0.02	-
On-Road Equipment (tons)	0.04	0.30	<0.01	<0.01	0.02
Architectural Coatings (tons)	1.39	-	-	-	-
Paving Activities (tons)	0.02	-	-	-	-
Year 3 (2024) Total Emissions (tons)	**1.60**	**1.02**	**0.03**	**0.03**	**0.02**
Average Daily (2024) Emissions (pounds per day) [1]	**12.55**	**8.00**	**0.22**	**0.21**	**0.18**

Notes:

All ground disturbance activities modeled to occur in 2022 and 2023. Architectural coating activities would occur in 2023 and 2024. All paving activities would occur in 2024.

1. Average daily emission estimates are based on 255 construction workdays in 2024.

NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas

- = not applicable

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

2.1.2.2 Additional Construction Emissions Reduction Measures

The following emissions reduction measures are also applicable to construction of the proposed project; however, emissions reductions cannot be feasibly quantified at this time. With implementation of the following emission control measures, construction related emissions would be further reduced.

- *Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions and safe operating conditions).*

- *Require that construction workers and equipment operators properly maintain and tune equipment in accordance with manufacturer specifications.*

2.1.2.3 Quantitative Analysis of Operational Emissions Reduction Measures

The operational emissions reduction measures and the methodology to estimate emissions reductions are described in the following paragraphs.

- *Require all yard equipment be electric-powered.* This requirement was identified by the project sponsor to be included in the project. It has been included as an emissions reduction measure for that reason, and to ensure implementation and monitoring of this requirement. No additional emissions reductions are quantified because this requirement is a key assumption related to lowering onsite diesel emission (without emission reduction measures) from long-term project operations.

- *Require that all transportation refrigeration units entering the project site be electric or alternative technology to limit emissions, including hydrogen fuel cell transport refrigeration and cryogenic transport refrigeration.* Any electric or hybrid transportation refrigeration units shall be charged via grid power (i.e., not an idling truck or diesel engine). This measure would also require project design include necessary infrastructure; for example, requiring all dock doors serving transportation refrigeration units to be equipped with charging infrastructure to accommodate the necessary plug-in requirements for electric transportation refrigeration units while docked or otherwise idling, as well as the electrical capacity to support the onsite power demand associated with electric transportation refrigerator unit charging requirements. The emissions scenario

(without emission reduction measures) assumed these units would be diesel-powered. To estimate the emissions reductions achieved through this measure, criteria pollutant emissions associated with these units were removed because the electrification or other clean technology units would not generate criteria pollutants during use.

- *Prohibit onsite idling by visiting gasoline- or diesel-powered vans and trucks to no more than two minutes, and provide appropriate signage and training for onsite workers and truck drivers to support effective implementation of this limit.* Emissions reductions were estimated by setting the average idling time to two minutes per truck trip—rather than the five-minute time that was used for the emissions scenario (without emission reduction measures), and which is reflective of air board on-road idling emissions regulations. The idling duration of two minutes was multiplied by the number of truck trips and the idling emissions factor in grams per vehicle per idle-hour for each criteria pollutant.

- *Require any gasoline- or diesel-powered vehicle, whether owned or operated by tenant(s), that enters or operates on the project site and has a gross vehicle weight rating greater than 14,000 pounds, have a model year dated no more than nine years* upon the completion of project construction activities (e.g., should construction be completed in year 2026, visiting trucks must be model year 2017 or newer). Emissions reductions were estimated by calculating a weighted average emissions factor for the single unit and tractor trailer trucks. These calculations used emissions factor and vehicle population data from EMFAC for all data inputs. Based on the earliest possible operational year of 2025, this measure would require applicable trucks to be no older than model year 2016. As such, the weighted average emissions factors for single unit and tractor trailer trucks of model year 2016 through 2025 were calculated using both the emissions factors for each individual model year (2016 through 2025) for these vehicle categories and the estimated number of vehicles of each respective model year that would be in operation in calendar year 2025 as the weighting factor. The other vehicle categories (i.e., automobiles/ pickups and vans) were assumed to include the aggregate fleet mix in calendar year 2025; the emissions factors were those in EMFAC for this aggregate fleet mix in 2025.

- *Ensure that diesel backup generators meet or exceed the air board's Tier 4 off-road emission standards.* Once operational, the diesel backup generators shall be maintained in good working order for the life of the equipment, and any future replacement of the diesel backup generators shall be required to be consistent with these emissions specifications.

- *Limit the allowable manufacturing and maker space uses to prohibit the use of stationary equipment sources whose combined emissions for the manufacturing and maker space would exceed 10 pounds per day in oxides of nitrogen (NOx) emissions, such as boilers.* The emissions reductions achieved through this measure are demonstrated by limiting the NO_X emissions for this PDR use to a maximum of 10 pounds per day.

These measures can be quantitatively evaluated, and have been assumed for purposes for this analysis to reduce project operational emissions.

Table 17 and Table 18 summarize the average daily and maximum annual emissions, respectively, that would result from operation of the proposed project with implementation of emissions control strategies that can be quantitatively evaluated. Each table presents the proposed project's operational emissions of criteria air pollutants and ozone precursors with implementation of operational control measures; the existing site operational emissions that are considered part of the baseline existing conditions of the site (see Table 5 and Table 8 for existing site daily and annual emissions, respectively); and the net increase in controlled operational emissions of the proposed project (i.e., the delta between existing site operational emissions that would be eliminated from the site as a result of demolition, and those of the proposed project with implementation of emissions control measures). The controlled operational emissions represent those of the proposed project in its entirety at full buildout, with implementation of emissions control measures that can be quantitatively evaluated.

Additional emissions reduction measures applicable to the proposed project but for which emissions reductions cannot be feasibly quantified at this time are also presented below in Section 2.1.2.4.

Table 17 Total and Net Change in Daily Operational Emissions from Proposed Project with Emission Reduction Measures in 2025 (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	21.6	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	3.0	10.0	1.8	1.1
Stationary Sources[3]	1.5	0.4	0.2	0.2
Mobile[4]	8.1	71.2	44.5	12.6
Transportation Refrigeration Units[5]	0.0	0.0	0.0	0.0
Total Proposed Project Daily Controlled Operational Emissions[6]	*34.1*	*81.6*	*46.5*	*13.9*
Total Existing Daily Operational Emissions[7]	9.3	17.5	6.4	2.0
Total Net New Daily Operational Emissions with Reduction Measures	***24.8***	***64.1***	***40.2***	***11.9***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. Manufacturing and maker space emissions for ROG and particulate matter are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile; NO_X emissions presented are based on the control measure to limit manufacturing and maker space stationary equipment sources to a combined total of 10 pounds per day.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors.
4. Mobile emissions account for onsite activity and trips to/from the site based on the project-specific VMT analysis and relevant travel assumptions, as detailed in Section 2.2.3, Mobile Sources, in the Air Quality Methodology Memorandum. Emissions account for PM generated by exhaust emissions and brake wear, tire wear, and resuspended roadway dust, and were calculated using CARB EMFAC 2021 emission factors for exhaust, brake wear and tire wear, and U.S. EPA AP-42 methodology for resuspended roadway dust. Exhaust emissions calculations applied the CARB EMFAC 2021 emission factors for the 2016 model year and newer fleet mix in the initial operational year of 2025.
5. The control measure to electrify transportation refrigeration units eliminates this emissions source.
6. Totals may not add due to rounding.
7. See Table 5 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 18 Total and Net Change in Annual Operational Emissions from Proposed Project with Emission Reduction Measures in year 2025 (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	3.9	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	0.4	1.3	0.2	0.1
Stationary Sources[3]	<0.1	<0.1	<0.1	<0.1
Mobile[4]	1.5	13.0	8.1	2.3
Transportation Refrigeration Units[5]	0.0	0.0	0.0	0.0
Total Proposed Project Annual Controlled Operational Emissions[6]	*5.9*	*14.3*	*8.4*	*2.4*
Total Existing Annual Operational Emissions[7]	1.7	3.2	1.2	0.4
Total Net New Annual Operational Emissions with Reduction Measures	***4.1***	***11.1***	***7.2***	***2.1***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. Manufacturing and maker space emissions for ROG and particulate matter are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile; NO_X emissions presented are based on the control measure to limit manufacturing and maker space stationary equipment sources to a combined total of 10 pounds per day.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors.
4. Mobile emissions account for onsite activity and trips to/from the site, based on the project-specific VMT analysis and relevant travel assumptions, as detailed in Section 2.2.3, Mobile Sources, in the Air Quality Methodology Memorandum. Emissions account for PM generated by exhaust emissions and brake wear, tire wear, and resuspended roadway dust, and were calculated using CARB EMFAC 2021 emission factors for exhaust, brake wear and tire wear, and U.S. EPA AP-42 methodology for resuspended roadway dust. Exhaust emissions calculations applied the CARB EMFAC 2021 emission factors for the 2016 model year and newer fleet mix in the initial operational year of 2025.
5. The control measure to electrify transportation refrigeration units eliminates this emissions source.
6. Totals may not add due to rounding.
7. See Table 8 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

2.1.2.4 Additional Operational Emission Reduction Measures

The following emissions control measures are also applicable to project operations; however, emissions reductions cannot be feasibly quantified at this time. With implementation of the following emission control measures, operational emissions would be further reduced.

- *Meet CalGreen Tier 2 green building standards*, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.
- *Develop and implement an Operational Emissions Management Plan (OEMP)* to demonstrate that the project's net operational NO_X emissions do not exceed a performance standard of 54 pounds per day and 10 tons per year. The intent of this measure would be to monitor the NO_X emissions of tenants and to ensure that the total emissions from the San Francisco Gateway facility remain below this performance standard by implementing various emissions reduction measures such as requiring specific fleet performance metrics including electric vehicle and zero-emission vehicle standards; modification of project operations, including through the use of different equipment, limitations on types of tenants/uses, or limitations on the size or intensity of specific uses; and funding or completing projects in coordination with community groups.

2.1.2.5 Operational Emissions in Future Years

As described above for operational emissions (without emission reduction measures), the project's operational emissions in future years would decrease over time with implementation of more stringent emissions control regulations and implementation of cleaner technologies. Project operational daily and annual emissions were estimated for the years 2035 and 2050 with implementation of the quantifiable operational emissions reduction measures identified above.

The average daily and maximum annual emissions that would result from proposed project operational scenario for years 2035 and 2050 (with emission reduction measures) are summarized in Table 19 through Table 22. These tables present the operational emissions of criteria air pollutants and ozone precursors of the proposed project in years 2035 and 2050 (with emission reduction measures) and take into account air board mobile source emissions factors for these future years. As described above, Table 5 and Table 8 present the existing site daily and annual emissions, respectively and are used to determine the net increase in controlled operational emissions of the proposed project (i.e., the delta between existing site operational emissions that would be eliminated from the site as a result of demolition, and those of the proposed project).

Table 19 Total and Net Change in Daily Operational Emissions from Proposed Project with Emission Reduction Measures for Year 2035 (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	21.6	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	3.0	10.0	1.8	1.1
Stationary Sources[3]	1.5	0.4	0.2	0.2
Mobile[4]	4.6	55.5	43.7	12.2
Transportation Refrigeration Units[5]	0.0	0.0	0.0	0.0
2035 Total Proposed Project Daily Controlled Operational Emissions[6]	*30.6*	*65.9*	*45.8*	*13.5*
Total Existing Daily Operational Emissions[7]	9.3	17.5	6.4	2.0
2035 Total Net New Daily Operational Emissions with Reduction Measures	***21.3***	***48.4***	***39.4***	***11.5***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. Manufacturing and maker space emissions for ROG and particulate matter are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile; NO_X emissions presented are based on the control measure to limit manufacturing and maker space stationary equipment sources to a combined total of 10 pounds per day.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 17, but were calculated using CARB EMFAC 2021 emission factors for the 2016 model year and newer fleet mix in the calendar year 2035.
5. The control measure to electrify transportation refrigeration units eliminates this emissions source.
6. Totals may not add due to rounding.
7. See Table 5 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Summary)

Table 20 Total and Net Change in Annual Operational Emissions from Proposed Project with Emission Reduction Measures in Year 2035 (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	3.9	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	0.4	1.3	0.2	0.1
Stationary Sources[3]	<0.1	0.1	<0.1	<0.1
Mobile[4]	0.8	10.1	8.0	2.2
Transportation Refrigeration Units[5]	0.0	0.0	0.0	0.0
2035 Total Proposed Project Annual Controlled Operational Emissions[6]	*5.2*	*11.5*	*8.2*	*2.4*
Total Existing Annual Operational Emissions[7]	1.7	3.2	1.2	0.4
2035 Total Net New Annual Operational Emissions with Reduction Measures	***3.5***	***8.3***	***7.0***	***2.0***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. Manufacturing and maker space emissions for ROG and particulate matter are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile; NO_X emissions presented are based on the control measure to limit manufacturing and maker space stationary equipment sources to a combined total of 10 pounds per day.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 18, but were calculated using CARB EMFAC 2021 emission factors for the 2016 model year and newer fleet mix in the calendar year of 2035.
5. The control measure to electrify transportation refrigeration units eliminates this emissions source.
6. Totals may not add due to rounding.
7. See Table 8 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 21 Total and Net Change in Daily Operational Emissions from Proposed Project with Emission Reduction Measures in Year 2050 (pounds per day)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	21.6	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	3.0	10.0	1.8	1.1
Stationary Sources[3]	1.5	0.4	0.2	0.2
Mobile[4]	3.3	42.6	43.1	11.8
Transportation Refrigeration Units[5]	0.0	0.0	0.0	0.0
2050 Total Proposed Project Daily Controlled Operational Emissions[6]	*29.3*	*53.0*	*45.1*	*13.1*
Total Existing Daily Operational Emissions[7]	9.3	17.5	6.4	2.0
2050 Total Net New Daily Operational Emissions with Reduction Measures	***20.0***	***35.6***	***38.7***	***11.1***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. Manufacturing and maker space emissions for ROG and particulate matter are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile; NO_X emissions presented are based on the control measure to limit manufacturing and maker space stationary equipment sources to a combined total of 10 pounds per day.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 17, but were calculated using CARB EMFAC 2021 emission factors for the 2016 model year and newer fleet mix in the calendar year of 2050.
5. The control measure to electrify transportation refrigeration units eliminates this emissions source.
6. Totals may not add due to rounding.
7. See Table 5 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

Table 22 Total and Net Change in Annual Operational Emissions from Proposed Project with Emission Reduction Measures in Year 2050 (tons per year)

Emissions Source	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area[1]	3.9	<0.1	<0.1	<0.1
Energy[1]	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[2]	0.4	1.3	0.2	0.1
Stationary Sources[3]	<0.1	<0.1	<0.1	<0.1
Mobile[4]	0.6	7.8	7.9	2.2
Transportation Refrigeration Units[5]	0.0	0.0	0.0	0.0
Total Proposed Project Annual Controlled Operational Emissions[6]	*5.0*	*9.1*	*8.1*	*2.3*
Total Existing Annual Operational Emissions[7]	1.7	3.2	1.2	0.4
2050 Total Net New Annual Operational Emissions with Reduction Measures	***3.3***	***5.9***	***6.9***	***1.9***

Notes:

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. Manufacturing and maker space emissions for ROG and particulate matter are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile; NO_X emissions presented are based on the control measure to limit manufacturing and maker space stationary equipment sources to a combined total of 10 pounds per day.
3. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors consistent with the assumed initial operating year of 2025, assuming this equipment may not be replaced.
4. Mobile emissions were calculated based upon the same VMT data and using the same methodology as detailed for Table 18, but were calculated using CARB EMFAC 2021 emission factors for the 2016 model year, and newer fleet mix in the initial operational year of 2025.
5. The control measure to electrify transportation refrigeration units eliminates this emissions source.
6. Totals may not add due to rounding.
7. See Table 8 for additional detail.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
ROG = reactive organic gas
U.S. EPA = United States Environmental Protection Agency
VMT = vehicle miles traveled

Source: Modeled by AECOM 2022 (see Attachment A, Emissions Estimates)

2.2 Health Risks and $PM_{2.5}$ Results of Proposed Project

Health risks were evaluated for sources emitting toxic air contaminants (TACs) during construction and future operations of the proposed project. Two scenarios[4] were evaluated to assess long-term cancer risk and annual $PM_{2.5}$ concentrations for both residential and worker exposure. These included:

- *Residential Exposure Scenario 1:* This scenario includes project emissions from both construction activities and operation of the proposed project. Cancer risk was assessed over a 30.6-year period, with construction occurring during the first 2.6 years, and operations for the remaining 28 years.
- *Residential Exposure Scenario 2:* This scenario includes only operation of the proposed project for a 30-year period.
- *Worker Exposure Scenario 1:* This scenario includes project emissions from both construction activities and operation of the proposed project. Cancer risk was assessed over a 25.6-year period, with construction occurring during the first 2.6 years, and operations for the remaining 23 years.
- *Worker Exposure Scenario 2:* This scenario includes only operation of the proposed project for a 25-year period.

The purpose of having multiple scenarios (without emission reduction measures) is to analyze which scenario would be more impactful. The approximately 30-year residential exposure scenarios 1 and 2, and the 25-year worker exposure scenarios 1 and 2 are consistent with air district and 2015 Office of Environmental Health Hazard Assessment (OEHHA) health risk guidance.[5,6]

For residential exposure, the starting age for the first year of construction was the third trimester in utero, with operations having a starting age of 2 years. The second scenario (scenario 2) assumes future operations for an exposure period of 30 years, with a starting age of third trimester in utero.

For worker exposure, the starting age for the first year of construction was 16 years, with operations having a starting age of 18 years. The second scenario (scenario 2) assumes future operations for an exposure period of 25 years, with a starting age of 16 years.

Off-road construction equipment and fugitive dust generated by demolition and earthwork activities were included in the model, in the footprint of the proposed project. On-road construction vehicles (consisting of haul and concrete trucks) were modeled along designated routes, as discussed in the methodology memorandum. TAC emissions included in the model for operations consisted of the following: two 400-kilovolt emergency generators, vehicle exhaust from onsite on-road vehicles, maker space activities, and vehicle exhaust from offsite on-road vehicles. Figure 1 and Figure 2 illustrate the location of the modeled sources for construction and operation, respectively. Additional details on these emissions sources are provided in the methodology memorandum.

[4] These scenarios include the use of Tier 4 Interim emission standards for construction equipment rated 25 horsepower or greater as part of the proposed project's approval as a Type 3 Clean Construction Project, pursuant to Director Bulletin No. 2, *https://sfplanning.org/sites/default/files/forms/DB2_Type3_SupplementalApplication.pdf*.

[5] Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, Appendix E: Recommended Methods for Screening and Modeling Local Risks and Hazards, April 25, 2023, Table 34, p. E-103. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/appendix-e-recommended-methods-for-screening-and-modeling-local-risks-and-hazards_final-pdf.pdf?la=en, accessed May 1, 2023.

[6] California Environmental Protection Agency, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment*, February 2015, *http://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf*, accessed July 15, 2021.

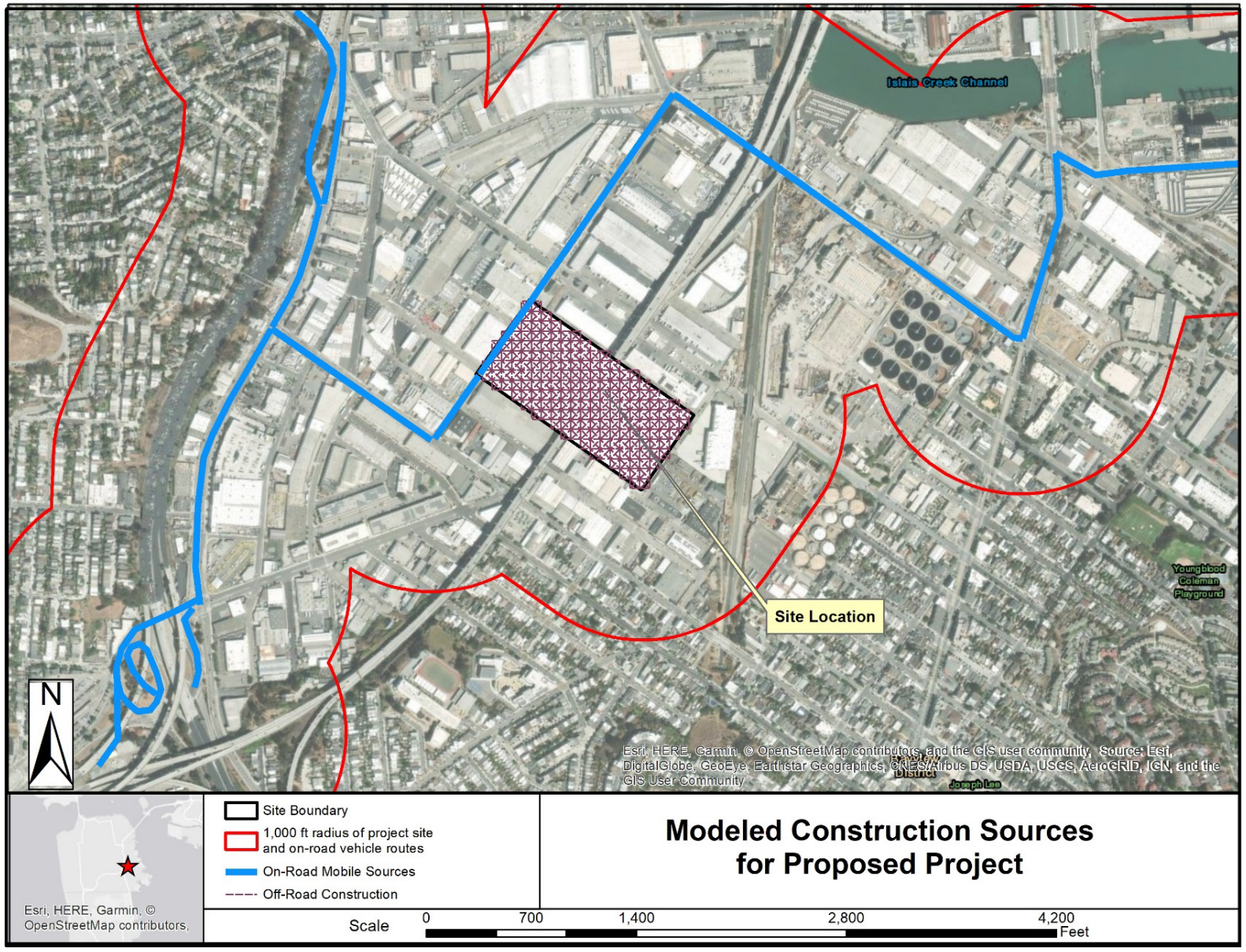
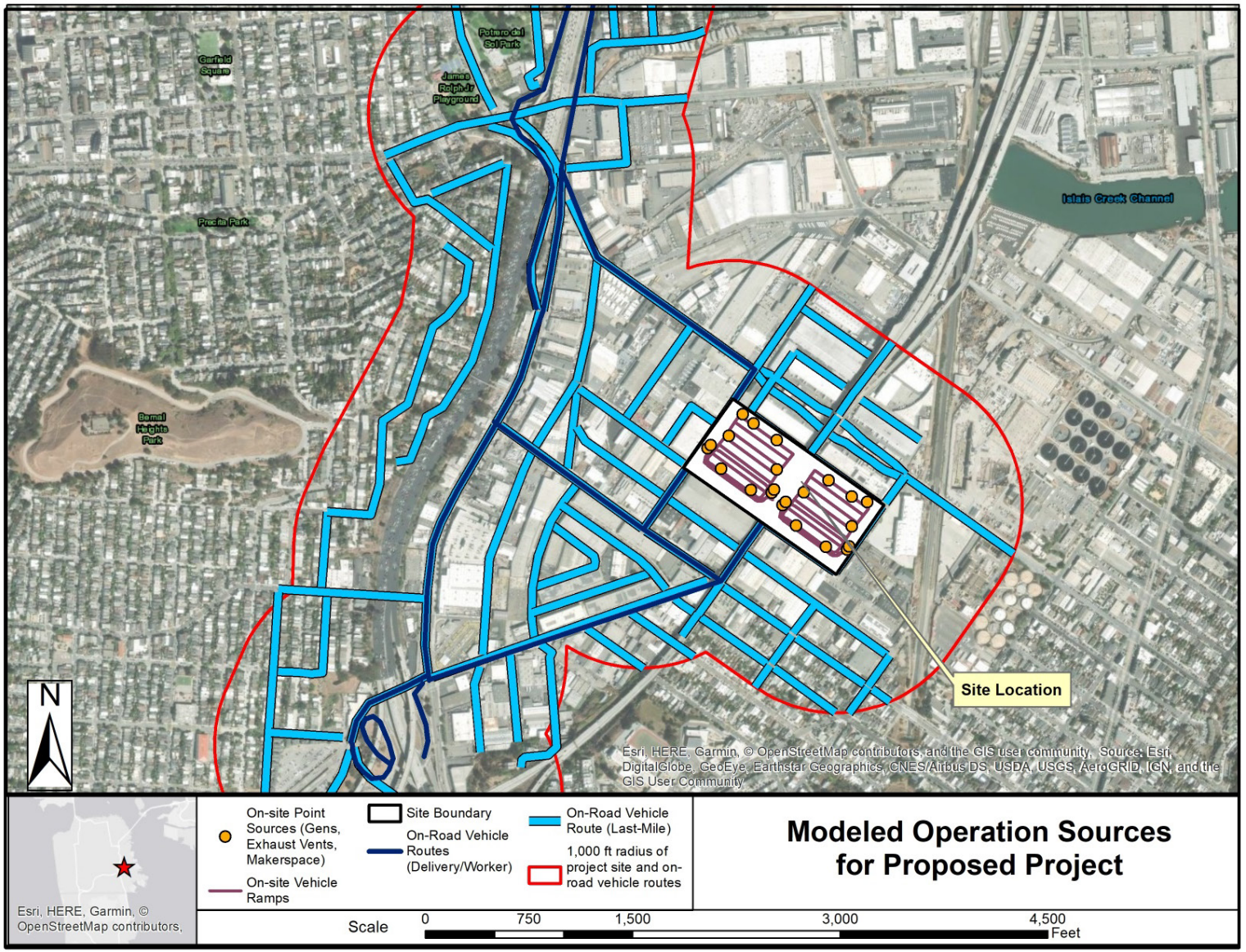


Figure 1 Modeled Project Construction Sources



Note: Onsite point sources include two emergency generators and 16 exhaust fans (including eight for manufacturing and maker space) for the proposed project.

Figure 2 Modeled Project Operational Sources

2.2.1 Existing Conditions

The project site is in southeastern San Francisco in the San Francisco Bay Area Air Basin, in an Air Pollutant Exposure Zone[7] identified by the planning department and San Francisco Department of Public Health. As shown in Figure 3, the project site and nearby surroundings (e.g., within 1,000 feet) have an estimated cancer risk that ranges from 150 cases per one million (150 in a million) to 404 per one million, due to nearby mobile (e.g., traffic, railways, and maritime vessels) and stationary (e.g., generators, boilers) sources.[8] The project site and nearby surroundings have an estimated annual $PM_{2.5}$ concentration that ranges from 10 micrograms per cubic meter ($\mu g/m^3$) to 16 $\mu g/m^3$, as shown in Figure 4. The existing cancer risk and $PM_{2.5}$ concentrations are due to nearby mobile and stationary sources, as determined by year 2020 traffic and stationary source modeling conducted as part of the 2020 Citywide HRA.

2.2.2 Proposed Project Health Risks and $PM_{2.5}$ Concentrations

Two health risk scenarios were assessed for the proposed project for both lifetime cancer risk and annual $PM_{2.5}$. The first scenario (scenario 1) includes project emissions from both construction activities and operation of the proposed project. Cancer risk for residential sensitive receptors was assessed over a 30.6-year period; for worker sensitive receptors, cancer risk was assessed over a 25.6-year period. This accounted for construction occurring during the first 2.6 years; with an operational exposure period of 28 years for the residential and 23 years for the worker sensitive receptor, the total long-term exposure periods are approximately 30 and 25 years, respectively. The second scenario (scenario 2) includes only operation of the proposed project for 30-year and 25-year periods for residential and worker exposure, respectively.

The offsite health risks and annual $PM_{2.5}$ concentrations for scenarios 1 and 2 at the maximally exposed individual receptors for residential and worker are shown in Table 23. The maximally exposed individual receptor is the sensitive receptor location with the maximum cancer risk and $PM_{2.5}$ concentration associated with the proposed project. Separate maximally exposed individual receptors were identified for offsite residential and worker receptors. The offsite residential maximally exposed individual receptor was identified to be a resident approximately 440 feet to the south of the project site, along Oakdale Avenue. The offsite worker maximally exposed individual receptor was identified to be a commercial building approximately 40 feet to the south of the project site, along McKinnon Avenue. Schools proximate to the routes to and from the project site include Big City Montessori School along Industrial Street and Meadows Livingstone School at Potrero Avenue off U.S. 101. The closest child-care (Eva's Day Care) is approximately 950 feet to the southeast of the proposed project site and 50 feet from vehicle routes along Palou Avenue between Rankin Street and Quint Street There are no onsite health risks to evaluate because the proposed project does not include residential dwellings or other sensitive receptors, such as a daycare.

[7] San Francisco Department of Public Health, Air Pollutant Exposure Zone Map, 2020, *https://www.sfdph.org/dph/files/EHSdocs/AirQuality/AirPollutantExposureZoneMap_2020.pdf*.

[8] To identify areas of San Francisco most adversely affected by sources of TACs, San Francisco partnered with the Bay Area Air Quality Management District to conduct a citywide health risk assessment based on an inventory and assessment of air pollution and exposures from mobile, stationary, and area sources in San Francisco. Areas with poor air quality, termed the "Air Pollutant Exposure Zone," were identified based on health-protective criteria that consider estimated cancer risk, exposures to fine particulate matter, proximity to freeways, and locations with particularly vulnerable populations.

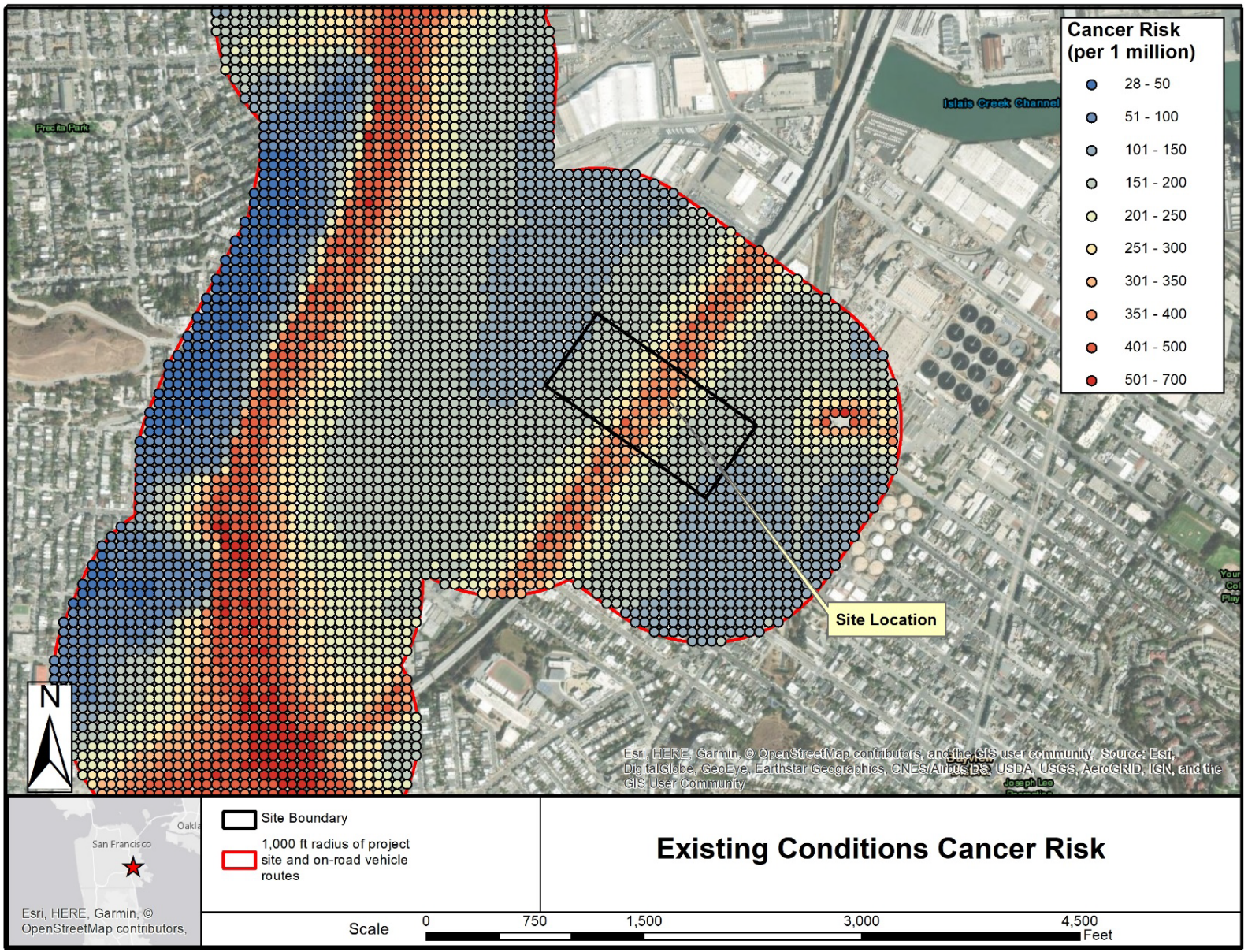


Figure 3 Existing Cancer Risk

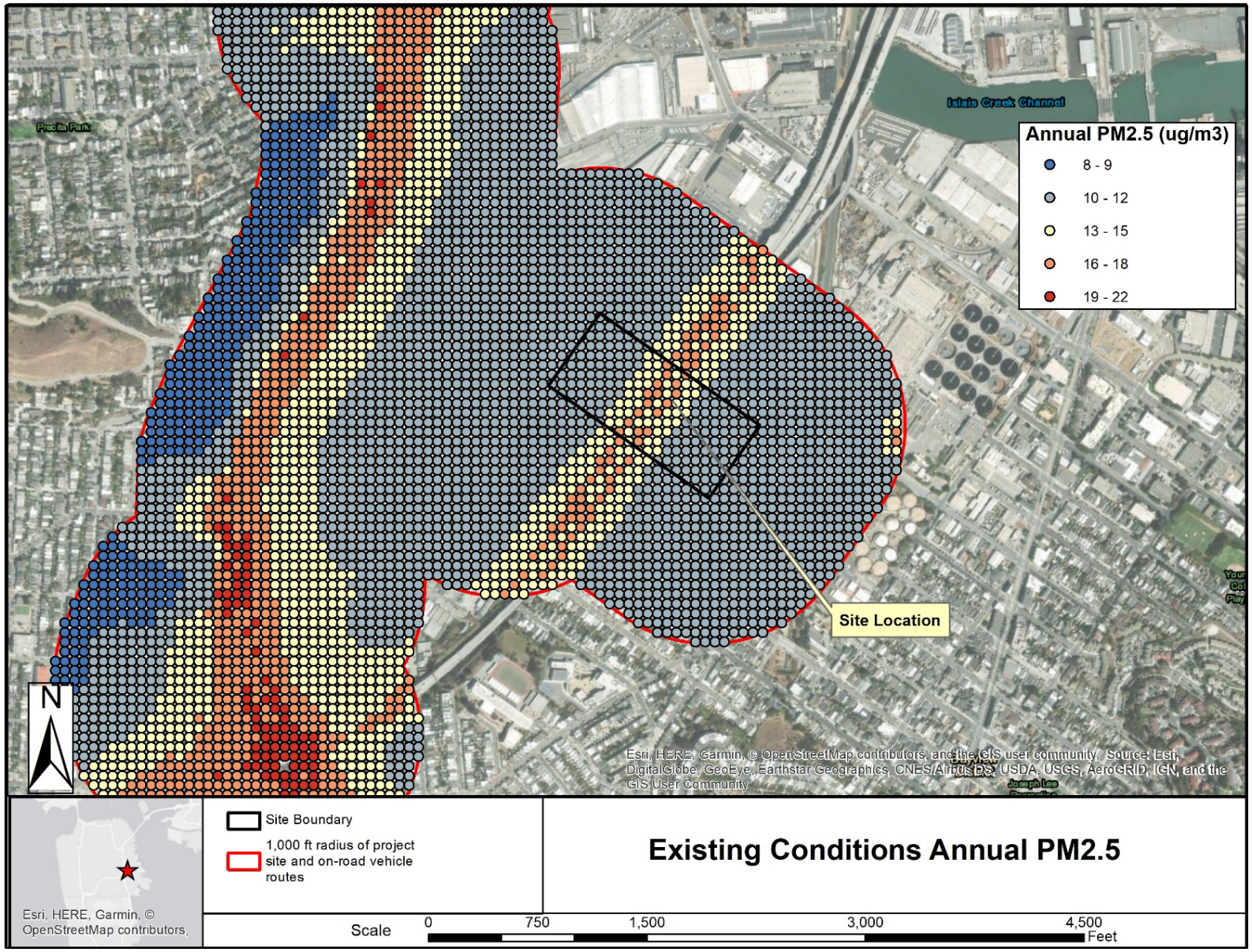


Figure 4 Existing Annual $PM_{2.5}$ Concentrations

Table 23 Lifetime Cancer Risk and Annual $PM_{2.5}$ Concentration from Proposed Project at Maximally Exposed Individual Sensitive Residential and Worker Receptors

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Project Phase (Year)	Lifetime Cancer Risk (per one million)	Annual $PM_{2.5}$ Concentration (µg/m^3)
553,000	4,177,080	Residential	Scenario 1	Construction (2022)[1]	0.10	0.01
				Construction (2023)[2]	0.74	0.01
				Construction (2024)[3]	0.64	0.01
				Operation[4,11]	2.57	0.08
				Total/Maximum[12]	**4.05**	**0.08**
552,920	4,177,300	Worker	Scenario 1	Construction (2022)[5]	0.04	0.10[13]
				Construction (2023)[6]	0.34	0.10
				Construction (2024)[7]	0.28	0.07
				Operation[8,11]	4.44	0.17
				Total/Maximum[12]	**5.10**	**0.17**
553,000	4,177,080	Residential	Scenario 2	Operation[9,11]	4.68	0.08
				Total/Maximum[12]	**4.68**	**0.08**
552,920	4,177,300	Worker	Scenario 2	Operation[10,11]	4.82	0.17
				Total/Maximum[12]	**4.82**	**0.17**

Notes:

1. Construction cancer risk exposure with starting age at third trimester in utero.
2. Construction cancer risk exposure with starting age at zero year.
3. Construction cancer risk exposure with starting age at one year for a 0.6-year duration.
4. Cancer risk assessed for 28-year exposure period with starting age of two years.
5. Construction cancer risk exposure with starting age of 16 years.
6. Construction cancer risk exposure with starting age of 17 years.
7. Construction cancer risk exposure with starting age of 18 years.
8. Cancer risk assessed for 25-year exposure period with starting age of 18 years.
9. Cancer risk assessed for 30-year exposure period with starting age at third trimester in utero.
10. Cancer risk assessed for 25-year exposure period with starting age of 16 years.
11. Operational sources include generators, maker space, and onsite and offsite vehicle exhaust.
12. Total lifetime cancer risk is represented as a sum of all years for the given scenario; maximum annual $PM_{2.5}$ concentration represents the highest annual average concentration for the given modeled project phase.
13. Annual $PM_{2.5}$ Worker maximally exposure individual receptor for construction year 2022 is at receptor x = 553,020; y = 4,177,460.

m = meter
UTM = Universal Transverse Mercator (map projection system)
µg/m^3= micrograms per cubic meter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
Source: Modeled by AECOM 2022

Contour maps illustrating the cancer risk and annual $PM_{2.5}$ concentrations attributed to the proposed project during construction, operations, and the total exposure period are shown in Figure 5 through Figure 13. Figure 5 and Figure 6 show the cancer risk during the 2.6-year modeled construction period for Residential Scenario 1 and Worker Scenario 1, respectively. Figure 7 and Figure 8 show the 28-year cancer risk map for the Residential Scenario 1 operation phase and 23-year cancer risk map for the Worker Scenario 1 operation phase, respectively. Figure 9 shows the annual $PM_{2.5}$ concentrations attributed to operation for Residential and Worker Scenarios 1 and 2 (there is no difference between the scenarios). The total Residential Scenario 1 (construction plus operation) cancer risk map is shown on Figure 10. The total Worker Scenario 1 (construction plus operation) cancer risk map is shown on Figure 11. The total Residential Scenario 2 and Worker Scenario 2 (operation only) cancer risk maps are shown on Figure 12 and Figure 13, respectively.

Additionally, offsite non-cancer chronic health risks were evaluated for project construction and operation at the maximally exposed individual residential and worker receptors, as shown in Table 24. Acute health risk due to total organic gas (TOG) emissions from gasoline vehicles and other TACs from the maker space is provided in Table 24 for operations. There is no acute risk assessment health value for diesel

particulate matter; therefore, an acute hazard index[9] is not calculated for the construction phase or for DPM emissions in the operations phase of the project.

Table 24 Non-Cancer Chronic and Acute Health Risks from Proposed Project at Maximally Exposed Individual Residential and Worker Receptors

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Project Phase	Non-Cancer Chronic HI	Acute HI
553,000	4,177,080	Residential	Scenario 1	Construction 2022	1.74E-04	N/A
				Construction 2023	8.97E-04	N/A
				Construction 2024	7.83E-04	N/A
552,920	4,177,300	Worker	Scenario 1	Construction 2022	1.34E-03	N/A
				Construction 2023	6.34E-03	N/A
				Construction 2024	5.12E-03	N/A
553,000	4,177,080	Residential	Scenarios 1 and 2	Operation	1.79E-03	8.62E-04
552,920	4,177,300	Worker	Scenarios 1 and 2	Operation	5.93E-03	2.51E-03

Notes:

HI = hazard index
m = meter
N/A = not applicable
UTM = Universal Transverse Mercator

[9] Noncarcinogenic impacts are estimated by comparing calculated concentrations to identified risk assessment health value. This comparison is expressed in terms of a “Hazard Index.”

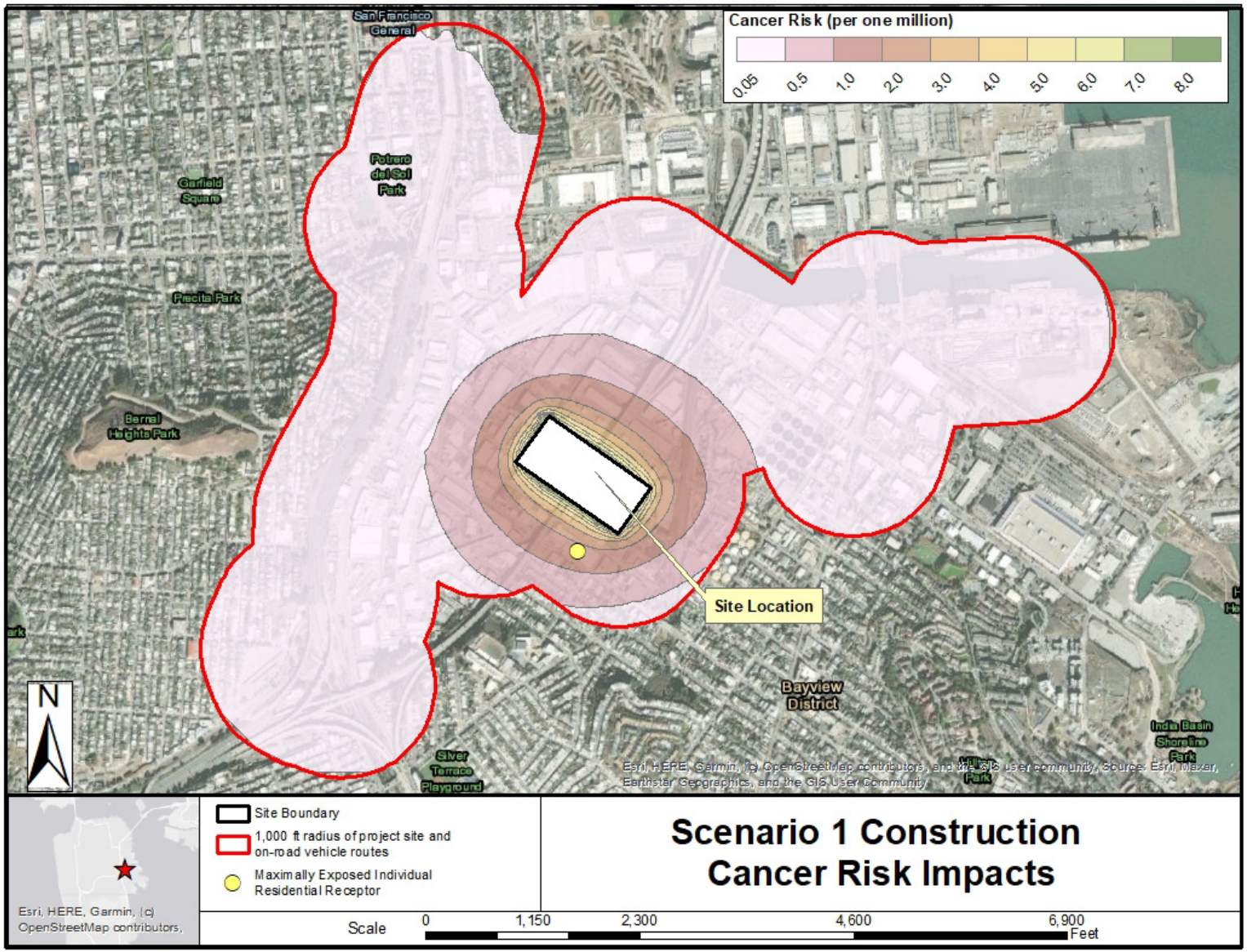


Figure 5 Residential Scenario 1 (Construction) Cancer Risk Impacts

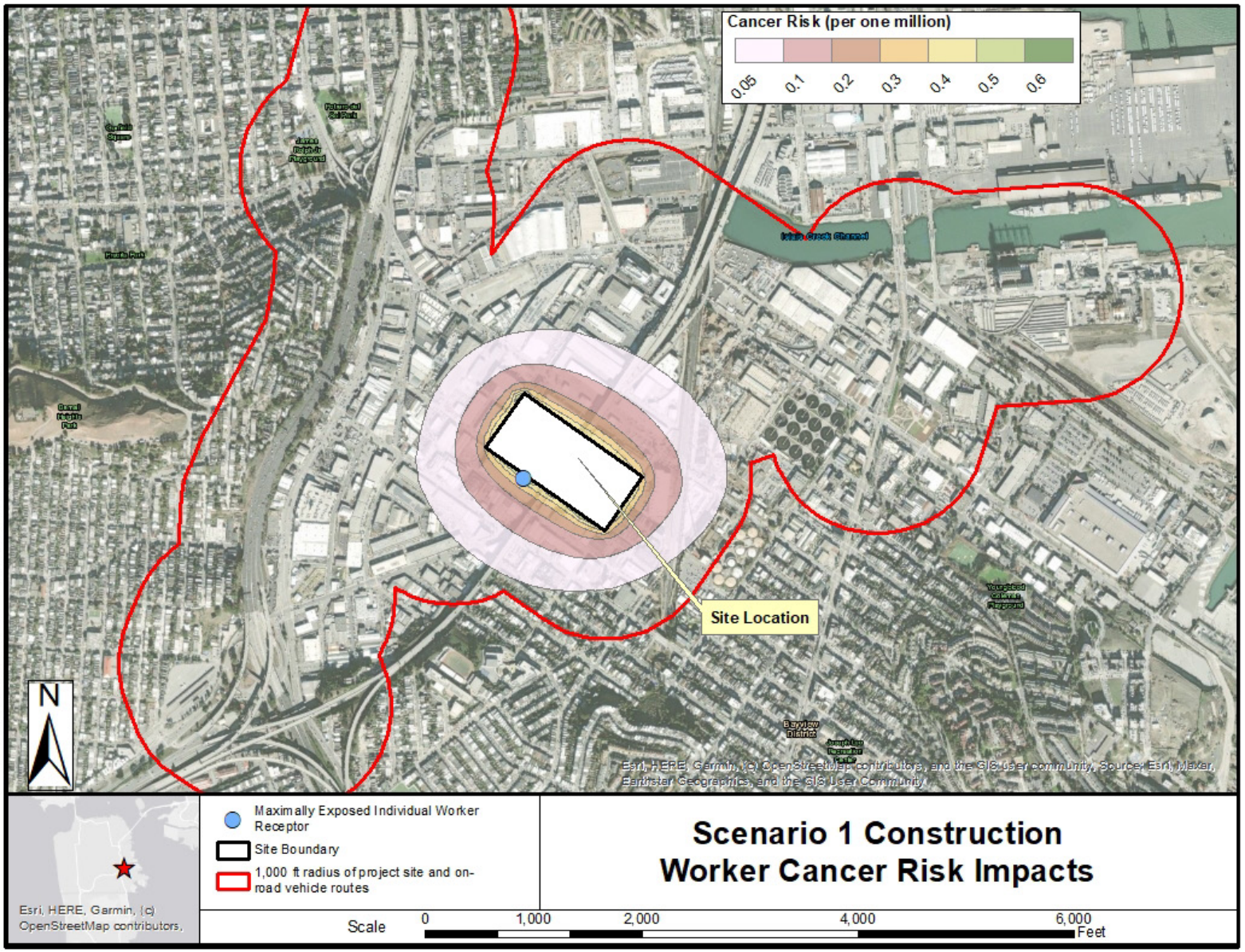


Figure 6 Worker Scenario 1 (Construction) Cancer Risk Impacts

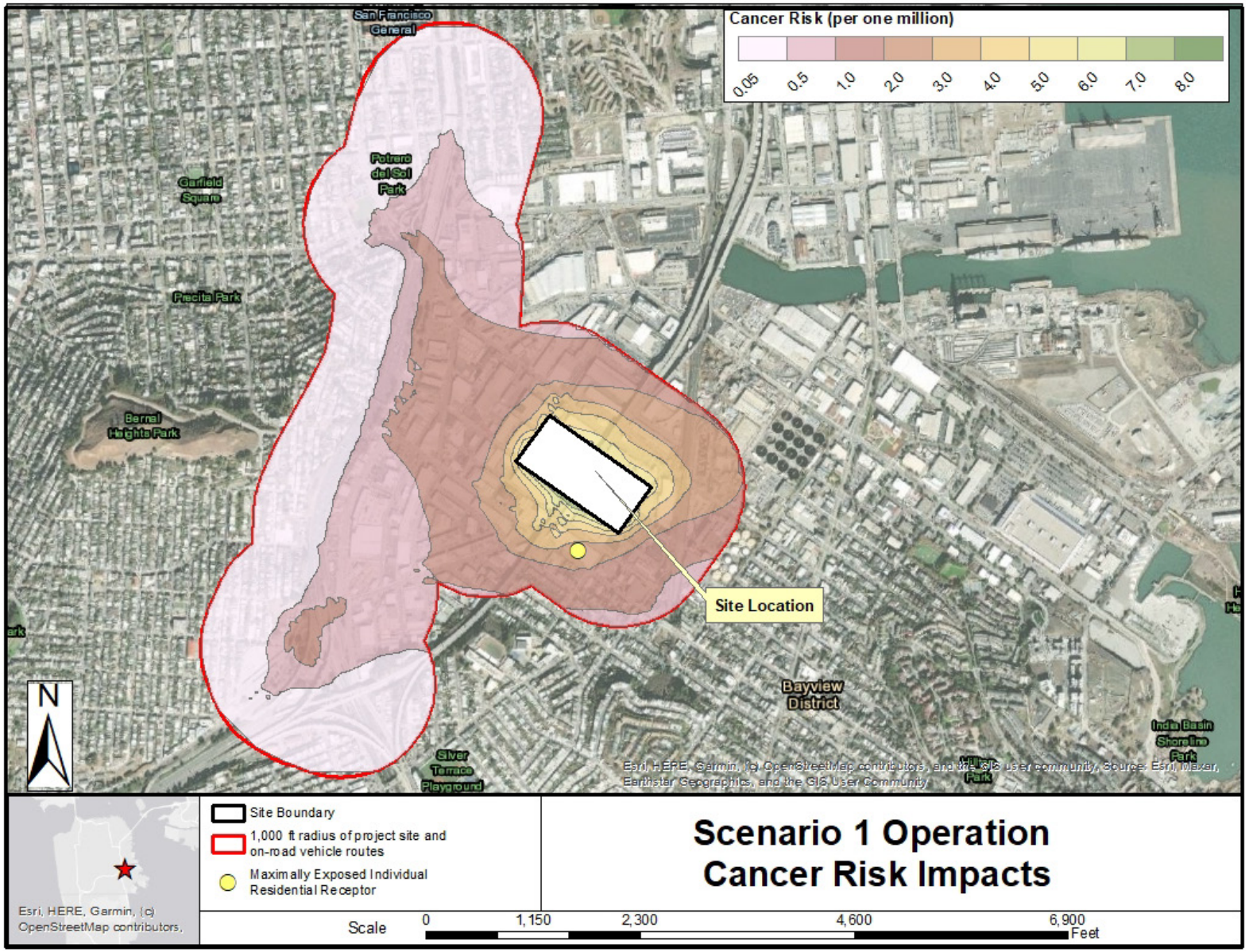


Figure 7 Residential Scenario 1 (Operations) Cancer Risk Impacts

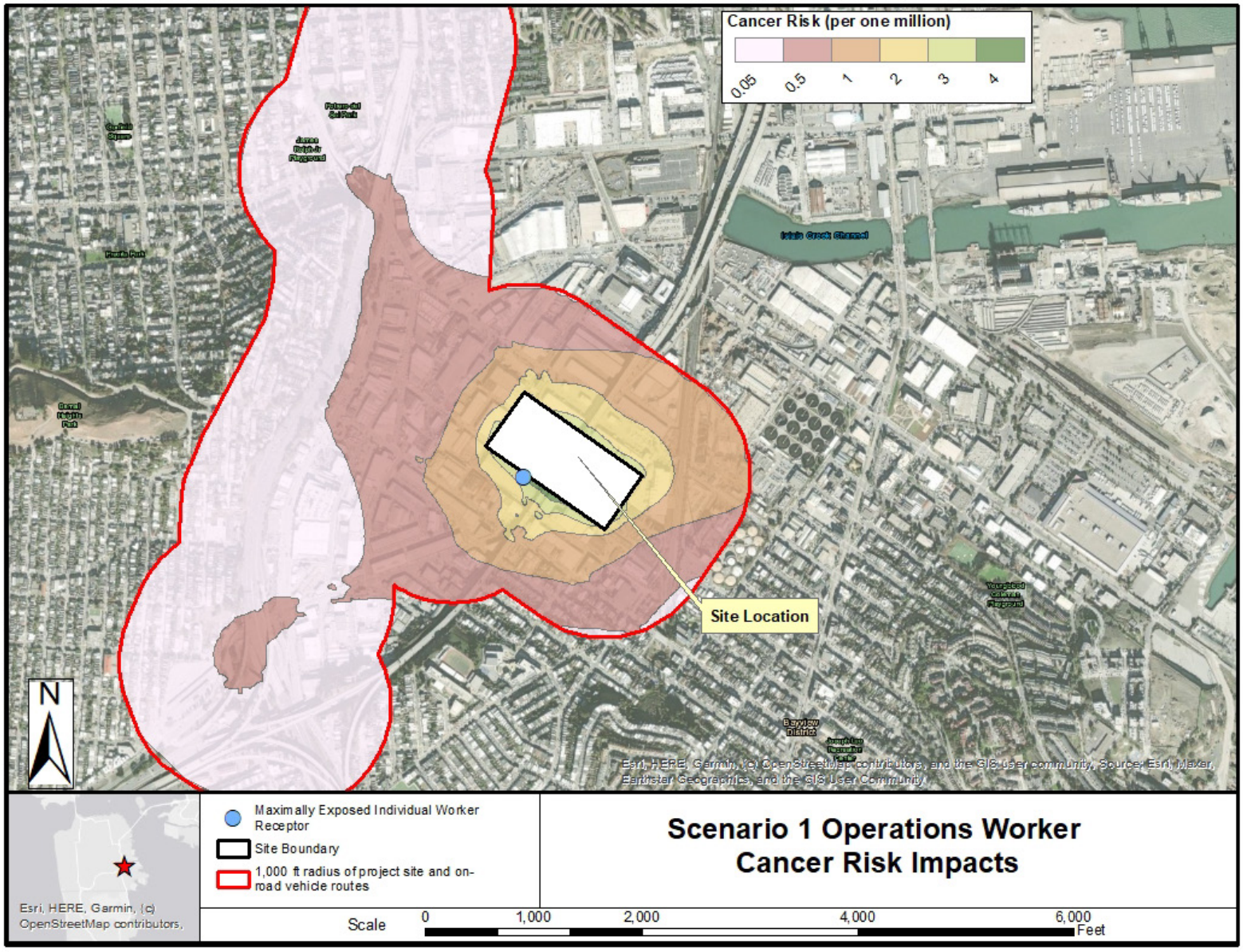


Figure 8 Worker Scenario 1 (Operations) Cancer Risk Impacts

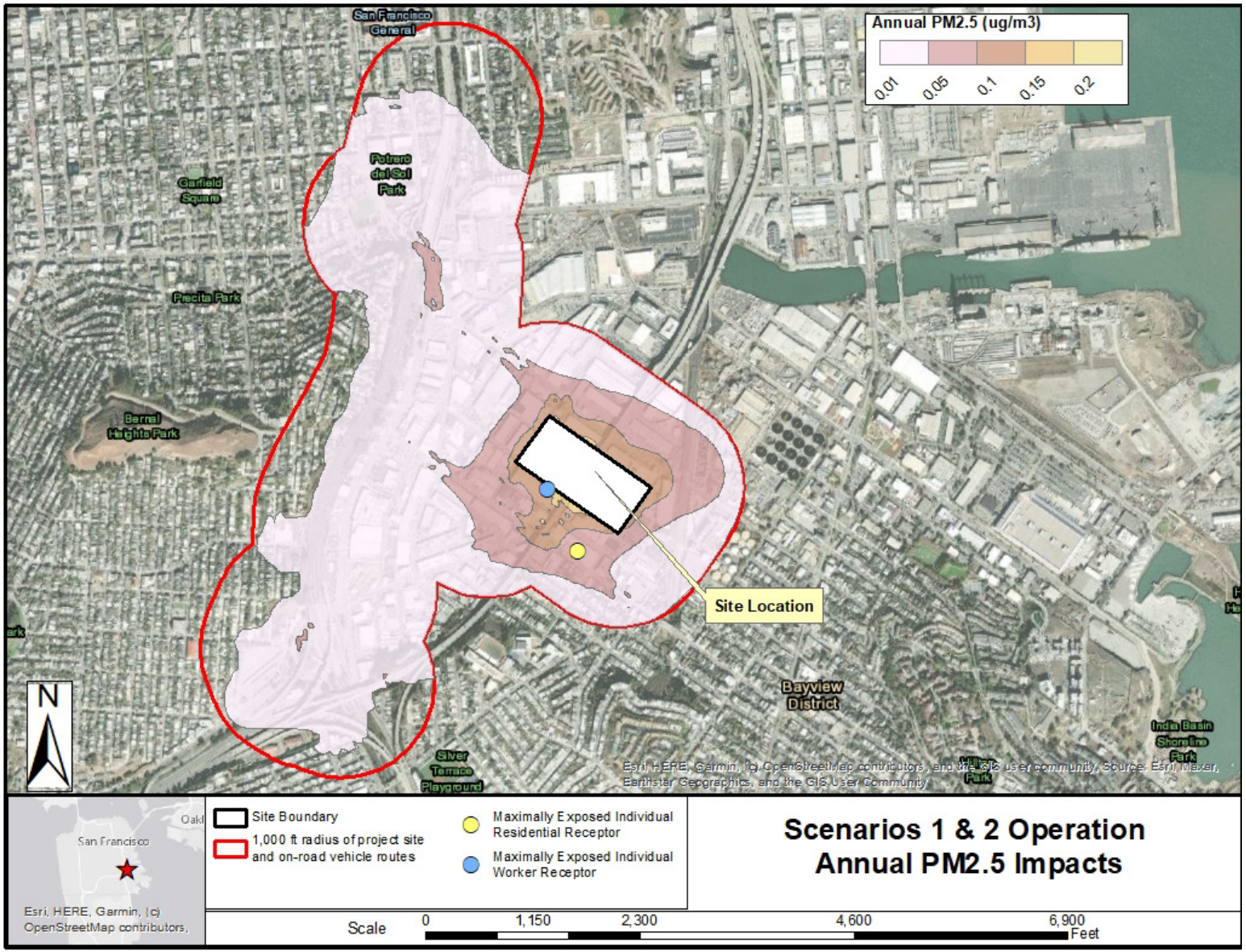


Figure 9 Residential and Worker Scenarios 1 and 2 Annual $PM_{2.5}$ Concentrations

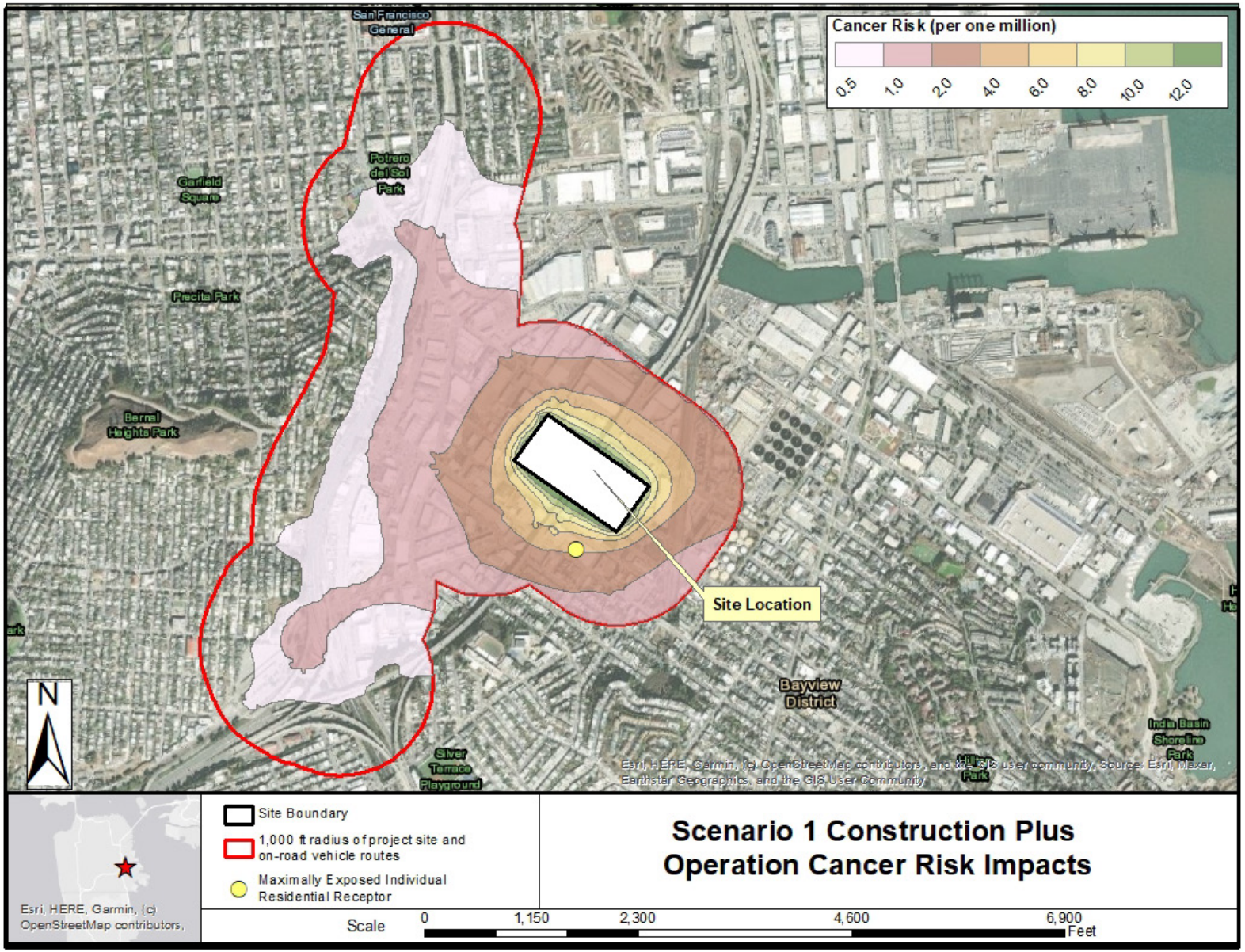


Figure 10 Residential Scenario 1 (Construction Plus Operations) Cancer Risk Impacts

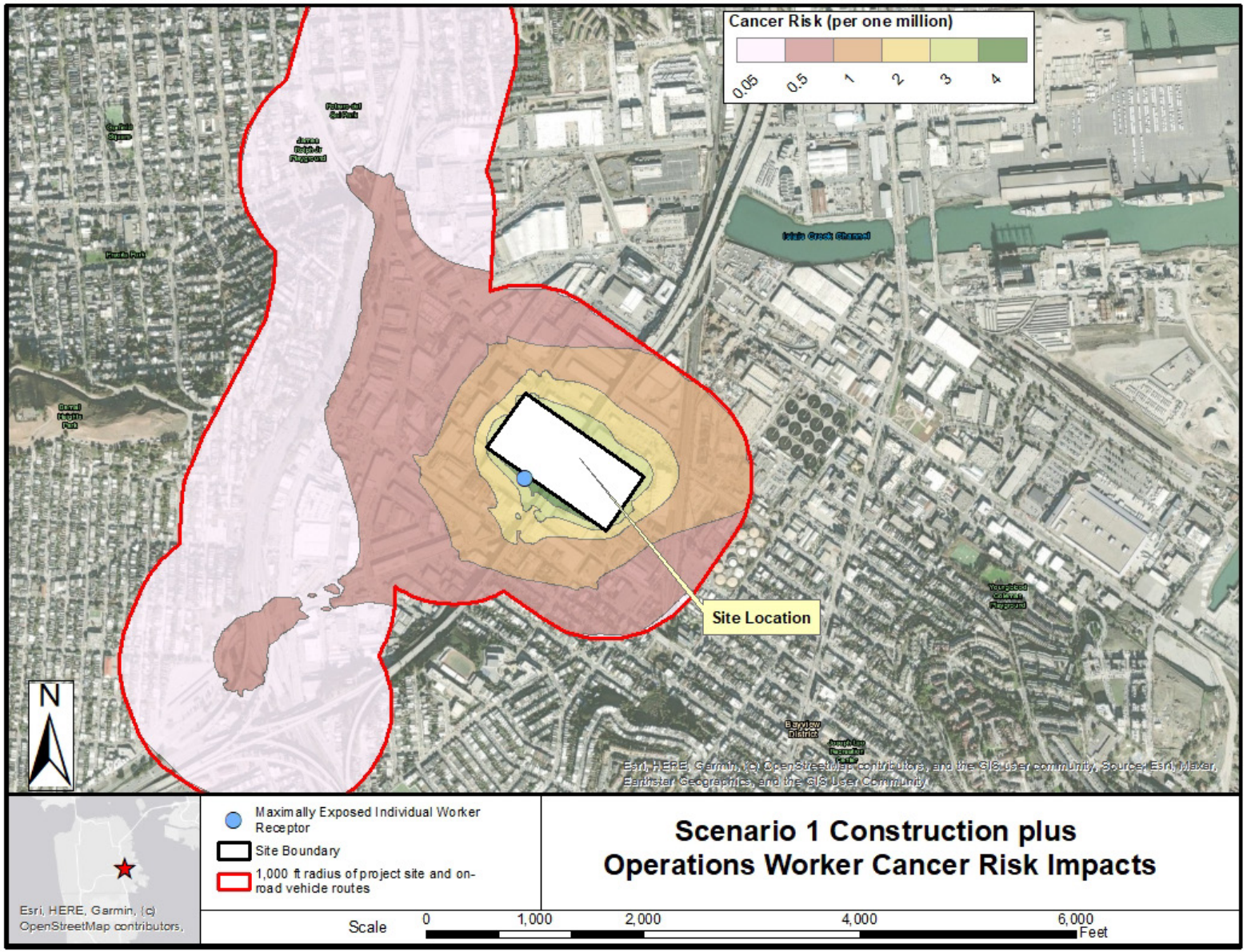


Figure 11 Worker Scenario 1 (Construction Plus Operations) Cancer Risk Impacts

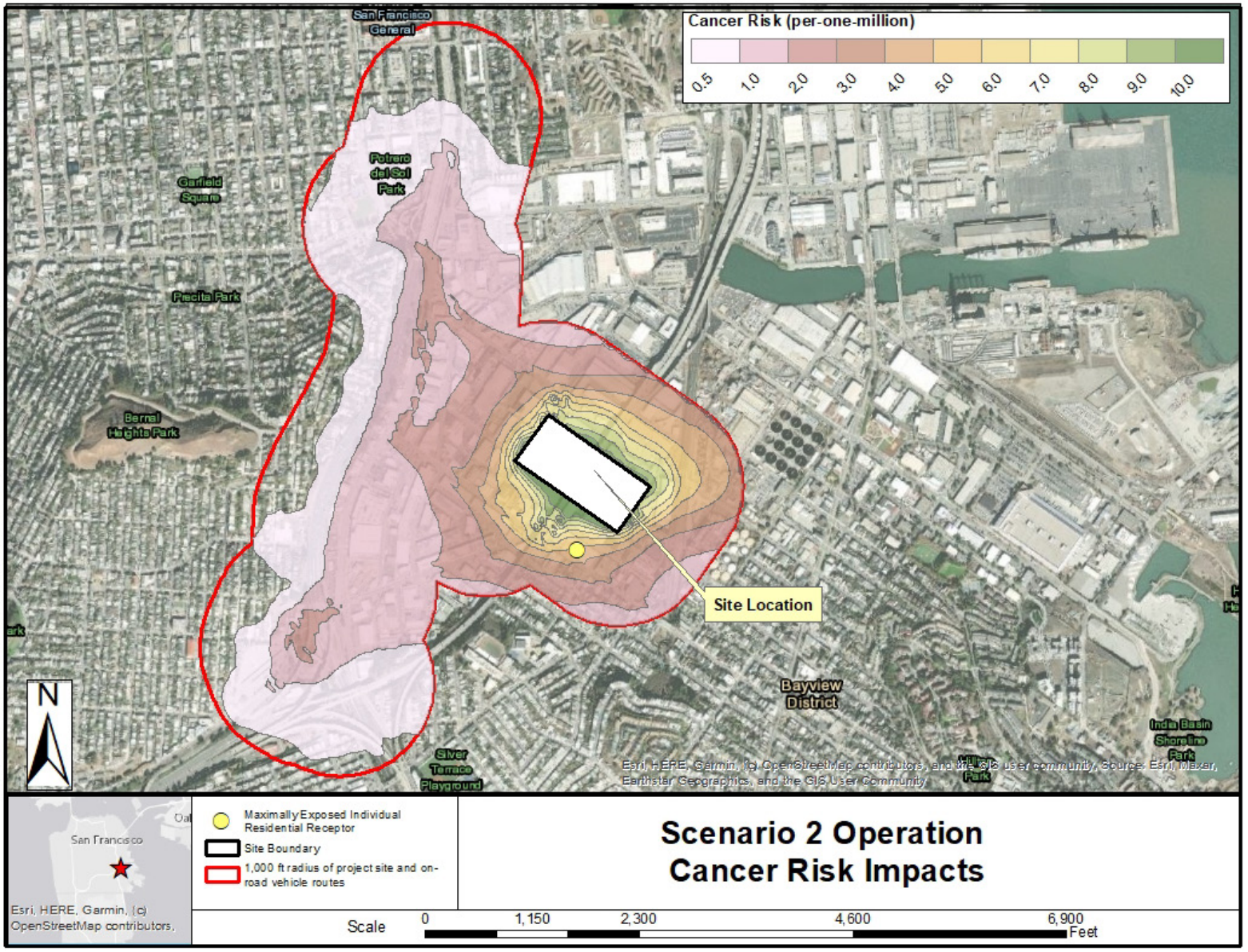


Figure 12 Residential Scenario 2 (Operations) Cancer Risk Impacts

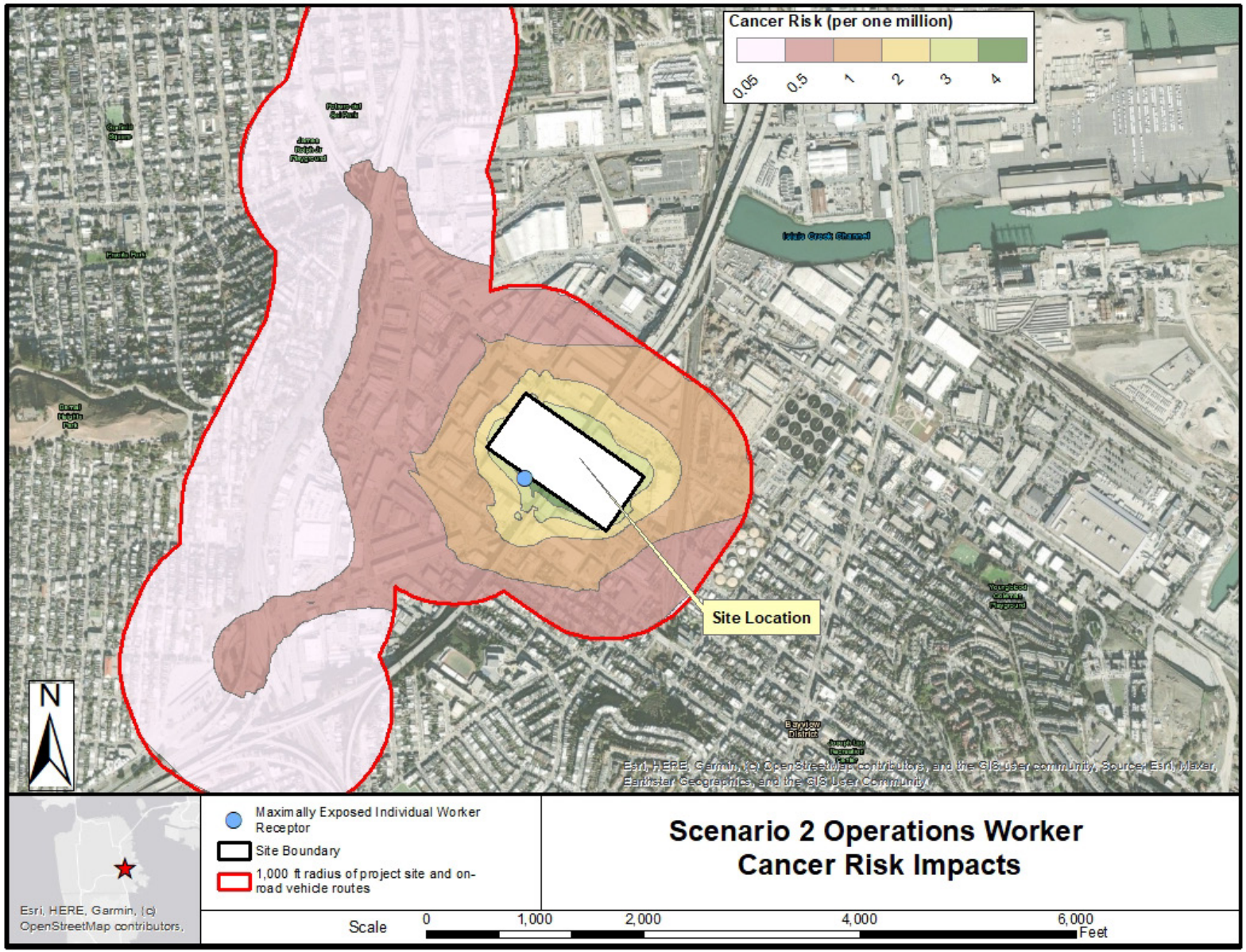


Figure 13 Worker Scenario 2 (Operations) Cancer Risk Impacts

2.2.3 Existing Plus Project Health Risks and $PM_{2.5}$ Results

2.2.3.1 Existing Plus Project Health Risks and $PM_{2.5}$ Concentrations

Existing plus project health risks and annual $PM_{2.5}$ concentrations at offsite receptors from the proposed project's construction and operation were evaluated. Existing cancer risk and annual $PM_{2.5}$ concentrations were determined by year 2020 traffic and stationary source modeling conducted as part of the 2020 citywide HRA.[10] The offsite health risks and annual $PM_{2.5}$ concentrations for the two scenarios at the residential and worker maximally exposed individual receptors are summarized in Table 25.

Table 25 Existing Plus Project Lifetime Cancer Risk and Annual $PM_{2.5}$ Concentration at Project Maximally Exposed Individual Residential and Worker Receptors

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Source	Lifetime Cancer Risk (per one million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
553,000	4,177,080	Residential	Scenario 1	Proposed Project	4.05[1]	0.080[2]
				Existing Conditions[5]	189.50	11.30
				Total/Maximum	**193.55**	**11.38**
552,920	4,177,300	Worker	Scenario 1	Proposed Project	5.10[1]	0.17[2]
				Existing Conditions[5]	216.56	11.97
				Total/Maximum	**221.66**	**12.14**
553,000	4,177,080	Residential	Scenario 2	Proposed Project	4.68[3]	0.080[4]
				Existing Conditions[5]	189.50	11.30
				Total/Maximum	**194.18**	**11.38**
552,920	4,177,300	Worker	Scenario 2	Proposed Project	4.82[3]	0.17[4]
				Existing Conditions[5]	216.56	11.97
				Total/Maximum	**221.38**	**12.14**

Notes:

1. Sum from Table 23 for Scenario 1.
2. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 1.
3. Sum from Table 23 for Scenario 2.
4. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 2.
5. Background concentration from 2020 citywide HRA database.

HRA = Health Risk Assessment
m = meter
$\mu g/m^3$= micrograms per cubic meter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
UTM = Universal Transverse Mercator

2.2.4 2035 and 2050 Baseline Conditions Plus Project Health Risks and $PM_{2.5}$ Concentrations

The city evaluated future baseline health risks and $PM_{2.5}$ concentrations as part of the San Francisco Housing Element 2022 Update Environmental Impact Report (EIR).[11] The Housing Element 2022 Update EIR evaluates the impacts of constructing 150,000 housing units in San Francisco by 2050. The EIR analysis compares the housing element update's impacts to a future baseline that assumes no implementation of the update.[12] To disclose future baseline plus project health risk impacts for the

[10] San Francisco Department of Public Health (SFDPH), San Francisco Citywide Health Risk Assessment: Technical Support Documentation, September 2020.

[11] San Francisco Planning Department, San Francisco Housing Element 2022 Update EIR, 2022, *https://sfplanning.org/environmental-review-documents?title=HOusing+Element&field_environmental_review_categ_target_id=All&items_per_page=10*.

[12] Projections for the 2035 and 2050 baseline years include assumptions about the buildout of the department's development pipeline as well as additional growth that may occur by 2035 and 2050 without implementation of the housing element 2022 update. At the time of preparation, the department's Q1 2019 development pipeline was the most recent data available. San

years 2035 and 2050, this project air quality analysis applies the lifetime cancer risk and annual $PM_{2.5}$ concentration identified through the Housing Element 2022 Update EIR modeling for the 2035 and 2050 baseline years (assuming no housing element update). The analysis below discloses the 2035 and 2050 baseline health risks (assuming no housing element update) plus the health risks of the proposed project at the offsite maximally exposed individual residential and offsite worker receptors. This analysis is conservative (worst-case) because it does not account for reduced health risks from the project in future years 2035 and 2050 resulting from lower vehicle emissions due to increasingly stringent regulations. Table 26 and Table 27 summarize the results of this analysis for years 2035 and 2050, respectively.

Table 26 2035 Baseline Plus Project Lifetime Cancer Risk and Annual $PM_{2.5}$ Concentration at Maximally Exposed Individual Residential Receptor

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Source	Lifetime Cancer Risk (per one million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
553,000	4,177,080	Residential	Scenario 1	Proposed Project	4.05[1]	0.080[2]
				Future Baseline 2035[5]	65.28	10.44
				2035 Baseline + Proposed Project	**69.33**	**10.52**
552,920	4,177,300	Worker	Scenario 1	Proposed Project	5.10[1]	0.17[2]
				Future Baseline 2035[5]	69.63	10.79
				2035 Baseline + Proposed Project	**74.73**	**10.96**
553,000	4,177,080	Residential	Scenario 2	Proposed Project	4.68[3]	0.080[4]
				Future Baseline 2035[5]	65.28	10.44
				2035 Baseline + Proposed Project	**69.96**	**10.52**
552,920	4,177,300	Worker	Scenario 2	Proposed Project	4.82[3]	0.17[4]
				Future Baseline 2035[5]	69.63	10.79
				2035 Baseline + Proposed Project	**74.45**	**10.96**

Notes:

1. Sum from Table 23 for Scenario 1.
2. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 1.
3. Sum from Table 23 for Scenario 2.
4. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 2.
5. Future baselines (assuming no implementation of proposed housing element) obtained from *San Francisco Housing Element 2022 Update EIR*, Appendix I.2.

EIR = environmental impact report
m = meter
$\mu g/m^3$= micrograms per cubic meter
N/A = not applicable
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
UTM = Universal Transverse Mercator

Francisco is projected to have 462,000 housing units under the 2035 baseline (approximately 56,000 units more than 2020 conditions) and 508,000 housing units under the 2050 baseline (approximately 102,000 units more than 2020 conditions).

Table 27 2050 Baselines Plus Project Lifetime Cancer Risk and Annual $PM_{2.5}$ Concentration at Maximally Exposed Individual Residential Receptor

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Source	Lifetime Cancer Risk (per one million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
553,000	4,177,080	Residential	Scenario 1	Proposed Project	4.05[1]	0.080[2]
				Future Baseline 2050[5]	53.71	10.53
				2050 Baseline + Proposed Project	**57.76**	**10.61**
552,920	4,177,300	Worker	Scenario 1	Proposed Project	5.10[1]	0.17[2]
				Future Baseline 2050[5]	53.80	10.88
				2050 Baseline + Proposed Project	**58.90**	**11.05**
553,000	4,177,080	Residential	Scenario 2	Proposed Project	4.68[3]	0.080[4]
				Future Baseline 2050[5]	53.71	10.53
				2050 Baseline + Proposed Project	**58.39**	**10.61**
552,920	4,177,300	Worker	Scenario 2	Proposed Project	4.82[3]	0.17[4]
				Future Baseline 2050[5]	53.80	10.88
				2050 Baseline + Proposed Project	**58.62**	**11.05**

Notes:

1. Sum from Table 23 for Scenario 1.
2. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 1.
3. Sum from Table 23 for Scenario 2.
4. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 2.
5. Future baselines (assuming no implementation of proposed housing element) obtained from San Francisco Housing Element 2022 Update EIR, Appendix I.2.

EIR = environmental impact report
m = meter
$\mu g/m^3$= micrograms per cubic meter
N/A = not applicable
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
UTM = Universal Transverse Mercator

2.3 Cumulative Health Risks and $PM_{2.5}$ Results

2.3.1 Quantitative Cumulative Health Risk and $PM_{2.5}$ Analysis

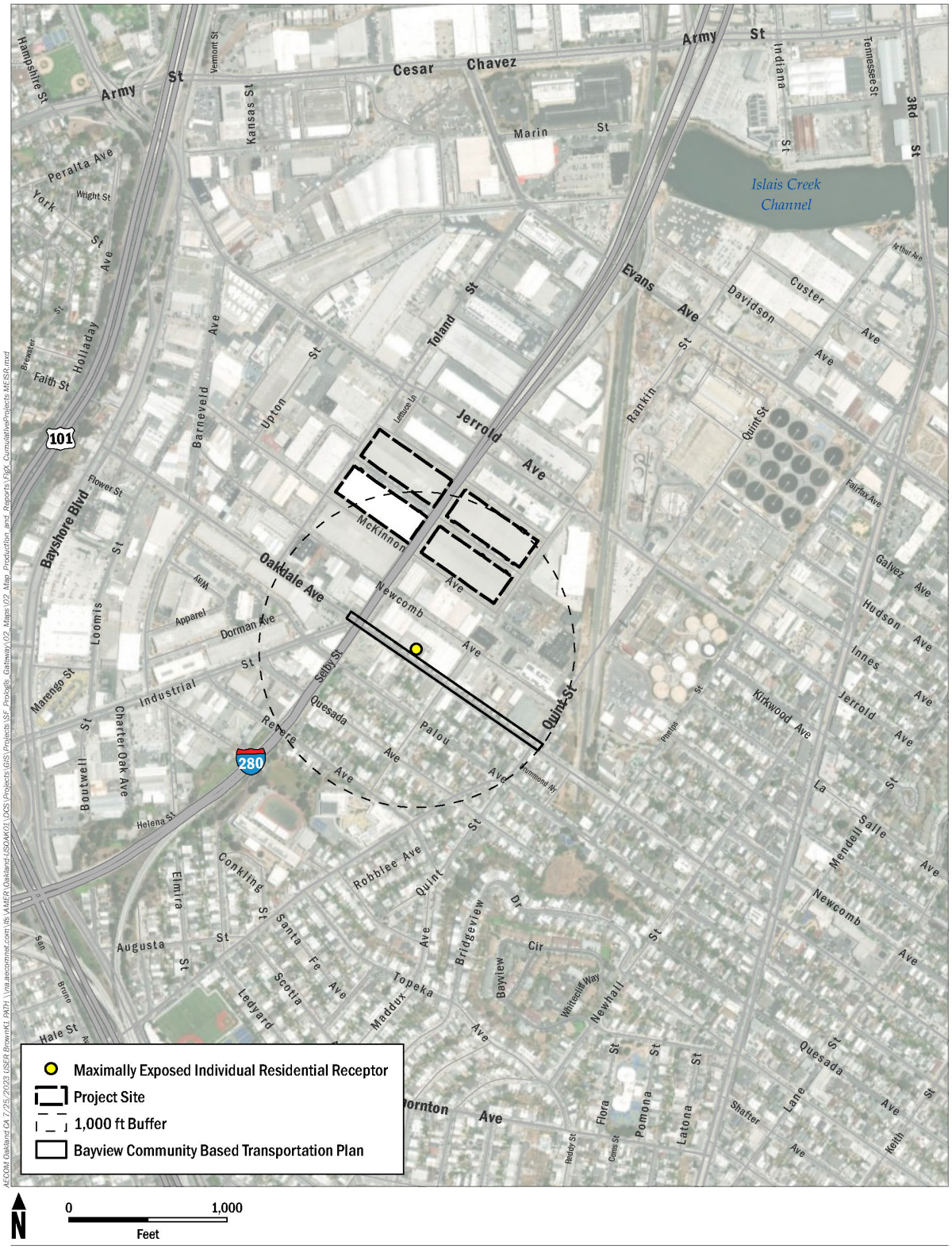
The cumulative analysis evaluates the impacts of the proposed project's construction and operation in combination with other projects within 1,000 feet of the maximally exposed individual residential and worker receptors and also accounts for growth anticipated under the Housing Element 2022 Update. Table 28 and Figure 14 identify projects within 1,000 feet of the maximally exposed individual residential and worker receptors that may pose health risks in combination with those estimated for the proposed project.

As discussed in Section 2.2.4, 2035 and 2050 Baseline Conditions Plus Project Health Risks and $PM_{2.5}$ Concentrations, the planning department developed future year health risk databases as part of the Housing Element 2022 Update EIR for 2035 and 2050. In addition to projects within 1,000 feet of the maximally exposed individual residential and worker receptors, this cumulative analysis assumes implementation of the housing element 2022 update. This is because the housing element 2022 update is a reasonably foreseeable action and therefore, using 2035 and 2050 data that includes the housing element update is appropriate. As such, this analysis uses the 2035 and 2050 health risk databases from the Housing Element 2022 Update EIR (assuming implementation of the housing element update) for the project's cumulative analysis.

Table 28 Cumulative Projects Within 1,000 feet Radius of the Maximally Exposed Individual Residential and Worker Receptors

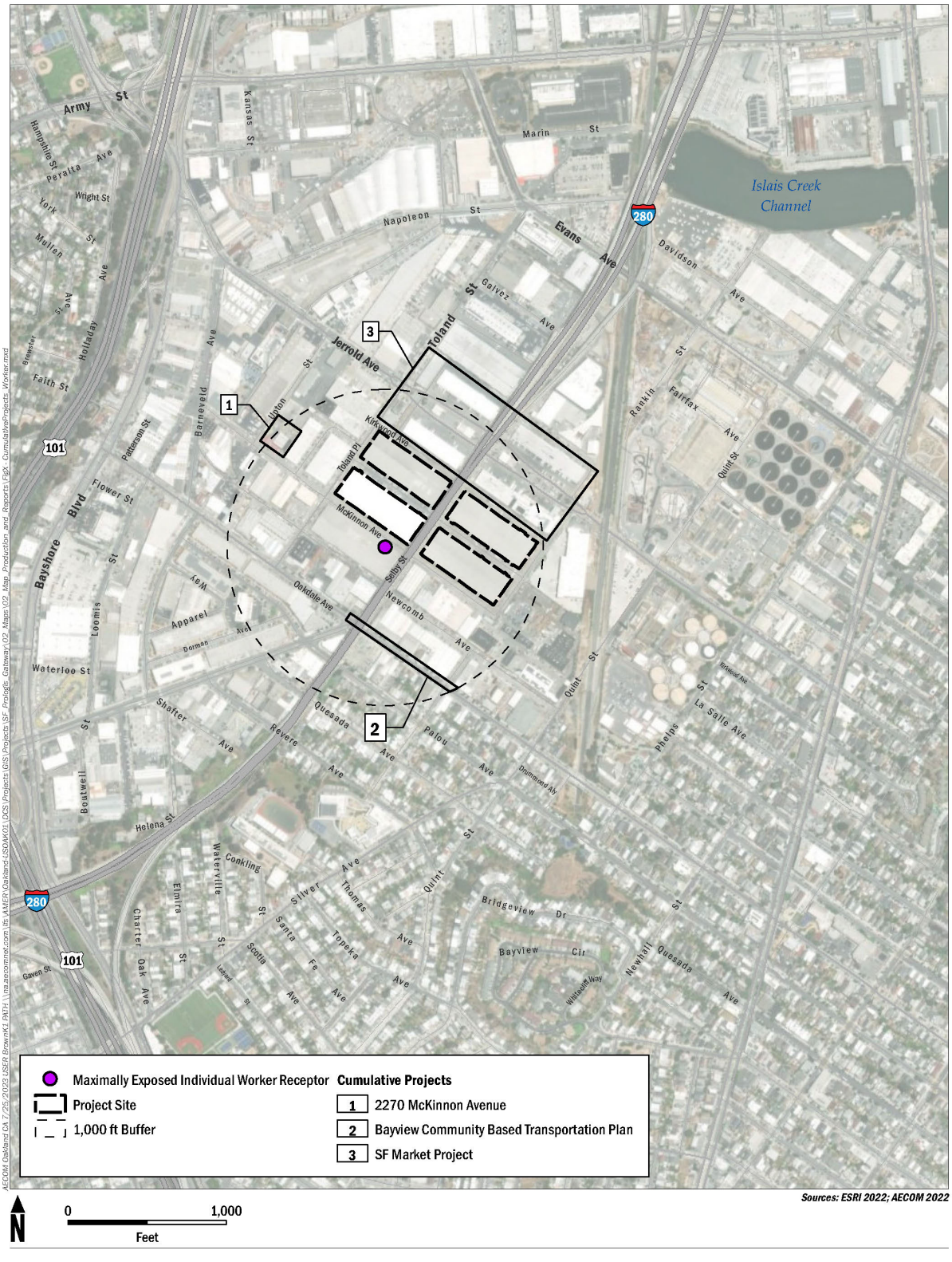
Project Name/ Planning Department Case No.	Description of Cumulative Project	Located within 1,000 feet of Maximally Exposure Individual Receptor[1]
Bayview Community-Based Transportation Plan	The transportation plan discusses several quick-build projects involving pedestrian, bicycle, streetscape, and bus improvements (including better bus shelters and signals). Quick-build projects that are currently planned to occur within a 1,000-foot radius of the residential and worker maximally exposed individual receptor, along Oakdale Avenue, include improvements to street signs, pedestrian lighting, sidewalks, and crosswalks, and an improved bus shelter.	Residential and Worker
2270 McKinnon Avenue (Case No. 2021-001639PRJ)	The project would demolish the existing accessory building to construct an approximately 119,881-square-foot building containing 111,073 square feet of self-storage use. The new building would be four stories and approximately 40 feet in height.	Worker
San Francisco Market Project (Case No. 2009.1153ENV-03)	The proposed project would demolish existing buildings to construct four new buildings containing a total of approximately 275,000 square feet. The project also proposes roadway changes and improvements, including vacating Jerrold Avenue on SF Market site and rerouting through-traffic around the main site on Innes Avenue. Innes Avenue would become the primary route for non-market destined traffic traveling through the area	Worker

[1] This column indicates if the cumulative project is within 1,000 feet of the proposed project's maximally exposed individual receptor, whether that receptor is a residential receptor, a worker receptor, or both.



San Francisco Gateway Project

Figure 14 Cumulative Projects within 1,000 feet of Maximally Exposed Residential Receptor



San Francisco Gateway Project

Figure 15 Cumulative Projects within 1,000 feet of Maximally Exposed Worker Receptor

Table 29 and Table 30 summarize the cumulative health risk results at the maximally exposed individual residential and worker receptors in years 2035 and 2050, respectively. The results in these tables do not reflect cumulative health risks from the Bayview Community Based Transportation Plan cumulative project listed in Table 28 because quantitative health risk data are not available from that project analysis. Rather, Table 29 and Table 30 reflect the cumulative health risk that would result with implementation of the Housing Element Update 2022 in years 2035 and 2050, respectively. An additional qualitative analysis of cumulative health risks addressing the projects in Table 28 is provided in Section 2.3.2.

Table 29 2035 Cumulative Cancer Risk and Annual $PM_{2.5}$ Concentration at Project Maximally Exposed Individual Residential Receptor

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Source	Lifetime Cancer Risk (per one million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
553,000	4,177,080	Residential	Scenario 1	Proposed Project	4.05[1]	0.08[2]
				2035 Cumulative[5]	67.21	10.55
				2035 Cumulative + Proposed Project	**71.26**	**10.63**
552,920	4,177,300	Worker	Scenario 1	Proposed Project	5.10[1]	0.17[2]
				2035 Cumulative[5]	71.98	10.93
				2035 Cumulative + Proposed Project	**77.08**	**11.10**
553,000	4,177,080	Residential	Scenario 2	Proposed Project	4.68[3]	0.08[4]
				2035 Cumulative[5]	67.21	10.55
				2035 Cumulative + Proposed Project	**71.89**	**10.63**
552,920	4,177,300	Worker	Scenario 2	Proposed Project	4.82[3]	0.17[4]
				2035 Cumulative[5]	71.98	10.93
				2035 Cumulative + Proposed Project	**76.80**	**11.10**

Notes:

1. Sum from Table 23 for Scenario 1.
2. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 1.
3. Sum from Table 23 for Scenario 2.
4. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 2.
5. 2035 Cumulative is the future 2035 baseline (assuming implementation of proposed housing element) obtained from *San Francisco Housing Element 2022 Update EIR*, Appendix I.2.

m = meter
$\mu g/m^3$= micrograms per cubic meter
N/A = not applicable
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
UTM = Universal Transverse Mercator

Table 30 2050 Cumulative Cancer Risk and Annual $PM_{2.5}$ Concentration at Project Maximally Exposed Individual Residential Receptor

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Source	Lifetime Cancer Risk (per one million)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
553,000	4,177,080	Residential	Scenario 1	Proposed Project	4.05[1]	0.08[2]
				2050 Cumulative[5]	56.35	10.64
				2050 Cumulative + Proposed Project	**60.40**	**10.72**
552,920	4,177,300	Worker	Scenario 1	Proposed Project	5.10[1]	0.17[2]
				2050 Cumulative[5]	57.55	11.02
				2050 Cumulative + Proposed Project	**62.65**	**11.19**
553,000	4,177,080	Residential	Scenario 2	Proposed Project	4.68[3]	0.08[4]
				2050 Cumulative[5]	56.35	10.64
				2050 Cumulative + Proposed Project	**61.03**	**10.72**
552,920	4,177,300	Worker	Scenario 2	Proposed Project	4.82[3]	0.17[4]
				2050 Cumulative[5]	57.55	11.02
				2050 Cumulative + Proposed Project	**62.37**	**11.19**

Notes:

1. Sum from Table 23 for Scenario 1.
2. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 1.
3. Sum from Table 23 for Scenario 2.
4. Maximum year of annual $PM_{2.5}$ concentration from Table 23 for Scenario 2.
5. 2050 Cumulative is the future 2050 baseline (assuming implementation of proposed housing element) obtained from *San Francisco Housing Element 2022 Update EIR*, Appendix I.2.

m = meter
$\mu g/m^3$= micrograms per cubic meter
N/A = not applicable
$PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter
UTM = Universal Transverse Mercator

2.3.2 Additional Qualitative Cumulative Health Risk Analysis

The San Francisco Municipal Transportation Agency adopted the Bayview Community-Based Transportation Plan (CBTP) final plan[13] on February 28, 2020. For the area within 1,000 feet of the maximally exposed individual residential and worker receptors, along Oakdale Avenue, proposed CBTP improvements include installing new crosswalks, painted median islands, and painted safety zones; reducing travel lanes; and installing edge lines to calm traffic. The potential also exists for protected bikeways to be installed. According to the Bayview CBTP quick-build project status, all of these improvements would have been completed by 2021; however, the city plans additional improvements in this corridor. The construction of any improvements would be required to follow the clean construction ordinance requirements for projects in the air pollutant exposure zone, which would limit diesel particulate matter emissions. Additionally, any construction emissions would be temporary in nature and would spread out along the corridor. On completion, the Bayview CBTP along Oakdale Avenue would likely result in minimal changes to TACs and $PM_{2.5}$ from diesel traffic.

The 2270 McKinnon Avenue CEQA Exemption Determination (dated October 25, 2022), prepared by the planning department, stated that the project is a Clean Construction priority project pursuant to Planning Director Bulletin No. 2, committing to the use of Tier 4 engines on all diesel-fueled construction equipment and resulting in substantially reduced DPM and $PM_{2.5}$ emissions compared to the construction fleet average emissions.[14] No emergency generators or fire water pumps have been proposed by the project sponsor for this project. Minimal changes to TACs and $PM_{2.5}$ from diesel traffic would be anticipated upon the completion of this project.

The San Francisco Market Project 2011 Mitigated Negative Declaration identified less-than-significant project-level and cumulative air quality impacts. In July 2022, the planning department issued Addendum 2 to Mitigated Negative Declaration[15] for the San Francisco Market project. The Addendum 2 analyzed changes to the project's construction phasing and determined that the changes to the project would not result in any new or more severe impacts than previously identified in the 2011 Mitigated Negative Declaration. It did not identify any significant cumulative construction or operational transportation impacts, and no mitigation measures were identified. Minimal changes to TACs and $PM_{2.5}$ from construction and operations would be anticipated upon the completion of this project.

Although the changes to TAC and $PM_{2.5}$ emissions from each of the cumulative projects would be minimal as described above, they could contribute additional emissions that may incrementally increase health risks at the proposed project maximally exposed individual receptor above those levels provided in Table 29 and Table 30. However, as discussed above, health risks in future years are expected to decline substantially due to more stringent emissions standards, adoption of cleaner vehicles as a greater portion of the passenger and truck fleet mixes, and development and availability of other cleaner technologies. Therefore, cumulative health risks may be similar to or perhaps less than that shown in Table 25, which shows the existing plus project health risks based on 2020 background health risk data.

[13] San Francisco Municipal Transportation Agency, Bayview Community-Based Transportation Plan, Final Plan, February 28, 2020, *https://www.sfmta.com/reports/bayview-cbtp-final-plan*.

[14] San Francisco Planning Department, 2270 McKinnon Avenue CEQA Exemption Determination, October 2022, https://citypln-m-extnl.sfgov.org/External/link.ashx?Action=Download&ObjectVersion=-1&vault={A4A7DACD-B0DC-4322-BD29-F6F07103C6E0}&objectGUID={8CA18C38-D785-4F15-8B2A-55F4A1ED715E}&fileGUID={5D662E13-D3B7-49D8-A193-D37E2140D725}.

[15] San Francisco Planning Department, Addendum 2 to Mitigated Negative Declaration, July 2022, *https://citypln-m-extnl.sfgov.org/External/link.ashx?Action=Download&ObjectVersion=-1&vault=%7BA4A7DACD-B0DC-4322-BD29-F6F07103C6E0%7D&/objectGUID=%7B589DDC8F-9673-4664-9474-6A4C059BDA9F%7D&fileGUID=%7BE913602C-7F2B-4C2F-A14A-907B86C41D18%7D*.

Attachment A

Emissions Estimates

SF Gateway
Air Quality Construction-Related Emission Estimates Summary

Tier 4 Interim Emissions for Off-Road Equipment >25 HP

2022 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10}[1] Fug Dust	$PM_{2.5}$[1] Fug Dust
Building 1 Off-Road Construction Equipment	0.08	1.47	2.51	0.02	0.01	-	-
Building 1 On-Road Construction Equipment	0.02	0.28	0.23	0.00	0.00	0.04	0.01
Building 2 Off-Road Construction Equipment	0.04	0.74	1.32	0.01	0.01	-	-
Building 2 On-Road Construction Equipment	0.01	0.17	0.03	0.00	0.00	0.03	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	0.19	0.02
Building 2 Fugitive Dust[2]	-	-	-	-	-	0.15	0.02
Architectural Coatings[3]	-	-	-	-	-	-	-
Paving Off-Gassing[3]	-	-	-	-	-	-	-
Total Emissions (tons)	0.16	2.65	4.10	0.03	0.03	0.41	0.06
2022 Average Daily Emissions (lbs/day)	2.02	34.24	52.88	0.36	0.35	5.23	0.81
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.

2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.

4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site fugitive dust emissions are quantified and considered for the purposes of the HRA.

2023 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10}[1] Fug Dust	$PM_{2.5}$[1] Fug Dust
Building 1 Off-Road Construction Equipment	0.12	2.35	3.79	0.03	0.03	-	-
Building 1 On-Road Construction Equipment	0.02	0.18	0.37	0.00	0.00	0.05	0.01
Building 2 Off-Road Construction Equipment	0.12	2.29	3.70	0.03	0.03	-	-
Building 2 On-Road Construction Equipment	0.02	0.23	0.09	0.00	0.00	0.05	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	-	-
Building 2 Fugitive Dust[2]	-	-	-	-	-	0.04	0.00
Architectural Coatings[3]	0.69	-	-	-	-	-	-
Paving Off-Gassing[3]	-	-	-	-	-	-	-
Total Emissions (tons)	0.97	5.05	7.95	0.07	0.07	0.14	0.03
2023 Average Daily Emissions (lbs/day)	7.47	38.85	61.13	0.53	0.52	1.06	0.23
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site

2024 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10}[1] Fug Dust	$PM_{2.5}$[1] Fug Dust
Building 1 Off-Road Construction Equipment	0.10	1.93	4.36	0.02	0.02	-	-
Building 1 On-Road Construction Equipment	0.02	0.12	0.26	0.00	0.00	0.03	0.01
Building 2 Off-Road Construction Equipment	0.14	2.71	5.65	0.02	0.02	-	-
Building 2 On-Road Construction Equipment	0.02	0.18	0.11	0.00	0.00	0.05	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	-	-
Building 2 Fugitive Dust[2]	-	-	-	-	-	-	-
Architectural Coatings[3]	1.39	-	-	-	-	-	-
Paving Off-Gassing[3]	0.02	-	-	-	-	-	-
Total Emissions (tons)	1.69	4.95	10.38	0.05	0.04	0.09	0.02
2024 Average Daily Emissions (lbs/day)	13.28	38.79	81.43	0.36	0.35	0.67	0.18
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site

	2022	2023	2024
Weeks	31	52	51
Number of Construction Work Days	155	260	255

SF Gateway
Air Quality Construction-Related Emission Estimates Summary

Tier 4 Final Emissions for Off-Road Equipment >25 HP

2022 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} [1] Fug Dust	$PM_{2.5}$ [1] Fug Dust
Building 1 Off-Road Construction Equipment	0.04	0.24	1.76	0.01	0.01	-	-
Building 1 On-Road Construction Equipment	0.02	0.28	0.23	0.00	0.00	0.04	0.01
Building 2 Off-Road Construction Equipment	0.02	0.13	0.98	0.00	0.00	-	-
Building 2 On-Road Construction Equipment	0.01	0.17	0.03	0.00	0.00	0.03	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	0.19	0.02
Building 2 Fugitive Dust[2]	-	-	-	-	-	0.15	0.02
Architectural Coatings[3]	-	-	-	-	-	-	-
Paving Off-Gassing[3]	-	-	-	-	-	-	-
Total Emissions (tons)	0.10	0.81	3.01	0.02	0.02	0.41	0.06
2022 Average Daily Emissions (lbs/day)	1.35	10.44	38.80	0.22	0.22	5.23	0.81
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.

2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.

4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site fugitive dust emissions are quantified and considered for the purposes of the HRA.

2023 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} [1] Fug Dust	$PM_{2.5}$ [1] Fug Dust
Building 1 Off-Road Construction Equipment	0.06	0.27	2.70	0.01	0.01	-	-
Building 1 On-Road Construction Equipment	0.02	0.18	0.37	0.00	0.00	0.05	0.01
Building 2 Off-Road Construction Equipment	0.06	0.28	2.48	0.01	0.01	-	-
Building 2 On-Road Construction Equipment	0.02	0.23	0.09	0.00	0.00	0.05	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	-	-
Building 2 Fugitive Dust[2]	-	-	-	-	-	0.04	0.00
Architectural Coatings[3]	0.69	-	-	-	-	-	-
Paving Off-Gassing[3]	-	-	-	-	-	-	-
Total Emissions (tons)	0.85	0.95	5.64	0.02	0.02	0.14	0.03
2023 Average Daily Emissions (lbs/day)	6.52	7.34	43.38	0.17	0.17	1.06	0.23
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that

2024 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} [1] Fug Dust	$PM_{2.5}$ [1] Fug Dust
Building 1 Off-Road Construction Equipment	0.07	0.31	3.92	0.01	0.01	-	-
Building 1 On-Road Construction Equipment	0.02	0.12	0.26	0.00	0.00	0.03	0.01
Building 2 Off-Road Construction Equipment	0.09	0.41	4.91	0.01	0.01	-	-
Building 2 On-Road Construction Equipment	0.02	0.18	0.11	0.00	0.00	0.05	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	-	-
Building 2 Fugitive Dust[2]	-	-	-	-	-	-	-
Architectural Coatings[3]	1.39	-	-	-	-	-	-
Paving Off-Gassing[3]	0.02	-	-	-	-	-	-
Total Emissions (tons)	1.60	1.02	9.20	0.03	0.03	0.09	0.02
2024 Average Daily Emissions (lbs/day)	12.55	8.00	72.16	0.22	0.21	0.67	0.18
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that

	2022	2023	2024
Weeks	31	52	51
Number of Construction Work Days	155	260	255

SF Gateway Equipment List

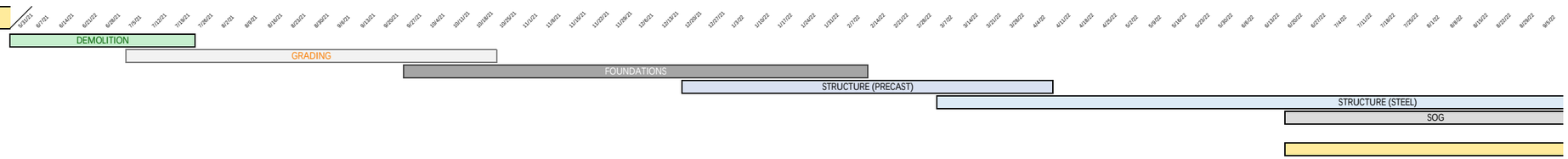
Phase			Eight(8) Weeks - 40 Days Demolition & Site Prep				Sixteen(16) Weeks - 80 Days Grading & Ground Improvements				Sixty one (61) Weeks - 305 Days *Buiilding Construction*				Sixty (60) Weeks - 300 days *Rbuilding Envelope + Interior Build Out*				Twenty Five(25) Weeks - 125 days *Sitework*				Seven (7) Weeks - 35 days *Startup & Commissioning*			
Equipment Type (assumed diesel-fueled unless noted otherwise)	Size (hp) (CalEEMod default shown - revise as needed)	ADD CELL TOTALS AMONG PHASES	Quantity	Average Hours Per Day	Days Per Phase	Total Hour Usage	Quantity	Average Hours Per Day	Days Per Phase	Total Hour Usage	Quantity	Average Hours Per Day	Days Per Phase	Total Hour Usage	Quantity	Average Hours Per Day	Days Per Phase	Total Hour Usage	Quantity	Average Hours Per Day	Days Per Phase	Total Hour Usage	Quantity	Average Hours Per Day	Days Per Phase	Total Hour Usage
AC Rollers		400				0				0				0				0	2	4	50	400				0
Aerial Lifts (jlg)	63	8340				0				0	12	6	80	5760	4	6	100	2400				0	1	6	30	180
Air Compressors Truck Mounted	78	480				0				0				0				0	2	4	60	480				0
Air Compressors	78	1440	2	4	20	160				0	4	4	80	1280				0				0				0
Bore/Drill Rigs (auger cast)	221	400				0	1	8	50	400				0				0				0				0
Bore/Drill Rigs (stone columns)		400				0	1	8	50	400				0				0				0				0
Cement + Mortar Mixers	9	N/A				0				0				0				0				0				0
Concrete/Industrial Saws	81	320	2	4	20	160				0				0				0	2	4	20	160				0
Cranes (Precast)	231	2560				0				0	4	8	80	2560				0				0				0
Cranes (Steel)	231	720				0				0	2	6	60	720				0				0				0
Cranes (MEP)	231	1600				0				0				0	2	8	100	1600				0				0
Cranes (Cladding)	231	1920				0				0				0	2	8	120	1920				0				0
Crawler Tractors	212	320				0				0				0				0	2	4	40	320				0
Crushing/Processing Equipment	85	180	1	6	30	180				0				0				0				0				0
Dumpers/Tenders	16	400				0	2	5	40	400				0				0				0				0
Excavators (paving)	158	360				0		..		0				0				0	2	6	30	360				0
Excavators (utilities)	158	720				0				0				0				0	2	6	60	720				0
Excavators (demo)	158	640	2	8	40	640				0				0				0				0				0
Forklifts (Precast)	89	1920				0				0	4	6	80	1920				0				0				0
Forklifts (Precast)	89	1920				0				0	4	6	80	1920				0				0				0
Forklifts (Steel)	89	2560				0				0	4	8	80	2560				0				0				0
Forklifts (MEP)	89	9600				0				0				0	10	8	120	9600				0				0
Forklifts, Rough Terrain	100	180	1	6	30	180				0				0				0				0				0
Forklift (demobilization)		240				0				0				0				0				0	1	8	30	240
Generator Sets	84	4640	1	8	40	320	1	8	60	480	4	6	80	1920	2	8	120	1920				0				0
Graders	187	1440				0	3	8	40	960				0				0	2	6	40	480				0
Oil Ditributer		160				0				0				0				0	2	4	20	160				0
Off-Highway Tractors	124	N/A				0				0				0				0				0				0
Off-Highway Trucks	402	N/A				0				0				0				0				0				0
Other Construction Equipment	171	N/A				0				0				0				0				0				0
Other General Industrial Equipment	88	N/A				0				0				0				0				0				0
Other Material Handling Equipment	168	N/A				0				0				0				0				0				0
Pavers	130	160				0				0				0				0	2	8	10	160				0
Paving Equipment	132	160				0				0				0				0	2	8	10	160				0
Plate Compactors (site phase)	8	480				0				0				0				0	2	4	60	480				0
Plate Compactors (building phase)	8	3840				0				0	4	8	120	3840				0				0				0
Pressure Washers	13	N/A				0				0				0	2	4	60	480				0				0
Concrete Pumps	84	2400				0	2	6	100	1200	2	6	100	1200				0				0				0
Rollers	80	320				0				0				0	2	4	40	320				0				0
Rubber Tired Loaders (utilties)	247	1440				0				0				0				0	4	6	60	1440				0
Rubber Tired Loaders (paving)	203	480				0				0				0				0	2	6	40	480				0
Rubber Tired Loaders (demo)	203	180	1	6	30	180				0				0				0				0				0
Rubber Tired Loaders (landscaping)		180				0				0				0				0				0	1	6	30	180
Scrapers	367	160				0				0				0				0	2	4	20	160				0
Signal Boards	6	4980	2	9	40	720	2	8	60	960	2	8	60	960				0	8	9	30	2160	1	6	30	180
Skid Steer Loaders	65	240				0				0	1	6	40	240				0				0				0
Sweepers/Scrubbers	64	1080	1	6	40	240	1	6	60	360	1	6	60	360				0				0	1	6	20	120
Surfacing Equipment	263	880				0				0				0	2	4	20	160	2	6	60	720				0
Tack Truck		160				0				0				0				0	2	4	20	160				0
Tractors/Loaders/Backhoes (utilities)	97	1680				0	2	8	60	960				0				0	2	6	60	720				0
Tractors/Loaders/Backhoes (arch)	97	480				0				0				0	2	6	40	480				0				0
Tractors/Loaders/Backhoes (mep)	97	3840				0				0				0	4	8	120	3840				0				0
Tractors/Loaders/Backhoes (building phase)	97	1280				0				0	2	8	80	1280				0				0				0
Trenchers	78	600				0				0				0	1	6	40	240	1	6	60	360				0
Water Truck	880	1	6	30	180	1	6	60	360	1	6	30	180				0	2	4	20	160				0	
Welders	46	N/A				0				0	6	8	60	2880	2	8	60	960				0				0

Construction Trucks

Timeline (by week)	5/31/21	6/7/21	6/14/21	6/21/21	6/28/21	7/5/21	7/12/21	7/19/21	7/26/21	8/2/21	8/9/21	8/16/21	8/23/21	8/30/21	9/6/21	9/13/21	9/20/21	9/27/21	10/4/21	10/11/21	10/18/21	10/25/21	11/1/21	11/8/21	11/15/21	11/22/21	11/29/21	12/6/21	12/13/21	12/20/21	12/27/21	1/3/22	1/10/22	1/17/22	1/24/22	1/31/22	2/7/22	2/14/22	2/21/22	2/28/22	3/7/22	3/14/22	3/21/22	3/28/22	4/4/22	4/11/22	4/18/22	4/25/22	5/2/22	5/9/22	5/16/22	5/23/22	5/30/22	6/6/22	6/13/22	6/20/22	6/27/22	7/4/22	7/11/22	7/18/22	7/25/22	8/1/22	8/8/22	8/15/22	8/22/22	8/29/22	9/5/22
TOTAL FOR BUILDING #1		155	175	230	265	265	415	405	480	255	255	305	305	305	305	355	205	230	305	315	345	265	240	240	245	255	315	335	350	372	371	360	390	450	445	335	295	130	55	55	55	75	80	75	70	55	25	30	30	30	30	35	35	35	37	93	120	120	195	150	175	145	205	165	145	145	225	145
TOTAL FOR BUILDING #2																	155	175	230	265	265	415	405	480	255	255	305	305	305	305	355	205	230	305	315	345	265	240	240	245	255	315	335	350	362	371	360	390	450	445	335	290	130	55	55	55	75	80	75	70	55	25	30	30	30	30	35
TOTAL FOR BOTH BUILDINGS		155	175	230	265	265	415	405	480	255	255	305	305	305	305	355	205	385	480	545	610	530	655	645	725	510	570	640	655	677	676	715	595	680	750	650	640	395	295	295	300	330	395	410	420	417	396	390	420	480	475	370	325	165	92	148	175	195	275	225	245	200	230	195	175	175	255	180

BUILDING #1

DEMOLITION	TOTAL TRUCKS	1,800
GRADING	TOTAL TRUCKS	3850
FOUNDATIONS	TOTAL TRUCKS	5113
STRUCTURE	TOTAL TRUCKS	3256
INTERIORS	TOTAL TRUCKS	2904
EXTERIORS	TOTAL TRUCKS	1320
COMMISSIONING	TOTAL TRUCKS	888
	TOTAL TRUCKS	19,131



BUILDING #2

DEMOLITION	TOTAL TRUCKS	1,800
GRADING	TOTAL TRUCKS	3850
FOUNDATIONS	TOTAL TRUCKS	5113
STRUCTURE	TOTAL TRUCKS	3256
INTERIORS	TOTAL TRUCKS	2904
EXTERIORS	TOTAL TRUCKS	1320
COMMISSIONING	TOTAL TRUCKS	888
		19131

Construction Trucks

Timeline (by week)

	9/12/22	9/19/22	9/26/22	10/3/22	10/10/22	10/17/22	10/24/22	10/31/22	11/7/22	11/14/22	11/21/22	11/28/22	12/5/22	12/12/22	12/19/22	12/26/22	1/2/23	1/9/23	1/16/23	1/23/23	1/30/23	2/6/23	2/13/23
TOTAL FOR BUILDING #1	145	145	125	125	150	130	135	175	135	120	110	75	95	75	70	70	75	95	75	85	95	120	100
TOTAL FOR BUILDING #2	35	35	37	93	120	120	195	150	175	145	205	165	145	145	225	145	145	145	125	125	150	130	135
TOTAL FOR BOTH BUILDINGS	180	180	162	218	270	250	330	325	310	265	315	240	240	220	295	215	220	240	200	210	245	250	235

	2/20/23	2/27/23	3/6/23	3/13/23	3/20/23	3/27/23	4/3/23	4/10/23	4/17/23	4/24/23	5/1/23	5/8/23	5/15/23	5/22/23	5/29/23	6/5/23	6/12/23	6/19/23	6/26/23	7/3/23	7/10/23	7/17/23	7/24/23
TOTAL FOR BUILDING #1	100	110	115	130	110	105	105	110	130	110	105	110	135	115	110	110	120	110	100	90	80	48	55
TOTAL FOR BUILDING #2	175	135	120	110	75	95	75	70	70	75	95	75	85	95	120	100	100	110	115	130	110	105	105
TOTAL FOR BOTH BUILDINGS	275	245	235	240	185	200	180	180	200	185	200	185	220	210	230	210	220	220	215	220	190	153	160

	7/31/23	8/7/23	8/14/23	8/21/23	9/4/23	9/11/23	9/18/23	9/25/23	10/2/23	10/9/23	10/16/23	10/23/23	10/30/23	11/6/23	11/13/23	11/20/23	11/27/23	12/4/23	12/11/23	12/18/23	12/25/23
TOTAL FOR BUILDING #1	40	30	15	15	5																
TOTAL FOR BUILDING #2	110	130	110	105	110	135	115	110	110	120	110	100	90	80	48	55	40	30	15	15	5
TOTAL FOR BOTH BUILDINGS	150	160	125	120	115	135	115	110	110	120	110	100	90	80	48	55	40	30	15	15	5

BUILDING #1

(Timeline 9/12/22 – 9/4/23)

DEMOLITION	TOTAL TRUCKS	1,800
GRADING	TOTAL TRUCKS	3850
FOUNDATIONS	TOTAL TRUCKS	5113
STRUCTURE	TOTAL TRUCKS	3256
INTERIORS	TOTAL TRUCKS	2904
EXTERIORS	TOTAL TRUCKS	1320
COMMISSIONING	TOTAL TRUCKS	888
	TOTAL TRUCKS	19,131

EXTERIOR SKIN

INTERIORS

BUILDING #2

(Timeline 9/12/22 – 12/25/23)

DEMOLITION	TOTAL TRUCKS	1,800
GRADING	TOTAL TRUCKS	3850
FOUNDATIONS	TOTAL TRUCKS	5113
STRUCTURE	TOTAL TRUCKS	3256
INTERIORS	TOTAL TRUCKS	2904
EXTERIORS	TOTAL TRUCKS	1320
COMMISSIONING	TOTAL TRUCKS	888
		19131

STRUCTURE (STEEL)

SOG

EXTERIOR SKIN

INTERIORS

SITEWORK

PERSONNEL TRIPS

Timeline (by week)		5/31/22	6/7/22	6/14/22	6/21/22	6/28/22	7/5/22	7/12/22	7/19/22	7/26/22	8/2/22	8/9/22	8/16/22	8/23/22	8/30/22	9/6/22	9/13/22	9/20/22	9/27/22	10/4/22	10/11/22	10/18/22	10/25/22	11/1/22	11/8/22	11/15/22	11/22/22	11/29/22	12/6/22	12/13/22	12/20/22	12/27/22	1/3/23	1/10/23	1/17/23	1/24/23	1/31/23	2/7/23	2/14/23	2/21/23	2/28/23	3/7/23	3/14/23	3/21/23	3/28/23	4/4/23	4/11/23	4/18/23	4/25/23	5/2/23	5/9/23	5/16/23	5/23/23	5/30/23	6/6/23	6/13/23	6/20/23	6/27/23	7/4/23	7/11/23	7/18/23	7/25/23	8/1/23	8/8/23	8/15/23	8/22/23	8/29/23	9/5/23	9/12/23
Building 1	TOTALS	18	30	30	44	55	70	70	60	45	45	45	45	43	43	43	41	31	38	42	55	103	69	74	74	112	72	72	112	72	110	166	135	137	139	172	128	124	158	118	122	164	121	124	164	125	106	144	104	114	122	170	130	128	128	128	176	156	160	180	196	272	232	232	232	227	232	272	228
Building 2	TOTALS																	18	30	30	44	55	70	70	60	45	45	45	43	43	43	41	31	38	42	55	103	69	74	74	112	72	72	112	72	110	166	135	137	139	172	128	124	158	118	122	164	121	124	164	125	106	144	104	114	122	170	130
Both Buildings	TOTALS	18	30	30	44	55	70	70	60	45	45	45	45	43	43	43	41	49	68	72	99	158	139	144	134	157	117	117	157	115	153	209	176	168	177	214	183	227	227	192	196	276	193	196	276	197	216	310	239	251	261	342	258	252	286	246	298	320	281	304	360	397	338	376	336	341	354	442	358

PERSONNEL TRIPS

Timeline (by week)		9/19/23	9/26/23	10/3/23	10/10/23	10/17/23	10/24/23	10/31/23	11/7/23	11/14/23	11/21/23	11/28/23	12/5/23	12/12/23	12/19/23	12/26/23	1/2/24	1/9/24	1/16/24	1/23/24	1/30/24	2/6/24	2/13/24
Building 1	TOTALS	236	240	244	251	271	243	237	244	248	250	235	233	231	229	227	223	223	223	223	229	229	237
Building 2	TOTALS	128	128	128	176	156	160	180	196	272	232	232	232	227	232	272	228	236	240	244	251	271	243
Both Buildings	TOTALS	364	368	372	427	427	403	417	440	520	482	467	465	458	461	499	451	459	463	467	480	500	480

Timeline (by week)		2/20/24	2/27/24	3/6/24	3/13/24	3/20/24	3/27/24	4/3/24	4/10/24	4/17/24	4/24/24	5/1/24	5/8/24	5/15/24	5/22/24	5/29/24	6/5/24	6/12/24	6/19/24	6/26/24	7/3/24	7/10/24	7/17/24
Building 1	TOTALS	237	237	237	237	237	237	237	237	232	231	231	217	202	200	195	185	172	170	167	128	102	78
Building 2	TOTALS	237	244	248	250	235	233	231	229	227	223	223	223	223	229	229	237	237	237	237	237	237	237
Both Buildings	TOTALS	474	481	485	487	472	470	468	466	459	454	454	440	425	429	424	422	409	407	404	365	339	315

Timeline (by week)		7/24/24	7/31/24	8/7/24	8/14/24	8/21/24	9/4/24	9/11/24	9/18/24	9/25/24	10/2/24	10/9/24	10/16/24	10/23/24	10/30/24	11/6/24	11/13/24	11/20/24	11/27/24	12/4/24	12/11/24	12/18/24	12/25/24
Building 1	TOTALS	55	24	22	22	14	5																
Building 2	TOTALS	237	237	232	231	231	217	202	200	195	185	172	170	167	128	102	78	55	24	22	22	14	5
Both Buildings	TOTALS	292	261	254	253	245	222	202	200	195	185	172	170	167	128	102	78	55	24	22	22	14	5

Off-Road Construction Emissions - Building 1

Tier 4 Interim Equipment for Engines >25 HP

Construction Exhaust Emissions

Project Phase/Equipment [1]		Number	Usage Factor (hrs/day)	Total Hours/Day (Number * Usage Factor)	Total Days [1]	Horsepower	LookUp Value	Total Runtime Hours	Load Factor [2]	Emissions Factors (g/bhp-hr)					Emissions (tons/phase)				
										ROG	CO	NOx	PM_{10}	$PM_{2.5}$	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep															*0.02*	*0.54*	*0.31*	*0.00*	*0.00*
Air Compressors	Air Compressors	2	4	8	20	78	C	160	0.48	0.110	3.700	2.140	0.008	0.008	0.00	0.02	0.01	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Crushing/Processing Equipment	Crushing/Proc. Equipment	1	6	6	30	85	C	180	0.78	0.110	3.700	2.140	0.008	0.008	0.00	0.05	0.03	0.00	0.00
Excavators	Excavators	2	8	16	40	158	D	640	0.38	0.060	3.700	2.150	0.008	0.008	0.00	0.16	0.09	0.00	0.00
Forklifts, Rough Terrain	Rough Terrain Forklifts	1	6	6	30	100	C	180	0.40	0.110	3.700	2.140	0.008	0.008	0.00	0.03	0.02	0.00	0.00
Generator Sets	Generator Sets	1	8	8	40	84	C	320	0.74	0.110	3.700	2.140	0.008	0.008	0.00	0.08	0.05	0.00	0.00
Rubber Tired Loaders (demo)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.080	2.600	1.290	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	2	9	18	40	6	NA	720	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.01	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	40	64	B	240	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.03	0.02	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Grading & Ground Improvements															*0.04*	*1.25*	*0.69*	*0.01*	*0.01*
Bore/Drill Rigs (auger cast)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.080	2.600	1.290	0.008	0.008	0.00	0.13	0.06	0.00	0.00
Bore/Drill Rigs (stone columns)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.080	2.600	1.290	0.008	0.008	0.00	0.13	0.06	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	2	5	10	40	16	NA	400	0.38	0.217	0.896	1.660	0.062	0.057	0.00	0.00	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	60	84	C	480	0.74	0.110	3.700	2.140	0.008	0.008	0.00	0.12	0.07	0.00	0.00
Graders	Graders	3	8	24	40	187	E	960	0.41	0.080	2.600	1.290	0.008	0.008	0.01	0.21	0.10	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	8	16	60	97	C	960	0.37	0.110	3.700	2.140	0.008	0.008	0.00	0.14	0.08	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	60	402	F	360	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.16	0.08	0.00	0.00
Building Construction															*0.10*	*3.17*	*2.03*	*0.03*	*0.03*
Aerial Lifts (jlg)	Aerial Lifts	12	6	72	80	63	B	5760	0.31	0.120	3.700	2.740	0.112	0.112	0.01	0.46	0.34	0.01	0.01
Air Compressors	Air Compressors	4	4	16	80	78	C	1280	0.48	0.110	3.700	2.140	0.008	0.008	0.01	0.20	0.11	0.00	0.00
Cranes (Precast)	Cranes	4	8	32	80	231	E	2560	0.29	0.080	2.600	1.290	0.008	0.008	0.02	0.49	0.24	0.00	0.00
Cranes (Steel)	Cranes	2	6	12	60	231	E	720	0.29	0.080	2.600	1.290	0.008	0.008	0.00	0.14	0.07	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.110	3.700	2.140	0.008	0.008	0.00	0.14	0.08	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.110	3.700	2.140	0.008	0.008	0.00	0.14	0.08	0.00	0.00
Forklifts (Steel)	Forklifts	4	8	32	80	89	C	2560	0.20	0.110	3.700	2.140	0.008	0.008	0.01	0.19	0.11	0.00	0.00
Generator Sets	Generator Sets	4	6	24	80	84	C	1920	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.49	0.28	0.00	0.00
Plate Compactors (building phase)	Plate Compactors	4	8	32	120	8	NA	3840	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.02	0.03	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	1	6	6	40	65	B	240	0.37	0.120	3.700	2.740	0.112	0.112	0.00	0.02	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (building phase)	Tractors/Loaders/Backhoes	2	8	16	80	97	C	1280	0.37	0.110	3.700	2.140	0.008	0.008	0.01	0.19	0.11	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Welders	Welders	6	8	48	60	46	A	2880	0.45	0.120	4.100	4.550	0.128	0.128	0.01	0.27	0.30	0.01	0.01
Rebuilding Envelope + Interior Buildout															*0.09*	*2.89*	*1.69*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	4	6	24	100	63	B	2400	0.31	0.120	3.700	2.740	0.112	0.112	0.01	0.19	0.14	0.01	0.01
Cranes (MEP)	Cranes	2	8	16	100	231	E	1600	0.29	0.080	2.600	1.290	0.008	0.008	0.01	0.31	0.15	0.00	0.00
Cranes (Cladding)	Cranes	2	8	16	120	231	E	1920	0.29	0.080	2.600	1.290	0.008	0.008	0.01	0.37	0.18	0.00	0.00
Forklifts (MEP)	Forklifts	10	8	80	120	89	C	9600	0.20	0.110	3.700	2.140	0.008	0.008	0.02	0.70	0.41	0.00	0.00
Generator Sets	Generator Sets	2	8	16	120	84	C	1920	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.49	0.28	0.00	0.00
Pressure Washers	Pressure Washers	2	4	8	60	13	NA	480	0.30	0.160	0.973	1.320	0.057	0.052	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	2	4	8	40	80	C	320	0.38	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	4	8	20	263	E	160	0.30	0.080	2.600	1.290	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Tractors/Loaders/Backhoes (arch)	Tractors/Loaders/Backhoes	2	6	12	40	97	C	480	0.37	0.110	3.700	2.140	0.008	0.008	0.00	0.07	0.04	0.00	0.00
Tractors/Loaders/Backhoes (mep)	Tractors/Loaders/Backhoes	4	8	32	120	97	C	3840	0.37	0.110	3.700	2.140	0.008	0.008	0.02	0.56	0.33	0.00	0.00
Trenchers	Trenchers	1	6	6	40	78	C	240	0.50	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Welders	Welders	2	8	16	60	46	A	960	0.45	0.120	4.100	4.550	0.128	0.128	0.00	0.09	0.10	0.00	0.00
Sitework															*0.05*	*2.74*	*0.98*	*0.01*	*0.01*
AC Rollers	Rollers	2	4	8	50	80	C	400	0.38	0.110	3.700	2.140	0.008	0.008	0.00	0.05	0.03	0.00	0.00
Air Compressors Truck Mounted	Air Compressors	2	4	8	60	78	C	480	0.48	0.110	3.700	2.140	0.008	0.008	0.00	0.07	0.04	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Crawler Tractors	Crawler Tractors	2	4	8	40	212	E	320	0.43	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Excavators (paving)	Excavators	2	6	12	30	158	D	360	0.38	0.060	3.700	2.150	0.008	0.008	0.00	0.09	0.05	0.00	0.00
Excavators (utilities)	Excavators	2	6	12	60	158	D	720	0.38	0.060	3.700	2.150	0.008	0.008	0.00	0.18	0.10	0.00	0.00
Graders	Graders	2	6	12	40	187	E	480	0.41	0.080	2.600	1.290	0.008	0.008	0.00	0.11	0.05	0.00	0.00
Oil Dtrnbuter	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.07	0.03	0.00	0.00
Pavers	Pavers	2	8	16	10	130	D	160	0.42	0.060	3.700	2.150	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Paving Equipment	Paving Equipment	2	8	16	10	132	D	160	0.36	0.060	3.700	2.150	0.008	0.008	0.00	0.03	0.02	0.00	0.00
Plate Compactors (site phase)	Plate Compactors	2	4	8	60	8	NA	480	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders (utilities)	Rubber Tired Loaders	4	6	24	60	247	E	1440	0.36	0.080	2.600	1.290	0.008	0.008	0.01	0.37	0.18	0.00	0.00
Rubber Tired Loaders (paving)	Rubber Tired Loaders	2	6	12	40	203	E	480	0.36	0.080	2.600	1.290	0.008	0.008	0.00	0.10	0.05	0.00	0.00
Scrapers	Scrapers	2	4	8	20	367	F	160	0.48	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Signal Boards	Signal Boards	8	9	72	30	6	NA	2160	0.82	0.448	2.845	3.397	0.133	0.122	0.01	0.03	0.04	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	6	12	60	263	E	720	0.30	0.080	2.600	1.290	0.008	0.008	0.01	0.16	0.08	0.00	0.00
Tack Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.080	2.600	1.290	0.008	0.008	0.00	1.00	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	6	12	60	97	C	720	0.37	0.110	3.700	2.140	0.008	0.008	0.00	0.11	0.06	0.00	0.00
Trenchers	Trenchers	1	6	6	60	78	C	360	0.50	0.110	3.700	2.140	0.008	0.008	0.00	0.06	0.03	0.00	0.00
Water Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.07	0.03	0.00	0.00
Startup & Commissioning															*0.00*	*0.09*	*0.05*	*0.00*	*0.00*
Aerial Lifts (jlg)	Aerial Lifts	1	6	6	30	63	B	180	0.31	0.120	3.700	2.740	0.112	0.112	0.00	0.01	0.01	0.00	0.00
Forklift (demobilization)	Forklifts	1	8	8	30	89	C	240	0.20	0.110	3.700	2.140	0.008	0.008	0.00	0.02	0.01	0.00	0.00
Rubber Tired Loaders (landscaping)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.080	2.600	1.290	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	1	6	6	30	6	NA	180	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	20	64	B	120	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.01	0.01	0.00	0.00
														Total Off-Road Emissions (tons)	0.30	10.67	5.75	0.09	0.09

On-Road Construction Emissions - Building 1

Project Component/On-Road Vehicles[3]	Total Trips	Trip Distance (One-way)	Total VMT	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)												Emissions (tons/phase)											
				ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW
Total Trips for Building 1																*0.0420*	*0.0181*	*0.6649*	*0.1914*	*0.4911*	*0.0811*	*0.0086*	*0.0001*	*0.1262*	*0.0082*	*0.0001*	*0.0346*
Concrete Trucks	13,778	1.9	26,177	0.0141	0.0000	0.0743	0.0000	1.2252	3.2761	0.0154	0.0000	0.2183	0.0148	0.0000	0.0622	0.0004	0.0000	0.0021	0.0000	0.0354	0.0498	0.0004	0.0000	0.0063	0.0004	0.0000	0.0018
Haul Trucks	24,485	13.7	334,213	0.0959	0.0937	0.7679	1.6128	1.1648	0.7079	0.0200	0.0002	0.1890	0.0191	0.0002	0.0543	0.0353	0.0025	0.2829	0.0435	0.4291	0.0191	0.0074	0.0000	0.0696	0.0071	0.0000	0.0200
Workers	35,366	10.8	381,953	0.0149	0.3995	0.9021	3.7944	0.0633	0.3132	0.0018	0.0022	0.1195	0.0017	0.0021	0.0304	0.0063	0.0156	0.3798	0.1479	0.0266	0.0122	0.0008	0.0001	0.0503	0.0007	0.0001	0.0129
															Total On-Road Emissions (tons)	0.0420	0.0181	0.6649	0.1914	0.4911	0.0811	0.0086	0.0001	0.1262	0.0082	0.0001	0.0346

Constants	
lb	grams
1	453.59237
ton	lbs
1	2000

Trip Length Assumptions - CalEEMod	miles	
Workers	10.8	
Vendor	7.3	
Haul Trucks	20	
Concrete Trucks	1.9	Based on RFI of project-specific concrete source, distance to Central Concrete Supply

Sources:

1 Equipment types, quantities, daily usage, and horsepower from SF Gateway_Equipment List Emissions Calculation - DPR Estimates 200428
2 Load factors from CalEEMod default tables (Appendix D)
3 Truck and worker trips based on Building 1 Totals rows 6 and 5 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Months of Construction	31
Days of Construction Per Month	21

					Percentage		
Weeks By Year	2022	2023	2024	Total	2022	2023	2024
Demolition & Site Prep	8	0	0	8	100%	0%	0%
Grading & Ground Improvements	16	0	0	16	100%	0%	0%
Building Construction	14	47	0	61	23%	77%	0%
Rebuilding Envelope + Interior Build Out	0	28	32	60	0%	47%	53%
Sitework	0	0	25	25	0%	0%	100%
Startup & Commissioning	0	0	7	7	0%	0%	100%

Notes: Total weeks taken from the Equip Assumptions tab (Row 4).

	tons				
2022	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.015	0.537	0.313	0.003	0.003
Grading & Ground Improvements	0.040	1.250	0.691	0.005	0.005
Building Construction	0.023	0.728	0.465	0.007	0.007
Rebuilding Envelope + Interior Buildout	0.000	0.000	0.000	0.000	0.000
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2022 Total Off-Road Equipment Emissions	0.079	2.515	1.469	0.015	0.015

	tons				
2023	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.078	2.446	1.563	0.024	0.024
Rebuilding Envelope + Interior Buildout	0.041	1.347	0.789	0.007	0.007
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2023 Total Off-Road Equipment Emissions	0.119	3.793	2.352	0.031	0.031

	tons				
2024	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.000	0.000	0.000	0.000	0.000
Rebuilding Envelope + Interior Buildout	0.047	1.540	0.902	0.008	0.008
Sitework	0.055	2.735	0.976	0.007	0.006
Startup & Commissioning	0.003	0.087	0.053	0.001	0.001
2024 Total Off-Road Equipment Emissions	0.105	4.362	1.931	0.016	0.016

					Percentage		
Trips By Year	2022	2023	2024	Total	2022	2023	2024
Concrete Trucks	2733	3756	400	6889	40%	55%	6%
Haul Trucks	6480	2999	2763	12242	53%	24%	23%
Workers	1929	9619	6135	17683	11%	54%	35%

	tons						
2022	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.001	0.034	0.000	0.002498889	0.000	0.000711751
Haul Trucks	0.020	0.173	0.237	0.004	0.036856887	0.004	0.010584079
Workers	0.002	0.058	0.004	0.000	0.005488563	0.000	0.001396143
2022 Total On-Road Equipment Emissions	0.023	0.231	0.275	0.004	0.045	0.004	0.013

	tons						
2023	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.001	0.046	0.000	0.003434572	0.000	0.000978259
Haul Trucks	0.009	0.080	0.110	0.002	0.017057028	0.002	0.004898214
Workers	0.012	0.287	0.021	0.000	0.027368837	0.000	0.006961896
2023 Total On-Road Equipment Emissions	0.021	0.368	0.177	0.003	0.048	0.002	0.013

	tons						
2024	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.005	0.000	0.000365769	0.000	0.000104181
Haul Trucks	0.009	0.074	0.101	0.002	0.015714761	0.002	0.00451276
Workers	0.008	0.183	0.013	0.000	0.01745585	0.000	0.004440299
2024 Total On-Road Equipment Emissions	0.016	0.257	0.120	0.002	0.034	0.002	0.009

Off-Road Construction Emissions - Building 2
Tier 4 Interim Equipment for Engines >25 HP
Construction Exhaust Emissions

										Emissions Factors (g/bhp-hr)					Emissions (tons/phase)				
Project Phase/Equipment [1]		Number	Usage Factor (hrs/day)	Total Hours/Day (Number * Usage Factor)	Total Days [1]	Horsepower	LookUp Value	Total Runtime Hours	Load Factor [2]	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep															*0.02*	*0.54*	*0.31*	*0.00*	*0.00*
Air Compressors	Air Compressors	2	4	8	20	78	C	160	0.48	0.11	3.70	2.14	0.01	0.01	0.00	0.02	0.01	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Crushing/Processing Equipment	Crushing/Proc. Equipment	1	6	6	30	85	C	180	0.78	0.11	3.70	2.14	0.01	0.01	0.00	0.05	0.03	0.00	0.00
Excavators	Excavators	2	8	16	40	158	D	640	0.38	0.06	3.70	2.15	0.01	0.01	0.00	0.16	0.09	0.00	0.00
Forklifts, Rough Terrain	Rough Terrain Forklifts	1	6	6	30	100	C	190	0.40	0.11	3.70	2.14	0.01	0.01	0.00	0.03	0.02	0.00	0.00
Generator Sets	Generator Sets	1	8	8	40	84	C	320	0.74	0.11	3.70	2.14	0.01	0.01	0.00	0.08	0.05	0.00	0.00
Rubber Tired Loaders (demo)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.08	2.60	1.29	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	2	9	18	40	6	NA	720	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.01	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	40	64	B	240	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.03	0.02	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Grading & Ground Improvements															*0.04*	*1.25*	*0.69*	*0.01*	*0.01*
Bore/Drill Rigs (auger cast)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.08	2.60	1.29	0.01	0.01	0.00	0.13	0.06	0.00	0.00
Bore/Drill Rigs (stone columns)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.08	2.60	1.29	0.01	0.01	0.00	0.13	0.06	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	2	5	10	40	16	NA	400	0.38	0.217	0.896	1.660	0.062	0.057	0.00	0.00	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	60	84	C	480	0.74	0.11	3.70	2.14	0.01	0.01	0.00	0.12	0.07	0.00	0.00
Graders	Graders	3	8	24	40	187	E	960	0.41	0.08	2.60	1.29	0.01	0.01	0.01	0.21	0.10	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	8	16	60	97	C	960	0.37	0.11	3.70	2.14	0.01	0.01	0.00	0.14	0.08	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	60	402	F	360	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.16	0.08	0.00	0.00
Building Construction															*0.10*	*3.17*	*2.03*	*0.03*	*0.03*
Aerial Lifts (jlg)	Aerial Lifts	12	6	72	80	63	B	5760	0.31	0.12	3.70	2.74	0.11	0.11	0.01	0.46	0.34	0.01	0.01
Air Compressors	Air Compressors	4	4	16	80	78	C	1280	0.48	0.11	3.70	2.14	0.01	0.01	0.01	0.20	0.11	0.00	0.00
Cranes (Precast)	Cranes	4	8	32	80	231	E	2560	0.29	0.08	2.60	1.29	0.01	0.01	0.02	0.49	0.24	0.00	0.00
Cranes (Steel)	Cranes	2	6	12	60	231	E	720	0.29	0.08	2.60	1.29	0.01	0.01	0.00	0.14	0.07	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.11	3.70	2.14	0.01	0.01	0.00	0.14	0.08	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	99	C	1920	0.20	0.11	3.70	2.14	0.01	0.01	0.00	0.14	0.08	0.00	0.00
Forklifts (Steel)	Forklifts	4	8	32	80	89	C	2560	0.20	0.11	3.70	2.14	0.01	0.01	0.01	0.19	0.11	0.00	0.00
Generator Sets	Generator Sets	4	6	24	80	84	C	1920	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.49	0.28	0.00	0.00
Plate Compactors (building phase)	Plate Compactors	4	8	32	120	8	NA	3840	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.02	0.03	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	1	6	6	40	65	B	240	0.37	0.12	3.70	2.74	0.11	0.11	0.00	0.02	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (building phase)	Tractors/Loaders/Backhoes	2	8	16	80	97	C	1280	0.37	0.11	3.70	2.14	0.01	0.01	0.01	0.19	0.11	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Welders	Welders	6	8	48	60	46	A	2880	0.45	0.12	4.10	4.55	0.13	0.13	0.01	0.27	0.30	0.01	0.01
Rebuilding Envelope + Interior Buildout															*0.09*	*2.89*	*1.69*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	4	6	24	100	63	B	2400	0.31	0.12	3.70	2.74	0.11	0.11	0.01	0.19	0.14	0.01	0.01
Cranes (MEP)	Cranes	2	8	16	100	231	E	1600	0.29	0.08	2.60	1.29	0.01	0.01	0.01	0.31	0.15	0.00	0.00
Cranes (Cladding)	Cranes	2	8	16	120	231	E	1920	0.29	0.08	2.60	1.29	0.01	0.01	0.01	0.37	0.18	0.00	0.00
Forklifts (MEP)	Forklifts	10	8	80	120	89	C	9600	0.20	0.11	3.70	2.14	0.01	0.01	0.02	0.70	0.41	0.00	0.00
Generator Sets	Generator Sets	2	8	16	120	84	C	1920	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.49	0.28	0.00	0.00
Pressure Washers	Pressure Washers	2	4	8	60	13		480	0.30	0.160	0.973	1.320	0.057	0.052	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	2	4	8	40	90	C	320	0.38	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	4	8	20	263	E	160	0.30	0.08	2.60	1.29	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Tractors/Loaders/Backhoes (arch)	Tractors/Loaders/Backhoes	2	6	12	40	97	C	480	0.37	0.11	3.70	2.14	0.01	0.01	0.00	0.07	0.04	0.00	0.00
Tractors/Loaders/Backhoes (mep)	Tractors/Loaders/Backhoes	4	8	32	120	97	C	3840	0.37	0.11	3.70	2.14	0.01	0.01	0.02	0.56	0.33	0.00	0.00
Trenchers	Trenchers	1	6	6	40	78	C	240	0.50	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Welders	Welders	2	8	16	60	46	A	960	0.45	0.12	4.10	4.55	0.13	0.13	0.00	0.09	0.10	0.00	0.00
Sitework															*0.05*	*2.74*	*0.98*	*0.01*	*0.01*
AC Rollers	Rollers	2	4	8	50	80	C	400	0.38	0.11	3.70	2.14	0.01	0.01	0.00	0.05	0.03	0.00	0.00
Air Compressors Truck Mounted	Air Compressors	2	4	8	60	78	C	480	0.48	0.11	3.70	2.14	0.01	0.01	0.00	0.07	0.04	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Crawler Tractors	Crawler Tractors	2	4	8	40	212	E	320	0.43	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Excavators (paving)	Excavators	2	6	12	30	158	D	360	0.38	0.06	3.70	2.15	0.01	0.01	0.00	0.09	0.05	0.00	0.00
Excavators (utilities)	Excavators	2	6	12	60	158	D	720	0.38	0.06	3.70	2.15	0.01	0.01	0.00	0.18	0.10	0.00	0.00
Graders	Graders	2	6	12	40	187	E	480	0.41	0.08	2.60	1.29	0.01	0.01	0.00	0.11	0.05	0.00	0.00
Oil Dirtibuter	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.07	0.03	0.00	0.00
Pavers	Pavers	2	8	16	10	130	D	160	0.42	0.06	3.70	2.15	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Paving Equipment	Paving Equipment	2	8	16	10	132	D	160	0.36	0.06	3.70	2.15	0.01	0.01	0.00	0.03	0.02	0.00	0.00
Plate Compactors (site phase)	Plate Compactors	2	4	8	60	8		480	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders (utilities)	Rubber Tired Loaders	4	6	24	60	247	E	1440	0.36	0.08	2.60	1.29	0.01	0.01	0.01	0.37	0.18	0.00	0.00
Rubber Tired Loaders (paving)	Rubber Tired Loaders	2	6	12	40	203	E	480	0.36	0.08	2.60	1.29	0.01	0.01	0.00	0.10	0.05	0.00	0.00
Scrapers	Scrapers	2	4	8	20	367	F	160	0.48	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Signal Boards	Signal Boards	8	9	72	30	6		2160	0.82	0.448	2.845	3.397	0.133	0.122	0.01	0.03	0.04	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	6	12	60	263	E	720	0.30	0.08	2.60	1.29	0.01	0.01	0.01	0.16	0.08	0.00	0.00
Tack Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.08	2.60	1.29	0.01	0.01	0.00	1.00	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	6	12	60	97	C	720	0.37	0.11	3.70	2.14	0.01	0.01	0.00	0.11	0.06	0.00	0.00
Trenchers	Trenchers	1	6	6	60	78	C	360	0.50	0.11	3.70	2.14	0.01	0.01	0.00	0.06	0.03	0.00	0.00
Water Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.07	0.03	0.00	0.00
Startup & Commissioning															*0.00*	*0.09*	*0.05*	*0.00*	*0.00*
Aerial Lifts (jlg)	Aerial Lifts	1	6	6	30	63	B	180	0.31	0.12	3.70	2.74	0.11	0.11	0.00	0.01	0.01	0.00	0.00
Forklift (demobilization)	Forklifts	1	8	8	30	89	C	240	0.20	0.11	3.70	2.14	0.01	0.01	0.00	0.02	0.01	0.00	0.00
Rubber Tired Loaders (landscaping)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.08	2.60	1.29	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	1	6	6	30	6		180	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	20	64	B	120	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.01	0.01	0.00	0.00
														Total Off-Road Emissions (tons)	0.30	10.67	5.75	0.08	0.06

On-Road Construction Emissions - Building 2				Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)												Emissions (tons/phase)											
Project Component/On-Road Vehicles[3]	Total Trips	Trip Distance (One-way)	Total VMT	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW
Total Trips for Building 2																*0.0420*	*0.0181*	*0.0420*	*0.1914*	*0.4911*	*0.0811*	*0.0086*	*0.0001*	*0.1262*	*0.0082*	*0.0001*	*0.0346*
Concrete Trucks	13,778	1.9	26,177	0.0141	0.0000	0.0743	0.0000	1.2252	3.2761	0.0154	0.0000	0.2183	0.0148	0.0000	0.0622	0.0004	0.0000	0.0004	0.0000	0.0354	0.0498	0.0004	0.0000	0.0063	0.0004	0.0000	0.0018
Haul Trucks	24,485	13.7	334,213	0.0959	0.0937	0.7679	1.6128	1.1648	0.7079	0.0200	0.0002	0.1890	0.0191	0.0002	0.0543	0.0353	0.0025	0.0353	0.0435	0.4291	0.0191	0.0074	0.0000	0.0696	0.0071	0.0000	0.0200
Workers	35,366	10.8	381,953	0.0149	0.3995	0.9021	3.7944	0.0633	0.3132	0.0018	0.0022	0.1195	0.0017	0.0021	0.0304	0.0063	0.0156	0.0063	0.1479	0.0266	0.0122	0.0008	0.0001	0.0503	0.0007	0.0001	0.0126
															Total On-Road Emissions (tons)	0.0420	0.0181	0.0420	0.1914	0.4911	0.0811	0.0086	0.0001	0.1262	0.0082	0.0001	0.0346

Constants	
lb	grams
1	453.59237
ton	lbs
1	2000

Trip Length Assumptions - CalEEMod	miles	
Workers	10.8	
Vendor	7.3	
Haul Trucks	20	
Concrete Trucks	1.9	Based on RFI of project-specific concrete source, distance to Central Concrete Supply

Sources:

1 Equipment types, quantities, daily usage, and horsepower from SF Gateway_Equipment List Emissions Calculation - DPR Estimates 200428
2 Load factors from CalEEMod default tables (Appendix D)
3 Truck and worker trips based on Building 2 Totals rows 8 and 7 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Months of Construction	31
Days of Construction Per Month	21

					Percentage		
Weeks By Year	2022	2023	2024	Total	2022	2023	2024
Demolition & Site Prep	8	0	0	8	100%	0%	0%
Grading & Ground Improvements	10	6	0	16	63%	38%	0%
Building Construction	0	51	10	61	0%	84%	16%
Rebuilding Envelope + Interior Build Out	0	12	48	60	0%	20%	80%
Sitework	0	0	25	25	0%	0%	100%
Startup & Commissioning	0	0	7	7	0%	0%	100%

Notes: Total weeks taken from the Equip Assumptions tab (Row 4).

	tons				
2022	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.015	0.537	0.313	0.003	0.003
Grading & Ground Improvements	0.025	0.781	0.432	0.003	0.003
Building Construction	0.000	0.000	0.000	0.000	0.000
Rebuilding Envelope + Interior Buildout	0.000	0.000	0.000	0.000	0.000
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2022 Total Off-Road Equipment Emissions	0.041	1.318	0.744	0.006	0.006

	tons				
2023	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.015	0.469	0.259	0.002	0.002
Building Construction	0.084	2.654	1.696	0.026	0.026
Rebuilding Envelope + Interior Buildout	0.017	0.577	0.338	0.003	0.003
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2023 Total Off-Road Equipment Emissions	0.117	3.700	2.293	0.031	0.031

	tons				
2024	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.017	0.520	0.332	0.005	0.005
Rebuilding Envelope + Interior Buildout	0.070	2.309	1.353	0.012	0.012
Sitework	0.055	2.735	0.976	0.007	0.006
Startup & Commissioning	0.003	0.087	0.053	0.001	0.001
2024 Total Off-Road Equipment Emissions	0.144	5.652	2.715	0.025	0.025

					Percentage		
Trips By Year	2022	2023	2024	Total	2022	2023	2024
Concrete Trucks	0	5759	1130	6888.75	0%	84%	16%
Haul Trucks	4475	3854	3913	12242.25	37%	31%	32%
Workers	686	7015	9982	17683	4%	40%	56%

	tons						
2022	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$M_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.000	0.000	0	0.000	0
Haul Trucks	0.014	0.029	0.164	0.003	0.025451884	0.003	0.00731
Workers	0.001	0.006	0.002	0.000	0.001951868	0.000	0.0005
2022 Total On-Road Equipment Emissions	0.015	0.035	0.165	0.003	0.027	0.003	0.008

	tons						
2023	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$M_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.071	0.000	0.005265932	0.000	0.0015
Haul Trucks	0.012	0.025	0.141	0.002	0.021921324	0.002	0.0063
Workers	0.009	0.061	0.015	0.000	0.019959704	0.000	0.00508
2023 Total On-Road Equipment Emissions	0.021	0.086	0.228	0.003	0.047	0.003	0.013

	tons						
2024	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$M_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.014	0.000	0.001033298	0.000	0.00029
Haul Trucks	0.012	0.025	0.143	0.002	0.022255469	0.002	0.00639
Workers	0.012	0.087	0.022	0.000	0.028401677	0.000	0.00722
2024 Total On-Road Equipment Emissions	0.025	0.112	0.179	0.003	0.052	0.003	0.014

Off-Road Construction Emissions - Building 1
Tier 4 Final Equipment for Engines >25 HP
Construction Exhaust Emissions

										Emissions Factors (g/bhp-hr)					Emissions (tons/phase)				
Project Phase/Equipment [1]		Number	Usage Factor (hrs/day)	Total Hours/Day (Number * Usage Factor)	Total Days[1]	Horsepower	LookUp Value	Total Runtime Hours	Load Factor [2]	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep															*0.01*	*0.45*	*0.05*	*0.00*	*0.00*
Air Compressors	Air Compressors	2	4	8	20	78	C	160	0.48	0.060	3.700	0.260	0.008	0.008	0.00	0.02	0.00	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	0	4	0	20	81	C	0	0.73	0.060	3.700	0.260	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Crushing/Processing Equipment	Crushing/Proc. Equipment	1	6	6	30	85	C	180	0.78	0.060	3.700	0.260	0.008	0.008	0.00	0.05	0.00	0.00	0.00
Excavators	Excavators	2	8	16	40	158	D	640	0.38	0.060	3.700	0.260	0.008	0.008	0.00	0.16	0.01	0.00	0.00
Forklifts, Rough Terrain	Rough Terrain Forklifts	1	6	6	30	100	C	180	0.40	0.060	3.700	0.260	0.008	0.008	0.00	0.03	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	40	84	C	320	0.74	0.060	3.700	0.260	0.008	0.008	0.00	0.08	0.01	0.00	0.00
Rubber Tired Loaders (demo)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.060	2.200	0.260	0.008	0.008	0.00	0.03	0.00	0.00	0.00
Signal Boards	Signal Boards	2	9	18	40	6	NA	720	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.01	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	0	6	0	40	64	B	0	0.46	0.120	3.700	2.740	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.060	2.200	0.260	0.008	0.008	0.00	0.07	0.01	0.00	0.00
Grading & Ground Improvements															*0.02*	*0.85*	*0.13*	*0.00*	*0.00*
Bore/Drill Rigs (auger cast)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.060	2.200	0.260	0.008	0.008	0.00	0.11	0.01	0.00	0.00
Bore/Drill Rigs (stone columns)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.060	2.200	0.260	0.008	0.008	0.00	0.11	0.01	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	2	5	10	40	16	NA	400	0.38	0.217	0.896	1.660	0.062	0.057	0.00	0.00	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	60	84	C	480	0.74	0.060	3.700	0.260	0.008	0.008	0.00	0.12	0.01	0.00	0.00
Graders	Graders	3	8	24	40	187	E	960	0.41	0.060	2.200	0.260	0.008	0.008	0.00	0.18	0.02	0.00	0.00
Concrete Pumps	Pumps	0	6	0	100	84	C	0	0.74	0.060	3.700	0.260	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.120	3.700	2.740	0.008	0.008	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	8	16	60	97	C	960	0.37	0.060	3.700	0.260	0.008	0.008	0.00	0.14	0.01	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	60	402	F	360	0.38	0.060	2.200	0.260	0.008	0.008	0.00	0.13	0.02	0.00	0.00
Building Construction															*0.04*	*1.99*	*0.23*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	0	6	0	80	63	B	0	0.31	0.120	3.700	2.740	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	4	4	16	80	78	C	1280	0.48	0.060	3.700	0.260	0.008	0.008	0.00	0.20	0.01	0.00	0.00
Cranes (Precast)	Cranes	4	8	32	80	231	E	2560	0.29	0.060	2.200	0.260	0.008	0.008	0.01	0.41	0.05	0.00	0.00
Cranes (Steel)	Cranes	2	6	12	60	231	E	720	0.29	0.060	2.200	0.260	0.008	0.008	0.00	0.12	0.01	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.060	3.700	0.260	0.008	0.008	0.00	0.14	0.01	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.060	3.700	0.260	0.008	0.008	0.00	0.14	0.01	0.00	0.00
Forklifts (Steel)	Forklifts	4	8	32	80	89	C	2560	0.20	0.060	3.700	0.260	0.008	0.008	0.00	0.19	0.01	0.00	0.00
Generator Sets	Generator Sets	4	6	24	80	84	C	1920	0.74	0.060	3.700	0.260	0.008	0.008	0.01	0.49	0.03	0.00	0.00
Plate Compactors (building phase)	Plate Compactors	4	8	32	120	8	NA	3840	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.02	0.03	0.00	0.00
Concrete Pumps	Pumps	0	6	0	100	84	C	0	0.74	0.060	3.700	0.260	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	1	6	6	40	65	B	240	0.37	0.120	3.700	2.740	0.008	0.008	0.00	0.02	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	0	6	0	60	64	B	0	0.46	0.120	3.700	2.740	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes (building phase)	Tractors/Loaders/Backhoes	2	8	16	80	97	C	1280	0.37	0.060	3.700	0.260	0.008	0.008	0.00	0.19	0.01	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.060	2.200	0.260	0.008	0.008	0.00	0.07	0.01	0.00	0.00
Welders	Welders	0	8	0	60	46	A	0	0.45	0.120	4.100	2.750	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Rebuilding Envelope + Interior Buildout															*0.05*	*2.50*	*0.20*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	0	6	0	100	63	B	0	0.31	0.120	3.700	2.740	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Cranes (MEP)	Cranes	2	8	16	100	231	E	1600	0.29	0.060	2.200	0.260	0.008	0.008	0.01	0.26	0.03	0.00	0.00
Cranes (Cladding)	Cranes	2	8	16	120	231	E	1920	0.29	0.060	2.200	0.260	0.008	0.008	0.01	0.31	0.04	0.00	0.00
Forklifts (MEP)	Forklifts	10	8	80	120	89	C	9600	0.20	0.060	3.700	0.260	0.008	0.008	0.01	0.70	0.05	0.00	0.00
Generator Sets	Generator Sets	2	8	16	120	84	C	1920	0.74	0.060	3.700	0.260	0.008	0.008	0.01	0.49	0.03	0.00	0.00
Pressure Washers	Pressure Washers	0	4	0	60	13	NA	0	0.30	0.160	0.973	1.320	0.057	0.052	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	2	4	8	40	80	C	320	0.38	0.060	3.700	0.260	0.008	0.008	0.00	0.04	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	4	8	20	263	E	160	0.30	0.060	2.200	0.260	0.008	0.008	0.00	0.03	0.00	0.00	0.00
Tractors/Loaders/Backhoes (arch)	Tractors/Loaders/Backhoes	2	6	12	40	97	C	480	0.37	0.060	3.700	0.260	0.008	0.008	0.00	0.07	0.00	0.00	0.00
Tractors/Loaders/Backhoes (mep)	Tractors/Loaders/Backhoes	4	8	32	120	97	C	3840	0.37	0.060	3.700	0.260	0.008	0.008	0.01	0.56	0.04	0.00	0.00
Trenchers	Trenchers	1	6	6	40	78	C	240	0.50	0.060	3.700	0.260	0.008	0.008	0.00	0.04	0.00	0.00	0.00
Welders	Welders	0	8	0	60	46	A	0	0.45	0.120	4.100	2.750	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Sitework															*0.04*	*2.54*	*0.20*	*0.01*	*0.01*
AC Rollers	Rollers	2	4	8	50	80	C	400	0.38	0.060	3.700	0.260	0.008	0.008	0.00	0.05	0.00	0.00	0.00
Air Compressors Truck Mounted	Air Compressors	2	4	8	60	78	C	480	0.48	0.060	3.700	0.260	0.008	0.008	0.00	0.07	0.01	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	0	4	0	20	81	C	0	0.73	0.060	3.700	0.260	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	Crawler Tractors	2	4	8	40	212	E	320	0.43	0.060	2.200	0.260	0.008	0.008	0.00	0.07	0.01	0.00	0.00
Excavators (paving)	Excavators	2	6	12	30	158	D	360	0.38	0.060	3.700	0.260	0.008	0.008	0.00	0.09	0.01	0.00	0.00
Excavators (utilities)	Excavators	2	6	12	60	158	D	720	0.38	0.060	3.700	0.260	0.008	0.008	0.00	0.18	0.01	0.00	0.00
Graders	Graders	2	6	12	40	187	E	480	0.41	0.060	2.200	0.260	0.008	0.008	0.00	0.09	0.01	0.00	0.00
Oil Distributer	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.060	2.200	0.260	0.008	0.008	0.00	0.06	0.01	0.00	0.00
Pavers	Pavers	2	8	16	10	130	D	160	0.42	0.060	3.700	0.260	0.008	0.008	0.00	0.04	0.00	0.00	0.00
Paving Equipment	Paving Equipment	2	8	16	10	132	D	160	0.36	0.060	3.700	0.260	0.008	0.008	0.00	0.03	0.00	0.00	0.00
Plate Compactors (site phase)	Plate Compactors	2	4	8	60	8	NA	480	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders (utilities)	Rubber Tired Loaders	4	6	24	60	247	E	1440	0.36	0.060	2.200	0.260	0.008	0.008	0.01	0.31	0.04	0.00	0.00
Rubber Tired Loaders (paving)	Rubber Tired Loaders	2	6	12	40	203	E	480	0.36	0.060	2.200	0.260	0.008	0.008	0.00	0.09	0.01	0.00	0.00
Scrapers	Scrapers	2	4	8	20	367	F	160	0.48	0.060	2.200	0.260	0.008	0.008	0.00	0.07	0.01	0.00	0.00
Signal Boards	Signal Boards	8	9	72	30	6	NA	2160	0.82	0.448	2.845	3.397	0.133	0.122	0.01	0.03	0.04	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	6	12	60	263	E	720	0.30	0.060	2.200	0.260	0.008	0.008	0.00	0.14	0.02	0.00	0.00
Tack Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.060	2.200	0.260	0.008	0.008	0.00	1.00	0.01	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	6	12	60	97	C	720	0.37	0.060	3.700	0.260	0.008	0.008	0.00	0.11	0.01	0.00	0.00
Trenchers	Trenchers	1	6	6	60	78	C	360	0.50	0.060	3.700	0.260	0.008	0.008	0.00	0.06	0.00	0.00	0.00
Water Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.060	2.200	0.260	0.008	0.008	0.00	0.06	0.01	0.00	0.00
Startup & Commissioning															*0.00*	*0.05*	*0.01*	*0.00*	*0.00*
Aerial Lifts (jlg)	Aerial Lifts	0	6	0	30	63	B	0	0.31	0.120	3.700	2.740	0.008	0.008	0.00	0.00	0.00	0.00	0.00
Forklift (demobilization)	Forklifts	1	8	8	30	89	C	240	0.20	0.060	3.700	0.260	0.008	0.008	0.00	0.02	0.00	0.00	0.00
Rubber Tired Loaders (landscaping)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.060	2.200	0.260	0.008	0.008	0.00	0.03	0.00	0.00	0.00
Signal Boards	Signal Boards	1	6	6	30	6	NA	180	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	0	6	0	20	64	B	0	0.46	0.120	3.700	2.740	0.008	0.008	0.00	0.00	0.00	0.00	0.00
														Total Off-Road Emissions (tons)	0.17	8.38	0.82	0.02	0.02

On-Road Construction Emissions - Building 1

Project Component/On-Road Vehicles[3]	Total Trips	Trip Distance (One-way)	Total VMT	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											Emissions (tons/phase)											
				ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW
Total Trips for Building 1																*0.0420*	*0.0181*	*0.6649*	*0.1914*	*0.4911*	*0.0811*	*0.0086*	*0.0001*	*0.1262*	*0.0082*	*0.0001*	*0.0346*
Concrete Trucks	13,778	1.9	26,177	0.0141	0.0000	0.0743	0.0000	1.2252	3.2761	0.0154	0.0000	0.2183	0.0148	0.0000	0.0622	0.0004	0.0000	0.0021	0.0000	0.0354	0.0498	0.0004	0.0000	0.0063	0.0004	0.0000	0.0018
Haul Trucks	24,485	13.7	334,213	0.0959	0.0937	0.7679	1.6128	1.1648	0.7079	0.0200	0.0002	0.1890	0.0191	0.0002	0.0543	0.0353	0.0025	0.2829	0.0435	0.4291	0.0191	0.0074	0.0000	0.0696	0.0071	0.0000	0.0200
Workers	35,366	10.8	381,953	0.0149	0.3995	0.9021	3.7944	0.0633	0.3132	0.0018	0.0022	0.1195	0.0017	0.0021	0.0304	0.0063	0.0156	0.3798	0.1479	0.0266	0.0122	0.0008	0.0001	0.0503	0.0007	0.0001	0.0128
														Total On-Road Emissions (tons)		0.0420	0.0181	0.6649	0.1914	0.4911	0.0811	0.0086	0.0001	0.1262	0.0082	0.0001	0.0346

Constants	
lb	grams
1	453.59237
ton	lbs
1	2000

Trip Length Assumptions - CalEEMod	miles	
Workers	10.8	
Vendor	7.3	
Haul Trucks	20	
Concrete Trucks	1.9	Based on RFI of project-specific concrete source, distance to Central Concrete Supply

Sources:

1 Equipment types, quantities, daily usage, and horsepower from SF Gateway_Equipment List Emissions Calculation - DPR Estimates 200428
2 Load factors from CalEEMod default tables (Appendix D)
3 Truck and worker trips based on Building 1 Totals rows 6 and 5 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Months of Construction	31
Days of Construction Per Month	21

					Percentage		
Weeks By Year	2022	2023	2024	Total	2022	2023	2024
Demolition & Site Prep	8	0	0	8	100%	0%	0%
Grading & Ground Improvements	16	0	0	16	100%	0%	0%
Building Construction	14	47	0	61	23%	77%	0%
Rebuilding Envelope + Interior Build Out	0	28	32	60	0%	47%	53%
Sitework	0	0	25	25	0%	0%	100%
Startup & Commissioning	0	0	7	7	0%	0%	100%

Notes: Total weeks taken from the Equip Assumptions tab (Row 4).

	tons				
2022	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.010	0.451	0.049	0.002	0.002
Grading & Ground Improvements	0.023	0.850	0.135	0.003	0.003
Building Construction	0.010	0.457	0.052	0.002	0.002
Rebuilding Envelope + Interior Buildout	0.000	0.000	0.000	0.000	0.000
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2022 Total Off-Road Equipment Emissions	0.043	1.758	0.235	0.007	0.006

	tons				
2023	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.034	1.536	0.174	0.005	0.005
Rebuilding Envelope + Interior Buildout	0.022	1.165	0.095	0.003	0.003
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2023 Total Off-Road Equipment Emissions	0.056	2.700	0.269	0.008	0.008

	tons				
2024	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.000	0.000	0.000	0.000	0.000
Rebuilding Envelope + Interior Buildout	0.025	1.331	0.109	0.003	0.003
Sitework	0.041	2.536	0.198	0.006	0.006
Startup & Commissioning	0.002	0.052	0.008	0.000	0.000
2024 Total Off-Road Equipment Emissions	0.068	3.920	0.315	0.010	0.010

					Percentage		
Trips By Year	2022	2023	2024	Total	2022	2023	2024
Concrete Trucks	2733	3756	400	6889	40%	55%	6%
Haul Trucks	6480	2999	2763	12242	53%	24%	23%
Workers	1929	9619	6135	17683	11%	54%	35%

	tons						
2022	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$M_{2.5}$ TW-BW
Concrete Trucks	0.000	0.001	0.034	0.000	0.002498889	0.000	0.00071
Haul Trucks	0.020	0.173	0.237	0.004	0.036856887	0.004	0.01058
Workers	0.002	0.058	0.004	0.000	0.005488563	0.000	0.0014
2022 Total On-Road Equipment Emissions	0.023	0.231	0.275	0.004	0.045	0.004	0.013

	tons						
2023	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$M_{2.5}$ TW-BW
Concrete Trucks	0.000	0.001	0.046	0.000	0.003434572	0.000	0.00098
Haul Trucks	0.009	0.080	0.110	0.002	0.017057028	0.002	0.0049
Workers	0.012	0.287	0.021	0.000	0.027368837	0.000	0.00696
2023 Total On-Road Equipment Emissions	0.021	0.368	0.177	0.003	0.048	0.002	0.013

	tons						
2024	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$M_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.005	0.000	0.000365769	0.000	0.0001
Haul Trucks	0.009	0.074	0.101	0.002	0.015714761	0.002	0.00451
Workers	0.008	0.183	0.013	0.000	0.017455585	0.000	0.00444
2024 Total On-Road Equipment Emissions	0.016	0.257	0.120	0.002	0.034	0.002	0.009

Off-Road Construction Emissions - Building 2
Tier 4 Final Equipment for Engines >25 HP
Construction Exhaust Emissions

Project Phase/Equipment [1]		Number	Usage Factor (hrs/day)	Total Hours/Day (Number * Usage Factor)	Total Days[1]	Horsepower	LookUp Value	Total Runtime Hours	Load Factor [2]	Emissions Factors (g/bhp-hr)					Emissions (tons/phase)				
										ROG	CO	NOx	PM_{10}	$PM_{2.5}$	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
Demolition & Site Prep															*0.01*	*0.45*	*0.05*	*0.00*	*0.00*
Air Compressors	Air Compressors	2	4	8	20	78	C	160	0.48	0.06	3.70	0.26	0.01	0.01	0.00	0.02	0.00	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	0	4	0	20	81	C	0	0.73	0.06	3.70	0.26	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Crushing/Processing Equipment	Crushing/Proc. Equipment	1	6	6	30	85	C	180	0.78	0.06	3.70	0.26	0.01	0.01	0.00	0.05	0.00	0.00	0.00
Excavators	Excavators	2	8	16	40	158	D	640	0.38	0.06	3.70	0.26	0.01	0.01	0.00	0.16	0.01	0.00	0.00
Forklifts, Rough Terrain	Rough Terrain Forklifts	1	6	6	30	100	C	180	0.40	0.06	3.70	0.26	0.01	0.01	0.00	0.03	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	40	84	C	320	0.74	0.06	3.70	0.26	0.01	0.01	0.00	0.08	0.01	0.00	0.00
Rubber Tired Loaders (demo)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.06	2.20	0.26	0.01	0.01	0.00	0.03	0.00	0.00	0.00
Signal Boards	Signal Boards	2	9	18	40	6	NA	720	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.01	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	0	6	0	40	64	B	0	0.46	0.12	3.70	2.74	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.06	2.20	0.26	0.01	0.01	0.00	0.07	0.01	0.00	0.00
Grading & Ground Improvements															*0.02*	*0.85*	*0.13*	*0.00*	*0.00*
Bore/Drill Rigs (auger cast)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.06	2.20	0.26	0.01	0.01	0.00	0.11	0.01	0.00	0.00
Bore/Drill Rigs (stone columns)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.06	2.20	0.26	0.01	0.01	0.00	0.11	0.01	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	2	5	10	40	16	NA	400	0.38	0.217	0.896	1.660	0.062	0.057	0.00	0.00	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	60	84	C	480	0.74	0.06	3.70	0.26	0.01	0.01	0.00	0.12	0.01	0.00	0.00
Graders	Graders	3	8	24	40	187	E	960	0.41	0.06	2.20	0.26	0.01	0.01	0.00	0.18	0.02	0.00	0.00
Concrete Pumps	Pumps	0	6	0	100	84	C	0	0.74	0.06	3.70	0.26	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.12	3.70	2.74	0.01	0.01	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	8	16	60	97	C	960	0.37	0.06	3.70	0.26	0.01	0.01	0.00	0.14	0.01	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	60	402	F	360	0.38	0.06	2.20	0.26	0.01	0.01	0.00	0.13	0.02	0.00	0.00
Building Construction															*0.04*	*1.99*	*0.23*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	0	6	0	80	63	B	0	0.31	0.12	3.70	2.74	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Air Compressors	Air Compressors	4	4	16	80	78	C	1280	0.48	0.06	3.70	0.26	0.01	0.01	0.00	0.20	0.01	0.00	0.00
Cranes (Precast)	Cranes	4	8	32	80	231	E	2560	0.29	0.06	2.20	0.26	0.01	0.01	0.01	0.41	0.05	0.00	0.00
Cranes (Steel)	Cranes	2	6	12	60	231	E	720	0.29	0.06	2.20	0.26	0.01	0.01	0.00	0.12	0.01	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.06	3.70	0.26	0.01	0.01	0.00	0.14	0.01	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.06	3.70	0.26	0.01	0.01	0.00	0.14	0.01	0.00	0.00
Forklifts (Steel)	Forklifts	4	8	32	80	89	C	2560	0.20	0.06	3.70	0.26	0.01	0.01	0.00	0.19	0.01	0.00	0.00
Generator Sets	Generator Sets	4	6	24	80	84	C	1920	0.74	0.06	3.70	0.26	0.01	0.01	0.01	0.49	0.03	0.00	0.00
Plate Compactors (building phase)	Plate Compactors	4	8	32	120	8	NA	3840	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.02	0.03	0.00	0.00
Concrete Pumps	Pumps	0	6	0	100	84	C	0	0.74	0.06	3.70	0.26	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	1	6	6	40	65	B	240	0.37	0.12	3.70	2.74	0.01	0.01	0.00	0.02	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	0	6	0	60	64	B	0	0.46	0.12	3.70	2.74	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Tractors/Loaders/Backhoes (building phase)	Tractors/Loaders/Backhoes	2	8	16	80	97	C	1280	0.37	0.06	3.70	0.26	0.01	0.01	0.00	0.19	0.01	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.06	2.20	0.26	0.01	0.01	0.00	0.07	0.01	0.00	0.00
Welders	Welders	0	8	0	60	46	A	0	0.45	0.12	4.10	2.75	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Rebuilding Envelope + Interior Buildout															*0.05*	*2.50*	*0.20*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	0	6	0	100	63	B	0	0.31	0.12	3.70	2.74	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Cranes (MEP)	Cranes	2	8	16	100	231	E	1600	0.29	0.06	2.20	0.26	0.01	0.01	0.01	0.26	0.03	0.00	0.00
Cranes (Cladding)	Cranes	2	8	16	120	231	E	1920	0.29	0.06	2.20	0.26	0.01	0.01	0.01	0.31	0.04	0.00	0.00
Forklifts (MEP)	Forklifts	10	8	80	120	89	C	9600	0.20	0.06	3.70	0.26	0.01	0.01	0.01	0.70	0.05	0.00	0.00
Generator Sets	Generator Sets	2	8	16	120	84	C	1920	0.74	0.06	3.70	0.26	0.01	0.01	0.01	0.49	0.03	0.00	0.00
Pressure Washers	Pressure Washers	0	4	0	60	13		0	0.30	0.160	0.973	1.320	0.057	0.052	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	2	4	8	40	80	C	320	0.38	0.06	3.70	0.26	0.01	0.01	0.00	0.04	0.00	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	4	8	20	263	E	160	0.30	0.06	2.20	0.26	0.01	0.01	0.00	0.03	0.00	0.00	0.00
Tractors/Loaders/Backhoes (arch)	Tractors/Loaders/Backhoes	2	6	12	40	97	C	480	0.37	0.06	3.70	0.26	0.01	0.01	0.00	0.07	0.00	0.00	0.00
Tractors/Loaders/Backhoes (mep)	Tractors/Loaders/Backhoes	4	8	32	120	97	C	3840	0.37	0.06	3.70	0.26	0.01	0.01	0.01	0.56	0.04	0.00	0.00
Trenchers	Trenchers	1	6	6	40	78	C	240	0.50	0.06	3.70	0.26	0.01	0.01	0.00	0.04	0.00	0.00	0.00
Welders	Welders	0	8	0	60	46	A	0	0.45	0.12	4.10	2.75	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Sitework															*0.04*	*2.54*	*0.20*	*0.01*	*0.01*
AC Rollers	Rollers	2	4	8	50	80	C	400	0.38	0.06	3.70	0.26	0.01	0.01	0.00	0.05	0.00	0.00	0.00
Air Compressors Truck Mounted	Air Compressors	2	4	8	60	78	C	480	0.48	0.06	3.70	0.26	0.01	0.01	0.00	0.07	0.01	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	0	4	0	20	81	C	0	0.73	0.06	3.70	0.26	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	Crawler Tractors	2	4	8	40	212	E	320	0.43	0.06	2.20	0.26	0.01	0.01	0.00	0.07	0.01	0.00	0.00
Excavators (paving)	Excavators	2	6	12	30	158	D	360	0.38	0.06	3.70	0.26	0.01	0.01	0.00	0.09	0.01	0.00	0.00
Excavators (utilities)	Excavators	2	6	12	60	158	D	720	0.38	0.06	3.70	0.26	0.01	0.01	0.00	0.18	0.01	0.00	0.00
Graders	Graders	2	6	12	40	187	E	480	0.41	0.06	2.20	0.26	0.01	0.01	0.00	0.09	0.01	0.00	0.00
Oil Dirtbuter	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.06	2.20	0.26	0.01	0.01	0.00	0.06	0.01	0.00	0.00
Pavers	Pavers	2	8	16	10	130	D	160	0.42	0.06	3.70	0.26	0.01	0.01	0.00	0.04	0.00	0.00	0.00
Paving Equipment	Paving Equipment	2	8	16	10	132	D	160	0.36	0.06	3.70	0.26	0.01	0.01	0.00	0.03	0.00	0.00	0.00
Plate Compactors (site phase)	Plate Compactors	2	4	8	60	8		480	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders (utilities)	Rubber Tired Loaders	4	6	24	60	247	E	1440	0.36	0.06	2.20	0.26	0.01	0.01	0.01	0.31	0.04	0.00	0.00
Rubber Tired Loaders (paving)	Rubber Tired Loaders	2	6	12	40	203	E	480	0.36	0.06	2.20	0.26	0.01	0.01	0.00	0.09	0.01	0.00	0.00
Scrapers	Scrapers	2	4	8	20	367	F	160	0.48	0.06	2.20	0.26	0.01	0.01	0.00	0.07	0.01	0.00	0.00
Signal Boards	Signal Boards	8	9	72	30	6		2160	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.03	0.04	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	6	12	60	263	E	720	0.30	0.06	2.20	0.26	0.01	0.01	0.00	0.14	0.02	0.00	0.00
Tack Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.06	2.20	0.26	0.01	0.01	0.00	1.00	0.01	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	6	12	60	97	C	720	0.37	0.06	3.70	0.26	0.01	0.01	0.00	0.11	0.01	0.00	0.00
Trenchers	Trenchers	1	6	6	60	78	C	360	0.50	0.06	3.70	0.26	0.01	0.01	0.00	0.06	0.00	0.00	0.00
Water Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.06	2.20	0.26	0.01	0.01	0.00	0.06	0.01	0.00	0.00
Startup & Commissioning															0.00	0.05	*0.01*	0.00	0.00
Aerial Lifts (jlg)	Aerial Lifts	0	6	0	30	63	B	0	0.31	0.12	3.70	2.74	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Forklift (demobilization)	Forklifts	1	8	8	30	89	C	240	0.20	0.06	3.70	0.26	0.01	0.01	0.00	0.02	0.00	0.00	0.00
Rubber Tired Loaders (landscaping)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.06	2.20	0.26	0.01	0.01	0.00	0.03	0.00	0.00	0.00
Signal Boards	Signal Boards	1	6	6	30	6		180	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	0	6	0	20	64	B	0	0.46	0.12	3.70	2.74	0.01	0.01	0.00	0.00	0.00	0.00	0.00
														Total Off-Road Emissions (tons)	0.17	8.38	0.82	0.02	0.02

On-Road Construction Emissions - Building 2

Project Component/On-Road Vehicles[3]	Total Trips	Trip Distance (One-way)	Total VMT	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)												Emissions (tons/phase)											
				ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW
Total Trips for Building 2																*0.0420*	*0.0181*	*0.0420*	*0.1914*	*0.4911*	*0.0811*	*0.0086*	*0.0001*	*0.1262*	*0.0082*	*0.0001*	*0.0346*
Concrete Trucks	13,778	1.9	26,177	0.0141	0.0000	0.0743	0.0000	1.2252	3.2761	0.0154	0.0000	0.2183	0.0148	0.0000	0.0622	0.0004	0.0000	0.0004	0.0000	0.0354	0.0498	0.0004	0.0000	0.0063	0.0004	0.0000	0.0018
Haul Trucks	24,485	13.7	334,213	0.0959	0.0937	0.7679	1.6128	1.1648	0.7079	0.0200	0.0002	0.1890	0.0191	0.0002	0.0543	0.0353	0.0025	0.0353	0.0435	0.4291	0.0191	0.0074	0.0000	0.0696	0.0071	0.0000	0.0200
Workers	35,366	10.8	381,953	0.0149	0.3995	0.9021	3.7944	0.0633	0.3132	0.0018	0.0022	0.1195	0.0017	0.0021	0.0304	0.0063	0.0156	0.0063	0.1479	0.0266	0.0122	0.0008	0.0001	0.0503	0.0007	0.0001	0.0128
															Total On-Road Emissions (tons)	0.0420	0.0181	0.0420	0.1914	0.4911	0.0811	0.0086	0.0001	0.1262	0.0082	0.0001	0.0346

Constants	
lb	grams
1	453.59237
ton	lbs
1	2000

Trip Length Assumptions - CalEEMod	miles	
Workers	10.8	
Vendor	7.3	
Haul Trucks	20	
Concrete Trucks	1.9	Based on RFI of project-specific concrete source, distance to Central Concrete Supply

Sources:

1 Equipment types, quantities, daily usage, and horsepower from SF Gateway_Equipment List Emissions Calculation - DPR Estimates 200428
2 Load factors from CalEEMod default tables (Appendix D)
3 Truck and worker trips based on Building 2 Totals rows 8 and 7 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Months of Construction	31
Days of Construction Per Month	21

					Percentage		
Weeks By Year	2022	2023	2024	Total	2022	2023	2024
Demolition & Site Prep	8	0	0	8	100%	0%	0%
Grading & Ground Improvements	10	6	0	16	63%	38%	0%
Building Construction	0	51	10	61	0%	84%	16%
Rebuilding Envelope + Interior Build Out	0	12	48	60	0%	20%	80%
Sitework	0	0	25	25	0%	0%	100%
Startup & Commissioning	0	0	7	7	0%	0%	100%

Notes: Total weeks taken from the Equip Assumptions tab (Row 4).

	tons				
2022	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.010	0.451	0.049	0.002	0.002
Grading & Ground Improvements	0.014	0.531	0.084	0.002	0.002
Building Construction	0.000	0.000	0.000	0.000	0.000
Rebuilding Envelope + Interior Buildout	0.000	0.000	0.000	0.000	0.000
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2022 Total Off-Road Equipment Emissions	0.024	0.982	0.133	0.004	0.004

	tons				
2023	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.009	0.319	0.050	0.001	0.001
Building Construction	0.037	1.666	0.188	0.006	0.006
Rebuilding Envelope + Interior Buildout	0.009	0.499	0.041	0.001	0.001
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2023 Total Off-Road Equipment Emissions	0.055	2.484	0.280	0.008	0.008

	tons				
2024	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.007	0.327	0.037	0.001	0.001
Rebuilding Envelope + Interior Buildout	0.038	1.997	0.163	0.005	0.005
Sitework	0.041	2.536	0.198	0.006	0.006
Startup & Commissioning	0.002	0.052	0.008	0.000	0.000
2024 Total Off-Road Equipment Emissions	0.088	4.912	0.406	0.013	0.013

					Percentage		
Trips By Year	2022	2023	2024	Total	2022	2023	2024
Concrete Trucks	0	5759	1130	6888.75	0%	84%	16%
Haul Trucks	4475	3854	3913	12242.25	37%	31%	32%
Workers	686	7015	9982	17683	4%	40%	56%

	tons						
2022	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.000	0.000	0	0.000	0
Haul Trucks	0.014	0.029	0.164	0.003	0.025451884	0.003	0.007308939
Workers	0.001	0.006	0.002	0.000	0.001951888	0.000	0.000496503
2022 Total On-Road Equipment Emissions	0.015	0.035	0.165	0.003	0.027	0.003	0.008

	tons						
2023	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.071	0.000	0.005265932	0.000	0.00149988
Haul Trucks	0.012	0.025	0.141	0.002	0.021921324	0.002	0.006295079
Workers	0.009	0.061	0.015	0.000	0.019959704	0.000	0.005077212
2023 Total On-Road Equipment Emissions	0.021	0.086	0.228	0.003	0.047	0.003	0.013

	tons						
2024	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.014	0.000	0.001033298	0.000	0.000294311
Haul Trucks	0.012	0.025	0.143	0.002	0.022255469	0.002	0.006391034
Workers	0.012	0.087	0.022	0.000	0.028401677	0.000	0.007224623
2024 Total On-Road Equipment Emissions	0.025	0.112	0.179	0.003	0.052	0.003	0.014

Fugitive Dust Emissions

Truck Loading and Stockpiling Emissions

Material Import/Excavation Quantities

	Excavation (cubic yards)	Fill Volume (cubic yards)	Notes/Source
OnSite	134,000	2,000	1
Street Improvements	6,600		1

Assumptions	Excavation (CY)	Excavation (tons)	Import (CY)	Import (tons)
Soil	140,600	177,742	2,000	2,528

Total Emissions from Stockpiling and Truck Loading Soils	Soil		Uncontrolled Emissions (tons)		Controlled Emissions (tons)	
	PM10 (lbs)	PM2.5 (lbs)	PM10	PM2.5	PM10	PM2.5
Excavation	28.17	4.27	0.01408	0.00213	0.00366	0.00055
Import	0.40	0.06	0.00020	0.00003	0.00005	0.00001
		Building 1 Total	0.00714	0.00108	0.00186	0.00028
		Building 2 Total	0.00714	0.00108	0.00186	0.00028

Storage Pile and Truck Loading Fugitive Dust Emission Factors

$E_D = k \times (0.0032) \times ((U/5)^{1.3})/((M/2)^{1.4})$

Variable	Amount	Units	Notes
EF (PM_{10}) for soil	0.000158	lb/ton	
EF ($PM_{2.5}$) for soil	0.000024	lb/ton	
k (PM_{10})	0.35	factor	
k ($PM_{2.5}$)	0.053	factor	
U (mean wind speed)	7.65	miles/hr	Based on 2008 Mission Bay meterological station data of 3.42 m/s
M (moisture content) of saturated soil	12.00	percent	Based on default moisture content in CalEEMod User's Guide (Appendix A)
Soil density (CalEEMod default)	1.26	tons/cy	
M (moisture content) of demolition debris	2.00	percent	Based on CalEEMod default using MRI report (Appendix A)
E (lbs) = EF (lb/ton) x TP (tons)			

Earthwork Emissions

Building 1 Total Earthwork Emissions

Building 1	Number of Earthworking Equipment	Daily Activity Level	Total Activity Level	Days	Acres Graded/Day	Total Acres Graded	Total VMT	Uncontrolled Emissions (tons) PM10	Uncontrolled Emissions (tons) PM2.5	Controlled Emissions (tons) PM10	Controlled Emissions (tons) PM2.5
Grading and Ground Improvements - Graders	3	8	24	40	12	480	330.00	0.25	0.03	0.07	0.01
Sitework - Scraper	2	4	8	20	4	80	55.00	0.04	0.00	0.01	0.00
Sitework - Crawler Tractor	2	4	8	40	2	80	55.00	0.04	0.00	0.01	0.00
Sitework - Graders	2	6	12	40	5	180	123.75	0.10	0.01	0.02	0.00
							Building 1 Total Earthwork Emissions (tons)	0.43	0.05	0.11	0.01

Building 2 Total Earthwork Emissions

Building 2	Number of Earthworking Equipment	Daily Activity Level	Total Activity Level	Days	Acres Graded/Day	Total Acres Graded	Total VMT	Uncontrolled Emissions (tons) PM10	Uncontrolled Emissions (tons) PM2.5	Controlled Emissions (tons) PM10	Controlled Emissions (tons) PM2.5
Grading and Ground Improvements - Graders	3	8	24	40	12	480	330.00	0.25	0.03	0.07	0.01
Sitework - Scraper	2	4	8	20	4	80	55.00	0.04	0.00	0.01	0.00
Sitework - Crawler Tractor	2	4	8	40	2	80	55.00	0.04	0.00	0.01	0.00
Sitework - Graders	2	6	12	40	5	180	123.75	0.10	0.01	0.02	0.00
							Building 2 Total Earthwork Emissions (tons)	0.43	0.05	0.11	0.01

Building 2 Percentage of Ground Disturbance Activities in 202	63%
Building 2 Percentage of Ground Disturbance Activities in 202	38%

Scraping and Grading Fugitive Dust Emissions

	TSP ≤ 30 µm	≤ 15 µm	lb/VMT PM10	lb/VMT PM2.5
Formulas for Emission Factors (lb/VMT)	0.040 (S)^2.5	0.051 (S)^2.0	1.542546	0.16655879

Scaling Factor (PM10/≤15µm) 0.6

Scaling Factor (PM2.5/TSP) 0.031

S (mean vehicle speed, mph) AP-42 default= 7.1

VMT = As/Wb x UC1 ÷ UC2

As = the acreage of the grading site (acre/day).

Wb = Blade width of the grading equipment. The program uses a default blade width of 12 feet based on Caterpillar's 140 Motor Grader (Caterpillar 2021).

UC1 = unit conversion from acre to square feet (43,560 sqft/acre)

UC2 = unit conversion from feet to miles (5,280 feet/mile).

Equipment	Acres Graded per 8-Hour Day
Crawler Tractor	0.5
Graders	0.5
Rubber Tired Dozer	0.5
Scrapers	1

Source: CalEEMod Table G-14, Formulas based on CalEEMod User's Guide Section 4.4.1 and AP-42 Table 11.9-1 for grading-related fugitive dust emissions.

Controlled Emissions Application 74%

Notes: Assumes implementation of fugitive dust control practices per San Francisco Dust Control Ordinance

Based on assumption of watering 3 times per day per Sec. 1242(c)(1)

Fugitive dust control efficacy based on CalEEMod User's Guide Appendix C

Demolition Activities Emissions

	Uncontrolled Emissions PM10 (tons)	Uncontrolled Emissions PM2.5 (tons)	Controlled Emissions PM10 (tons)	Controlled Emissions PM2.5 (tons)
Mechanical or Explosive Dismemberment Dust Emissions	0.020	0.003	0.013	0.002
Debris Loading	0.21	0.03	0.134	0.020

			Source/Notes:
Building square footage to be demolished	448,000	square feet	2
Building waste (tons)	20,608.00	tons	3

Mechanical or Explosive Dismemberment	$E_D = EF_D \times W$
Debris Loading	$EF_L = k \times EF_{L\text{-}TSP}$

Source: CalEEMod Appendix A Mechanical/Explosive Dismemberment Emission Factors

1 sq. ft. represents 0.046 ton of waste material 0.046

$EF_{D\text{-}PM10}$	0.00194687
$EF_{D\text{-}PM2.5}$	0.00029481
EF_{LTSP}	0.058 lb/ton

Controlled Emissions Application 36%

Notes: Assumes implementation of fugitive dust control practices per San Francisco Dust Control Ordinance

Based on assumption of watering demolished area twice per 8-hour workday

Fugitive dust control efficacy based on CalEEMod User's Guide Appendix C

Conversion Factors	
tons	pounds
1	2000
cubic feet	cubic yards
27	1
feet	mile
5280	1
sq ft.	acre
43560	1

Sources:

1 Attachment A - Updated Project Sponsor RFI Response.pdf, provided on 20March2020

2 180918-RFI Resp_Construction w attach.pdf.

3 CalEEMod User's Guide

Paved Roads Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight of vehicles based on CARB 2021
P	64	number of "wet" days with at least 0.254 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mi
EF (PM2.5)	0.024951348	g/mi

Conversion Units	
lbs	tons
2000	1
lb	grams
1	453.59237

Sources:

1 Truck and worker trips based on totals for both buildings rows 10 and 9 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Architectural Coatings

	2023	2024
Building 1	47%	53%
Building 2	20%	80%

B1 Total Arch Coating and Parking Related VOC Emissions (tons)	1.04
B2 Total Arch Coating and Parking Related VOC Emissions (tons)	1.04

	Total Sq. Ft.	Source/Note
Building 1	1,080,000	1
Building 2	1,080,000	

	Architectural Coatings		
	sq. ft.	VOC Emissions (lbs)	VOC Emissions (tons)
B1 Interior Surface Area (A)	274,937	1,274.70	0.64
B1 Exterior Surface Area (A)	see details below	486.04	0.24
B2 Interior Surface Area (A)	274,937	1,274.70	0.64
B2 Exterior Surface Area (A)	see details below	486.04	0.24

Assumptions: Project specific information for exterior shell coatings and square footage.
Interior surface for painting based on 08Jun20 email indicating total interior painting for both buildings is 549,873 sf.

CalEEMod Default Assumptions		Unit	Sources/Notes:
NonResidential Interior	100	g/L	CalEEMod Appendix D
NonResidential Exterior	150	g/L	CalEEMod Appendix D

Interior EF_{AC} (lb/sq.ft) 0.004636337
Exterior EF_{AC} (lb/sq.ft) 0.006954506

Painting of Stripes, Handicap Symbols, Directional Arrows, etc.			Sources/Notes
Paved Areas	5.78	acres	2
Onsite	252,000	square feet	2
City Street	292,000	square feet	3
Accessory Parking	599,400	square feet	4
Logistics Yard	145,800	square feet	4
Vehicle Circulation	239,600	square feet	4

		Parking-Related Paint	
	square feet	VOC Emissions (lbs)	VOC Emissions (tons)
A_{Paint}	91,728	637.92	0.32

CalEEMod Default Assumptions
Parking Lot Paint 150 g/L

Parking EF AC (lb/sq.ft) 0.006954506 lb/sq.ft

Conversion Factors	
tons	pounds
1	2000
sq. ft.	acre
43560	1
grams	lb
453.592	1
L	gal
3.78541	1
L	oz
1	33.814

Exterior Building A	Type of Coating	Square Feet	Notes/Assumptions
North Elevations	Site applied painting	14874	width x height of green area on page 1 of 200608-AQ Coatings-CUA-exterior elevations PDF
North Elevations	Anti-graffiti coatings	6555	width x height of dark blue area on page 1 of 200608-AQ Coatings-CUA-exterior elevations PDF
North Elevations	Factory finished metal panel/glazing system site applied sealants	1450	width divided by 10ft (average width of the panels). (580/10 = 58 panels). 1/4 inch bead x height (100 ft). Per https://www.cecobuildings.com/wp-content/uploads/2018/10/Insulated-Panels-Installation-Manual.pdf (Page 24/84)
South Elevations	Factory finished metal panel/glazing system site applied sealants	317.75	width divided by 10ft (average width of the panels). (410/10 = 41 panels). 1/4 inch bead x height (31 ft). Per https://www.cecobuildings.com/wp-content/uploads/2018/10/Insulated-Panels-Installation-Manual.pdf (Page 24/84)
South Elevations	Anti-graffiti coatings	12710	width x height of dark blue area
South Elevations	Pre-cast concrete guardrails w sealants	0	width of pre-cast concrete panels, assumed to be accounted in sealants above.
West Elevation	Pre-cast concrete guardrails w sealants	0	width of pre-cast concrete panels, assumed to be accounted in sealants above.
West Elevation	Site applied painting	4518	width x height of green area
East and West Elevation	Anti-graffiti coatings	12360	width x height
East West Elevation	Factory finished metal panel/glazing system site applied sealants	1495	width divided by 10ft (average width of the panels). (260/10 = 26 panels). 1/4 inch bead x height (115 ft). Per https://www.cecobuildings.com/wp-content/uploads/2018/10/Insulated-Panels-Installation-Manual.pdf (Page 24/84)

VOC Contents of Different Coatings	g/L	lb/sq. ft.	Note	
Site-applied painting	150	0.006954506	CalEEMod Default	
Anti-graffiti coating	225	0.010431759	ARB page	
Metal panel site applied sealant	250	0.006519857	BAAQMD Reg 8 Rule 51	Assumes 25 feet at 1/4inch application per 10 oz. tube (or 2.5 feet/oz.) per https://www.mbci.com/products/components/accessories/insulated-metal-panels/tape-and-sealant/

Square footage by coating per building - Exterior	Sq. Ft.	VOC emissions (lbs)	VOC emissions (tons)
Site-applied painting	19,392	135	0.07
Anti-graffiti coating	31,625	330	0.16
Metal panel site applied sealant	3,263	21	0.01

Sources/Notes

1 Total square gross square footage for new buildings - Oct 2019 Project Description in 2020.03.05 AQ/HRA Memo
2 2018.09.18 Construction Info RFI - area of paved areas
3 City street square footage improvements from 03.02.20 REV to construction RFI (Page 72/97 of 2020.03.05 AQTR_HRA Methodology Memo)
4 01/27/2020 Draft Final Trip Gen Memo

Asphalt Paving Off-Gassing Emissions

	lbs VOC	tons VOC
Asphalt Paving Off-Gassing	32.97355409	0.016486777

Project Information				Source/Notes
On-Site Paving		acres	5.78	1
City Street Repavement	292000	sq. ft.	6.703	2
Sidewalk Installation	4440	sq. ft.	0.102	2
Total Paved Acreage			12.585	

CalEEMod Assumption (lb VOC/acre) 2.62
Source: CalEEMod User's Guide Appendix A

Conversion Factors	
tons	pounds
1	2000
sq. ft.	acre
43560	1

Sources/Notes

1 2018.09.18 Construction Info RFI - area of paved areas
2 City street square footage improvements from 03.02.20 REV to construction RFI (Page 72/97 of 2020.03.05 AQTR_HRA Methodology Memo)

HRA Inputs (Tier 4 Interim Emissions for Off-Road Equipment >25 HP)

Off-Road Emission Sources (Diesel-Fueled)

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] Fug Dust
2022	B1 Off-Road Equipment Exhaust	0.07896	0.01498	0.02360
2022	B2 Off-Road Equipment Exhaust	0.04064	0.00579	0.01891

1. Fugitive dust accounts for emissions associated with onsite truck loading, stockpiling, demolition, and equipment passes.

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] Fug Dust
2023	B1 Off-Road Equipment Exhaust	0.11860	0.03125	-
2023	B2 Off-Road Equipment Exhaust	0.11707	0.03129	0.00468

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Fug Dust
2024	B1 Off-Road Equipment Exhaust	0.10458	0.01550	-
2024	B2 Off-Road Equipment Exhaust	0.14443	0.02465	-

On-Road Emission Sources (Gas- and Diesel-Fueled)

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2022	On-Road Concrete Truck Emissions	Diesel	0.000161	0.000169	0.000712
2022	On-Road Haul Truck Emissions	Gas	0.014744	0.002748	0.007784
2022	On-Road Truck Emissions	Diesel	0.019148	0.003568	0.010109

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2023	On-Road Concrete Truck Emissions	Diesel	0.000561	0.000588	0.002478
2023	On-Road Haul Truck Emissions	Gas	0.009223	0.001719	0.004869
2023	On-Road Truck Emissions	Diesel	0.011979	0.002232	0.006324

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW TW
2024	On-Road Concrete Truck Emissions	Diesel	0.000090	0.000095	0.000398
2024	On-Road Haul Truck Emissions	Gas	0.008985	0.001674	0.004743
2024	On-Road Truck Emissions	Diesel	0.011669	0.002175	0.006160

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2022	On-Road Worker Emissions	Gas	0.003211	0.000117	0.001882
2022	On-Road Worker Emissions	Diesel	0.000019	0.000001	0.000011

1. PM2.5 BW and TW includes brake wear, tire wear, and re-entrained paved road dust.

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW TW
2023	On-Road Worker Emissions	Gas	0.020424	0.000744	0.011968
2023	On-Road Worker Emissions	Diesel	0.000121	0.000004	0.000071

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW TW
2024	On-Road Worker Emissions	Gas	0.019789	0.000721	0.011596
2024	On-Road Worker Emissions	Diesel	0.000117	0.000004	0.000069

Total On-Road Emission Sources (Gas and Diesel-Fueled)

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2022	B1 Concrete Trucks	0.0002	0.0002	0.0007
2022	B2 Concrete Trucks	0.0000	0.0000	0.0000
2022	B1 Haul Trucks	0.0200	0.0037	0.0106
2022	B2 Haul Trucks	0.0138	0.0026	0.0073
2022	B1 Workers	0.0024	0.0001	0.0014
2022	B2 Workers	0.0008	0.0000	0.0005
2023	B1 Concrete Trucks	0.000	0.000	0.001
2023	B2 Concrete Trucks	0.000	0.000	0.001
2023	B1 Haul Trucks	0.009	0.002	0.005
2023	B2 Haul Trucks	0.012	0.002	0.006
2023	B1 Workers	0.012	0.000	0.007
2023	B2 Workers	0.009	0.000	0.005
2024	B1 Concrete Trucks	0.000	0.000	0.000
2024	B2 Concrete Trucks	0.000	0.000	0.000
2024	B1 Haul Trucks	0.0085	0.0016	0.0045
2024	B2 Haul Trucks	0.0121	0.0023	0.0064
2024	B1 Workers	0.0076	0.0003	0.0044
2024	B2 Workers	0.0123	0.0004	0.0072

Default Trip Lengths (miles)

Concrete	1.9	<--- 'Exhaust - Building 1' G96
Trucks	13.65	<--- Avg of Haul & Vendor (7.3 + 20)/2
Workers	10.80	

Haul Truck Fleet Mix Summary

Gas	44%
Diesel	56%

Worker Fleet Mix Summary

Gas	99%
Diesel	1%

Worker Fleet Mix Details

Category	Fuel Type	VMT	% VMT
LDA	GAS	4702683.447	58%
LDA	DSL	18638.27687	0%
LDT1	GAS	422281.6773	5%
LDT1	DSL	104.3144839	0%
LDT2	GAS	2110435.707	26%
LDT2	DSL	11021.16229	0%
MDV	GAS	880373.4691	11%
MDV	DSL	18310.32213	0%

Truck Fleet Mix Details

Category	Fuel Type	VMT	% VMT
LHD1	GAS	3059105.244	39%
LHD1	DSL	1767081.451	22%
LHD2	GAS	397306.0189	5%
LHD2	DSL	743793.2889	9%
T6 instate c	DSL	1242965.508	16%
T7 tractor	DSL	735071.6453	9%

HRA Inputs (Tier 4 Final Emissions for Off-Road Equipment >25 HP)

Off-Road Emission Sources (Diesel-Fueled)

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] Fug Dust
2022	B1 Off-Road Equipment Exhaust	0.04313	0.00647	0.02360
2022	B2 Off-Road Equipment Exhaust	0.02432	0.00368	0.01891

1. Fugitive dust accounts for emissions associated with onsite truck loading, stockpiling, demolition, and equipment passes.

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] Fug Dust
2023	B1 Off-Road Equipment Exhaust	0.05623	0.00808	-
2023	B2 Off-Road Equipment Exhaust	0.05519	0.00810	0.00468

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Fug Dust
2024	B1 Off-Road Equipment Exhaust	0.06811	0.00993	-
2024	B2 Off-Road Equipment Exhaust	0.08796	0.01270	-

On-Road Emission Sources (Gas- and Diesel-Fueled)

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2022	On-Road Concrete Truck Emissions	Diesel	0.000161	0.000169	0.000712
2022	On-Road Haul Truck Emissions	Gas	0.014744	0.002748	0.007784
2022	On-Road Truck Emissions	Diesel	0.019148	0.003568	0.010109

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2022	On-Road Worker Emissions	Gas	0.003211	0.000117	0.001882
2022	On-Road Worker Emissions	Diesel	0.000019	0.000001	0.000011

1. PM2.5 BW and TW includes brake wear, tire wear, and re-entrained paved road dust.

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2023	On-Road Concrete Truck Emissions	Diesel	0.000561	0.000588	0.002478
2023	On-Road Haul Truck Emissions	Gas	0.009223	0.001719	0.004869
2023	On-Road Truck Emissions	Diesel	0.011979	0.002232	0.006324

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2023	On-Road Worker Emissions	Gas	0.020424	0.000744	0.011968
2023	On-Road Worker Emissions	Diesel	0.000121	0.000004	0.000071

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2024	On-Road Concrete Truck Emissions	Diesel	0.000090	0.000095	0.000398
2024	On-Road Haul Truck Emissions	Gas	0.008985	0.001674	0.004743
2024	On-Road Truck Emissions	Diesel	0.011669	0.002175	0.006160

			tons		
Year	Source	Fuel Type	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2024	On-Road Worker Emissions	Gas	0.019789	0.000721	0.011596
2024	On-Road Worker Emissions	Diesel	0.000117	0.000004	0.000069

Total On-Road Emission Sources (Gas and Diesel-Fueled)

		tons		
Year	Source	ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ [1] BW TW
2022	B1 Concrete Trucks	0.0002	0.0002	0.0007
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2023	B1 Haul Trucks	0.009	0.002	0.005
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2023	B2 Workers	0.009	0.000	0.005
2024	B1 Concrete Trucks	0.000	0.000	0.000
2024	B2 Concrete Trucks	0.000	0.000	0.000
2024	B1 Haul Trucks	0.0085	0.0016	0.0045
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Concrete	1.0	<--- 'Exhaust - Building 1' G96
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LHD1	DSL	1767081.451	22%
LHD2	GAS	397306.0189	5%
LHD2	DSL	743793.2889	9%
T6 instate c	DSL	1242965.508	16%
T7 tractor	DSL	735071.6453	9%

CalEEMod
Equipment HP and Load Factors

OFFROAD Equipment Type	Horsepower	Load Factor
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.50
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.201
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	171	0.42
Other General Industrial Equipmen	88	0.34
Other Material Handling Equipmen	168	0.40
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.40
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.30
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.50
Welders	46	0.45

OFFROAD Emission Factor Based on Engine Tier

Tier	Low HP	High HP	ROG, g/bhp-hr	CO, g/bhp-hr	NOx, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	Look Up Value
Tier 4 Interim	25	49	0.12	4.1	4.55	0.128	0.128	A
	50	74	0.12	3.7	2.74	0.112	0.112	B
	75	119	0.11	3.7	2.14	0.008	0.008	C
	120	174	0.06	3.7	2.15	0.008	0.008	D
	175	299	0.08	2.6	1.29	0.008	0.008	E
	300	599	0.08	2.6	1.29	0.008	0.008	F
	600	750	0.08	2.6	1.29	0.008	0.008	G
	751	2000	0.12	2.6	2.24	0.048	0.048	H

Source:

CalEEMod, Appendix D (Default Data Tables)

OFFROAD Emission Factor Based on Engine Tier

Tier	Low HP	High HP	ROG, g/bhp-hr	CO, g/bhp-hr	NOx, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	Look Up Value
Tier 4 Final	25	49	0.12	4.1	2.75	0.008	0.008	A
	50	74	0.12	3.7	2.74	0.008	0.008	B
	75	119	0.06	3.7	0.26	0.008	0.008	C
	120	174	0.06	3.7	0.26	0.008	0.008	D
	175	299	0.06	2.2	0.26	0.008	0.008	E
	300	599	0.06	2.2	0.26	0.008	0.008	F
	600	750	0.06	2.2	0.26	0.008	0.008	G
	751	2000	0.06	2.6	2.24	0.016	0.016	H

Source:

CalEEMod, Appendix D (Default Data Tables)

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: County
Region: San Francisco
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	% VMT	Trips	% Trips	ROG_RUNEX	ROG_STREX	CO_RUNEX	CO_STREX	NOx_RUNEX	NOx_STREX	CO2_RUNEX	CO2_STREX	CH4_RUNEX	CH4_STREX	PM10_RUNEX	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX	PM2_5_STREX	PM2_5_PMTW	PM2_5_PMBW
San Francisco	2022	LDA	Aggregate	Aggregate	Gasoline	132742.8798	4702683.447	4702683.447	0	54.33%	615941.7823	54.26%	0.013879416	0.391333706	0.892746758	3.808198255	0.052523306	0.291467632	304.6046995	73.60814038	0.003449703	0.081072956	0.001815359	0.00229744	0.008000002	0.009251521	0.001669176	0.002112512	0.002000001	0.003238032
San Francisco	2022	LDA	Aggregate	Aggregate	Diesel	665.3795647	18638.27687	18638.27687	0	0.22%	2854.520377	0.25%	0.040171722	0	0.467089276	0	0.218558625	0	260.8211562	0	0.0018659	0	0.022379395	0	0.008000002	0.009384797	0.021411272	0	0.002000001	0.003284679
San Francisco	2022	LDA	Aggregate	Aggregate	Electricity	7597.574173	325792.6611	0	325792.6611	3.76%	37876.71801	3.34%	0	0	0	0	0	0	0	0	0	0	0	0	0.008000002	0.004371165	0	0	0.002000001	0.001529908
San Francisco	2022	LDA	Aggregate	Aggregate	Plug-in Hybrid	2958.432742	134716.3579	69898.60838	64817.74948	1.56%	12233.11939	1.08%	0.002022246	0.175544867	0.265811972	1.369749453	0.004156081	0.116967433	165.7342204	67.23610091	0.000638619	0.043081691	0.001008447	0.002455418	0.008000002	0.004247392	0.00092723	0.002257666	0.002000001	0.001486587
San Francisco	2022	LDT1	Aggregate	Aggregate	Gasoline	13754.86927	422281.6773	422281.6773	0	4.88%	62099.75244	5.47%	0.029678066	0.543639436	1.411693391	5.274155512	0.115419391	0.380212988	358.0529418	88.15262974	0.006666655	0.104437395	0.002355454	0.002938091	0.008000002	0.01179721	0.002165855	0.002701703	0.002000001	0.004128992
San Francisco	2022	LDT1	Aggregate	Aggregate	Diesel	10.14100847	104.3144839	104.3144839	0	0.00%	29.82500532	0.00%	0.353547876	0	1.628898634	0	1.531587948	0	462.6517219	0	0.016421623	0	0.293312096	0	0.008000002	0.013718855	0.280623545	0	0.002000001	0.004801599
San Francisco	2022	LDT1	Aggregate	Aggregate	Electricity	27.33226582	944.5346625	0	944.5346625	0.01%	126.9741761	0.01%	0	0	0	0	0	0	0	0	0	0	0	0	0.008000002	0.00440186	0	0	0.002000001	0.001540651
San Francisco	2022	LDT1	Aggregate	Plug-in Hybrid	5.471938304	249.8403829	119.9877392	129.8526437	0.00%	22.92646469	0.00%	0.001871803	0.175544867	0.246037086	1.369749453	0.003846892	0.116967433	153.4045451	73.65650599	0.000585553	0.042739156	0.000618027	0.001639888	0.008000002	0.0042454	0.000568253	0.001507816	0.002000001	0.001494889
San Francisco	2022	LDT2	Aggregate	Aggregate	Gasoline	60806.74998	2110435.707	2110435.707	0	24.38%	287021.3183	25.28%	0.014575149	0.413675768	0.950803779	3.976105714	0.073573696	0.358791419	378.1758748	90.77101989	0.003669321	0.087215156	0.001893335	0.002279169	0.008000002	0.011362665	0.001740859	0.002065632	0.002000001	0.003983933
San Francisco	2022	LDT2	Aggregate	Aggregate	Diesel	310.8811815	11021.16229	11021.16229	0	0.13%	1482.849196	0.13%	0.02408783	0	0.230839175	0	0.053364063	0	358.7653847	0	0.001118834	0	0.008943458	0	0.008000002	0.011466167	0.008643087	0	0.002000001	0.004013159
San Francisco	2022	LDT2	Aggregate	Aggregate	Electricity	144.8706186	5213.524812	0	5213.524812	0.06%	740.9444366	0.07%	0	0	0	0	0	0	0	0	0	0	0	0	0.008000002	0.0043544	0	0	0.002000001	0.00152404
San Francisco	2022	LDT2	Aggregate	Aggregate	Plug-in Hybrid	287.1319703	12661.68278	6304.326879	6357.355902	0.15%	1187.290697	0.10%	0.001940587	0.175544867	0.255078371	1.369749453	0.003988257	0.116967433	159.041802	80.0987748	0.000607163	0.04274569	0.000829679	0.002123915	0.008000002	0.004242597	0.000762859	0.001952861	0.002000001	0.001484909
San Francisco	2022	MDV	Aggregate	Aggregate	Gasoline	25369.60826	880373.4691	880373.4691	0	10.17%	109991.2702	9.69%	0.021013094	0.523651143	1.077552108	4.30666191	0.102390416	0.429357268	454.2489871	109.2591639	0.004933396	0.103784313	0.00185054	0.00237652	0.008000002	0.011436208	0.001701646	0.002185487	0.002000001	0.004002673
San Francisco	2022	MDV	Aggregate	Aggregate	Diesel	478.5856272	18310.32213	18310.32213	0	0.21%	2276.17596	0.20%	0.020110613	0	0.34914003	0	0.066101566	0	462.3018016	0	0.0009341	0	0.00896692	0	0.008000002	0.011599781	0.006665534	0	0.002000001	0.004059023
San Francisco	2022	MDV	Aggregate	Aggregate	Electricity	138.2555808	5014.00911	0	5014.00911	0.06%	709.0443868	0.06%	0	0	0	0	0	0	0	0	0	0	0	0	0.008000002	0.0043516685	0	0	0.002000001	0.00152309
San Francisco	2022	MDV	Aggregate	Aggregate	Plug-in Hybrid	143.5602818	6643.413774	3367.016845	3276.396929	0.08%	503.6217651	0.05%	0.001975331	0.175544867	0.259645217	1.369749453	0.004059661	0.116967433	161.8892383	99.28714924	0.000622845	0.043076689	0.00096104	0.002419732	0.008000002	0.004245672	0.00088364	0.002224854	0.002000001	0.001485985
							8,665.084				1,135,180																			
Worker Vehicle Weighted Average Emission Factors													0.01488	0.39952	0.90214	3.79435	0.06330	0.31150	326.33599	79.15804	0.00362	0.08234	0.00184	0.00224	0.00800	0.00885	0.00170	0.00206	0.00200	0.00345

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Air District
Region: Bay Area AQMD
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	%VMT	Trips	%Trips	ROG_RUNEX	ROG_STREX	CO_RUNEX	CO_STREX	NOx_RUNEX	NOx_STREX	PM10_RUNEX	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX	PM2_5_STREX	PM2_5_PMTW	PM2_5_PMBW
Bay Area AQMD	2022	LHD1	Aggregate	Aggregate	Gasoline	82871.02	3059105	38.5%	1234654.676	46.2%	0.052237727	0.180041668	1.290406333	3.079637596	0.221052253	0.680148451	0.00179628	0.000376582	0.008000002	0.078000022	0.001651614	0.000346253	0.002000001	0.027300008
Bay Area AQMD	2022	LHD1	Aggregate	Aggregate	Diesel	46388.78	1767081	22.2%	583512.4402	21.8%	0.21085342	0	0.609087827	0	2.187064049	0	0.046797158	0	0.012000003	0.078000022	0.044772734	0	0.003000001	0.027300008
Bay Area AQMD	2022	LHD2	Aggregate	Aggregate	Gasoline	10878.45	397306	5.0%	162072.6459	6.1%	0.038452073	0.173050133	1.049067966	3.126538441	0.206181522	0.669448763	0.001605238	0.000299452	0.008000002	0.091000026	0.001475957	0.000275335	0.002000001	0.031850009
Bay Area AQMD	2022	LHD2	Aggregate	Aggregate	Diesel	18725.66	743793.3	9.4%	235545.2414	8.8%	0.180078867	0	0.475831191	0	1.561802745	0	0.038950751	0	0.012000003	0.091000026	0.037265759	0	0.003000001	0.031850009
Bay Area AQMD	2022	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	9022.874	735071.6	9.2%	131102.3623	4.9%	0.035857454	0	0.13999195	0	2.380097429	3.277213356	0.024694156	0	0.03600001	0.080338693	0.023625897	0	0.009000003	0.028118543
Bay Area AQMD	2022	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	4668.1	184595.3	2.3%	53963.23252	2.0%	0.099298907	0	0.292828895	0	2.271013391	1.362149652	0.045065438	0	0.012000003	0.044863749	0.043115927	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	15.1961	646.4294	0.0%	175.6668684	0.0%	0.008901724	0	2.756970129	0	0.145586064	0	0.001000337	0	0.012000003	0.044863749	0.000919773	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	9728.908	431340.5	5.4%	112466.1752	4.2%	0.024607305	0	0.095873296	0	1.000929517	1.688399197	0.009667971	0	0.012000003	0.044863749	0.009249739	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	36.11629	1459.605	0.0%	417.5043306	0.0%	0.008256093	0	2.808839764	0	0.202443685	0	0.000661929	0	0.012000003	0.044863749	0.00608619	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	8168.354	349862.4	4.4%	94426.17274	3.5%	0.054014257	0	0.175316955	0	1.472357907	1.581076523	0.024685244	0	0.012000003	0.044863749	0.023617372	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	30.37023	1213.297	0.0%	351.0799129	0.0%	0.008162444	0	2.816363461	0	0.210653222	0	0.000612843	0	0.012000003	0.044863749	0.000563486	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	4134.597	201251.8	2.5%	47795.94132	1.8%	0.023711136	0	0.09867848	0	1.247392339	1.650880412	0.007823889	0	0.012000003	0.044863749	0.007485431	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	79.57853	4377.007	0.1%	919.9277938	0.0%	0.008679057	0	2.797432327	0	0.167507928	0	0.000887009	0	0.012000003	0.044863749	0.000815572	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	51.91694	2546.906	0.0%	600.1597761	0.0%	0.101639174	0	0.292010163	0	1.93661679	1.423790761	0.054218058	0	0.012000003	0.044863749	0.051872608	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.360197	16.28182	0.0%	4.163875766	0.0%	0.008507176	0	2.788667851	0	0.180433605	0	0.000793535	0	0.012000003	0.044863749	0.000729626	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	1171.29	73368.52	0.9%	13540.10964	0.5%	0.030255515	0	0.114061616	0	1.463355316	1.553133124	0.008355023	0	0.012000003	0.044863749	0.007993588	0	0.003000001	0.015702312
Bay Area AQMD	2022	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	17.73745	1234.836	0.0%	205.0448814	0.0%	0.008598858	0	2.800450097	0	0.174183037	0	0.000844459	0	0.012000003	0.044863749	0.000776449	0	0.003000001	0.015702312
Total							7954271		2671752.545															
						Haul Truck Weighted Average Emission Factors					0.0959411	0.0936973	0.7679128	1.6128048	1.1647926	0.7079160	0.0200407	0.0001922	0.0124798	0.0748658	0.0191449	0.0001767	0.0031199	0.0262030
Concrete Truck Emission Factor																								
Bay Area AQMD	2022	T7 Single Concrete/Transit Mix	Aggregate	Aggregate	DSL	846.5899	59920.64		7974.876932		0.014083292	0	0.074338424	0	1.22523233	3.276131104	0.015432261	0	0.03600001	0.080649093	0.014764669	0	0.009000003	0.028227182

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Air District
Region: Bay Area AQMD
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx_RUNEX	NOx_IDLEX
Bay Area AQMD	2022	All Other Buses	Aggregate	Aggregate	Diesel	3097.729682	187458.3393	187458.3	0	27569.79	0	1.402872952	3.549193802
Bay Area AQMD	2022	All Other Buses	Aggregate	Aggregate	Natural Gas	35.95679107	1930.627113	1930.627	0	320.0154	0	0.228322257	1.544205999
Bay Area AQMD	2022	LDA	Aggregate	Aggregate	Gasoline	2247523.63	81671941.35	81671941	0	10417336	0	0.054583658	0
Bay Area AQMD	2022	LDA	Aggregate	Aggregate	Diesel	9998.413326	292232.4052	292232.4	0	42716.54	0	0.275209013	0
Bay Area AQMD	2022	LDA	Aggregate	Aggregate	Electricity	140564.0653	5893895.938	0	5893896	699636.4	2275530.282	0	0
Bay Area AQMD	2022	LDA	Aggregate	Aggregate	Plug-in Hybrid	50151.25423	2241751.069	1164806	1076945	207375.4	325269.4588	0.003407139	0
Bay Area AQMD	2022	LDT1	Aggregate	Aggregate	Gasoline	226985.0715	7370521.177	7370521	0	1008011	0	0.156824913	0
Bay Area AQMD	2022	LDT1	Aggregate	Aggregate	Diesel	140.9311295	1810.431067	1810.431	0	416.1863	0	1.642262336	0
Bay Area AQMD	2022	LDT1	Aggregate	Aggregate	Electricity	524.9763912	18391.37989	0	18391.38	2468.278	7100.590559	0	0
Bay Area AQMD	2022	LDT1	Aggregate	Aggregate	Plug-in Hybrid	95.46766514	4646.952575	2227.283	2419.669	394.7588	730.8122864	0.003138075	0
Bay Area AQMD	2022	LDT2	Aggregate	Aggregate	Gasoline	1035838.003	38417126.94	38417127	0	4857720	0	0.08316079	0
Bay Area AQMD	2022	LDT2	Aggregate	Aggregate	Diesel	4065.097236	157231.3712	157231.4	0	19424.99	0	0.056366745	0
Bay Area AQMD	2022	LDT2	Aggregate	Aggregate	Electricity	2537.731987	90109.66446	0	90109.66	13041.77	34789.76764	0	0
Bay Area AQMD	2022	LDT2	Aggregate	Aggregate	Plug-in Hybrid	4884.976428	230089.6241	114255.2	115834.4	20199.38	34985.45423	0.00325235	0
Bay Area AQMD	2022	LHD1	Aggregate	Aggregate	Gasoline	82871.01705	3059105.244	3059105	0	1234655	0	0.221052253	0.038668408
Bay Area AQMD	2022	LHD1	Aggregate	Aggregate	Diesel	46388.77562	1767081.451	1767081	0	583512.4	0	2.187064049	2.201984047
Bay Area AQMD	2022	LHD2	Aggregate	Aggregate	Gasoline	10878.44663	397306.0189	397306	0	162072.6	0	0.206181522	0.038329693
Bay Area AQMD	2022	LHD2	Aggregate	Aggregate	Diesel	18725.65964	743793.2889	743793.3	0	235545.2	0	1.561802745	2.131320676
Bay Area AQMD	2022	MCY	Aggregate	Aggregate	Gasoline	117284.6238	674186.4959	674186.5	0	234569.2	0	0.63791552	0
Bay Area AQMD	2022	MDV	Aggregate	Aggregate	Gasoline	592532.1478	21151102.34	21151102	0	2739613	0	0.13095077	0
Bay Area AQMD	2022	MDV	Aggregate	Aggregate	Diesel	9789.468048	376273.4431	376273.4	0	46574.4	0	0.069648307	0
Bay Area AQMD	2022	MDV	Aggregate	Aggregate	Electricity	2425.535152	86601.82895	0	86601.83	12488.89	33435.45361	0	0
Bay Area AQMD	2022	MDV	Aggregate	Aggregate	Plug-in Hybrid	3065.972333	138851.7377	71111.48	67740.25	12677.8	20459.57547	0.003348553	0
Bay Area AQMD	2022	MH	Aggregate	Aggregate	Gasoline	10174.88018	90552.51623	90552.52	0	1017.895	0	0.532554477	0
Bay Area AQMD	2022	MH	Aggregate	Aggregate	Diesel	3875.502048	38388.30695	38388.31	0	387.5502	0	4.407860927	0
Bay Area AQMD	2022	Motor Coach	Aggregate	Aggregate	Diesel	384.4853076	54990.8405	54990.84	0	8835.472	0	2.126756214	52.84858226
Bay Area AQMD	2022	OBUS	Aggregate	Aggregate	Gasoline	2405.282539	123871.1231	123871.1	0	48124.89	0	0.512695252	0.064998415
Bay Area AQMD	2022	PTO	Aggregate	Aggregate	Diesel	0	93850.72491	93850.72	0	0	0	3.324174915	0
Bay Area AQMD	2022	SBUS	Aggregate	Aggregate	Gasoline	590.2724373	30833.24257	30833.24	0	2361.09	0	0.53539406	0.923009736
Bay Area AQMD	2022	SBUS	Aggregate	Aggregate	Diesel	2646.01439	62167.7419	62167.74	0	38314.29	0	3.795187951	21.62478402
Bay Area AQMD	2022	SBUS	Aggregate	Aggregate	Natural Gas	129.1744818	3317.448737	3317.449	0	1870.446	0	0.636305323	5.31371763
Bay Area AQMD	2022	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	15.53861926	1031.459673	1031.46	0	357.0775	0	0.676423126	3.332040647
Bay Area AQMD	2022	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	20.92204	1414.977191	1414.977	0	480.7885	0	0.596568439	3.157183271
Bay Area AQMD	2022	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	63.14806166	3697.375882	3697.376	0	1451.142	0	0.556166543	3.17137885
Bay Area AQMD	2022	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	112.0389453	23191.81038	23191.81	0	2574.655	0	0.640156471	3.026476978
Bay Area AQMD	2022	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	3110.431035	105796.7703	105796.8	0	44385.85	0	1.977180234	13.51663317
Bay Area AQMD	2022	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	13.92291363	472.263486	472.2635	0	198.68	0	0.210756326	5.220889905
Bay Area AQMD	2022	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	2498.43798	87526.71706	87526.72	0	35652.71	0	1.280153314	11.75747077
Bay Area AQMD	2022	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	10.12302414	334.054463	334.0545	0	144.4556	0	0.232254827	5.251923012
Bay Area AQMD	2022	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	6266.236523	218067.8219	218067.8	0	89419.2	0	1.454955991	12.03140943
Bay Area AQMD	2022	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	29.57542778	954.9457848	954.9458	0	422.0414	0	0.250054002	5.276569814
Bay Area AQMD	2022	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	1230.020366	67829.47277	67829.47	0	17552.39	0	1.447416378	11.13401436
Bay Area AQMD	2022	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	22.80087012	1283.164382	1283.164	0	325.3684	0	0.209744222	5.251046403
Bay Area AQMD	2022	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	4668.099699	184595.3405	184595.3	0	53963.23	0	2.271013391	17.68223167
Bay Area AQMD	2022	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	15.19609588	646.4294338	646.4294	0	175.6669	0	0.145586064	5.563094384
Bay Area AQMD	2022	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	9728.907892	431340.5417	431340.5	0	112466.2	0	1.000929517	12.63409465
Bay Area AQMD	2022	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	36.11629158	1459.604601	1459.605	0	417.5043	0	0.202443685	5.685719199
Bay Area AQMD	2022	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	8168.354043	349862.4252	349862.4	0	94426.17	0	1.472357907	14.16249391
Bay Area AQMD	2022	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	30.37023468	1213.296976	1213.297	0	351.0799	0	0.210653222	5.70250757
Bay Area AQMD	2022	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	4134.597	201251.776	201251.8	0	47795.94	0	1.247392339	12.66865767
Bay Area AQMD	2022	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	79.57852887	4377.006644	4377.007	0	919.9278	0	0.167507928	5.65533633
Bay Area AQMD	2022	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	51.91693565	2546.905585	2546.906	0	600.1598	0	1.93661679	15.39218873
Bay Area AQMD	2022	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.360196866	16.28182054	16.28182	0	4.163876	0	0.180433605	5.653622424
Bay Area AQMD	2022	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	1171.289762	73368.51869	73368.52	0	13540.11	0	1.463355316	13.53726445
Bay Area AQMD	2022	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	17.73744649	1234.836484	1234.836	0	205.0449	0	0.174183037	5.661618866
Bay Area AQMD	2022	T6 OOS Class 4	Aggregate	Aggregate	Diesel	9.017242911	593.4610874	593.4611	0	207.2162	0	0.743903794	3.407783398
Bay Area AQMD	2022	T6 OOS Class 5	Aggregate	Aggregate	Diesel	12.09335273	814.1218935	814.1219	0	277.9052	0	0.617225156	3.186515114
Bay Area AQMD	2022	T6 OOS Class 6	Aggregate	Aggregate	Diesel	36.58197409	2127.3238	2127.324	0	840.6538	0	0.610852173	3.233747406
Bay Area AQMD	2022	T6 OOS Class 7	Aggregate	Aggregate	Diesel	61.87669297	15468.28933	15468.29	0	1421.926	0	0.659114352	3.039721742
Bay Area AQMD	2022	T6 Public Class 4	Aggregate	Aggregate	Diesel	586.7114073	19434.74411	19434.74	0	3009.83	0	6.776292773	49.0704861
Bay Area AQMD	2022	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	12.87772065	551.1182604	551.1183	0	66.06271	0	0.071419922	7.706323524
Bay Area AQMD	2022	T6 Public Class 5	Aggregate	Aggregate	Diesel	1038.979582	38909.00844	38909.01	0	5329.965	0	2.852390713	30.96555925
Bay Area AQMD	2022	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	59.76004635	2518.605623	2518.606	0	306.569	0	0.139730176	7.997628171
Bay Area AQMD	2022	T6 Public Class 6	Aggregate	Aggregate	Diesel	755.5945494	25951.38235	25951.38	0	3876.2	0	6.049557594	39.90757136
Bay Area AQMD	2022	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	31.58878462	1336.689535	1336.69	0	162.0505	0	0.10737719	7.874233882
Bay Area AQMD	2022	T6 Public Class 7	Aggregate	Aggregate	Diesel	1630.248661	70971.41508	70971.42	0	8363.176	0	5.984406117	38.20496759
Bay Area AQMD	2022	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	58.68313893	3342.655922	3342.656	0	301.0445	0	0.08879528	7.79540242
Bay Area AQMD	2022	T6 Utility Class 5	Aggregate	Aggregate	Diesel	436.6956822	17787.4777	17787.48	0	5589.705	0	0.797612763	8.976238481
Bay Area AQMD	2022	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	5.561522592	223.5159128	223.5159	0	71.18749	0	0.224208021	4.28918138
Bay Area AQMD	2022	T6 Utility Class 6	Aggregate	Aggregate	Diesel	86.51663997	3482.613572	3482.614	0	1107.413	0	0.977009624	9.893067217
Bay Area AQMD	2022	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	1.005509914	40.71857999	40.71858	0	12.87053	0	0.214820366	4.275767389
Bay Area AQMD	2022	T6 Utility Class 7	Aggregate	Aggregate	Diesel	94.44445928	4646.099429	4646.099	0	1208.889	0	0.675038928	8.519442975
Bay Area AQMD	2022	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	1.991193382	89.59627111	89.59627	0	25.48728	0	0.233297523	4.312525806
Bay Area AQMD	2022	T6TS	Aggregate	Aggregate	Gasoline	6755.001435	342077.622	342077.6	0	135154.1	0	0.672422899	0.08811797
Bay Area AQMD	2022	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	4277.289713	876257.0526	876257.1	0	98292.12	0	1.978707856	129.0058848
Bay Area AQMD	2022	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	8.282641065	1772.166018	1772.166	0	190.3351	0	0.236832759	64.91788057
Bay Area AQMD	2022	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	3843.098019	1037811.878	1037812	0	88314.39	0	1.712470455	156.8834494
Bay Area AQMD	2022	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1601.657518	377106.6039	377106.6	0	36806.09	0	2.035693409	160.064179
Bay Area AQMD	2022	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	456.9885749	78876.82212	78876.82	0	7476.333	0	3.12003517	51.89239446
Bay Area AQMD	2022	T7 POAK Class 8	Aggregate	Aggregate	Diesel	2866.532419	281544.4748	281544.5	0	46896.47	0	3.43807911	50.97405799
Bay Area AQMD	2022	T7 POAK Class 8	Aggregate	Aggregate	Natural Gas	5.566094705	546.00584	546.0058	0	91.06131	0	0.628481017	22.17486817
Bay Area AQMD	2022	T7 Public Class 8	Aggregate	Aggregate	Diesel	3542.689897	152944.8059	152944.8	0	18174	0	8.899433781	34.51175097
Bay Area AQMD	2022	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	13.99489177	708.2858062	708.2858	0	71.79379	0	0.576637571	7.704117788
Bay Area AQMD	2022	T7 Single Concrete/Transit M	Aggregate	Aggregate	Diesel	846.5899079	59920.6441	59920.64	0	7974.877	0	1.22523233	22.96633627
Bay Area AQMD	2022	T7 Single Concrete/Transit M	Aggregate	Aggregate	Natural Gas	50.64522433	3695.335834	3695.336	0	477.078	0	0.321890109	11.70066403
Bay Area AQMD	2022	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	2867.804798	178606.1593	178606.2	0	27014.72	0	1.898641418	25.03536644
Bay Area AQMD	2022	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	170.5375167	11341.5037	11341.5	0	1606.463	0	0.418583351	11.90376155
Bay Area AQMD	2022	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	3583.646041	206318.9945	206319	0	33757.95	0	1.657734549	24.46163679
Bay Area AQMD	2022	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	208.8821341	12768.3725	12768.37	0	1967.67	0	0.374745394	11.81607273
Bay Area AQMD	2022	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	1463.087823	94903.59833	94903.6	0	6730.204	0	8.401449113	42.64083543
Bay Area AQMD	2022	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	1288.866437	83380.91353	83380.91	0	5928.786	0	2.377269634	7.649469902
Bay Area AQMD	2022	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	9022.874211	735071.6453	735071.6	0	131102.4	0	2.380097429	46.82226591
Bay Area AQMD	2022	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	934.0632081	80283.39521	80283.4	0	13571.94	0	0.50203423	22.39087639
Bay Area AQMD	2022	T7 Utility Class 8	Aggregate	Aggregate	Diesel	314.4112996	14806.80356	14806.8	0	4024.465	0	1.77321055	8.713123617
Bay Area AQMD	2022	T7IS	Aggregate	Aggregate	Gasoline	25.15133291	2037.165063	2037.165	0	503.2279	0	5.308810224	0
Bay Area AQMD	2022	UBUS	Aggregate	Aggregate	Gasoline	762.3152131	54584.80638	54584.81	0	3049.261	0	0.071759455	0
Bay Area AQMD	2022	UBUS	Aggregate	Aggregate	Diesel	2668.521752	261557.9289	261557.9	0	10674.09	0	0.932412287	0
Bay Area AQMD	2022	UBUS	Aggregate	Aggregate	Electricity	37.34757429	1895.196017	0	1895.196	149.3903	3303.801924	0	0
Bay Area AQMD	2022	UBUS	Aggregate	Aggregate	Natural Gas	305.3422544	29203.09295	29203.09	0	1221.369	0	0.166812746	0

Vehicle Category	Fuel	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN
All Other Buses	Diesel	1.313309797	0.024106337	0.010258327	0	0.003000001	0.016148056	0.025196319	0.010722163	0	0.012000003	0.046137304	0.074046897	0.078751592	0	0	0	0
All Other Buses	Natural Gas	0	0.000879377	0.003737189	0	0.003000001	0.016148056	0.000956402	0.004064534	0	0.012000003	0.046137304	0.010988018	0.061735047	0	0	0	0
LDA	Gasoline	0.295035411	0.001284162	0	0.002088536	0.002000001	0.002562071	0.001396625	0	0.002271374	0.008000002	0.007320203	0.011850645	0	0.394647454	0.101625933	0.260392796	1.554907826
LDA	Diesel	0	0.020843694	0	0	0.002000001	0.002612224	0.021786154	0	0	0.008000002	0.007463496	0.033902318	0	0	0	0	0
LDA	Electricity	0	0	0	0	0.002000001	0.001530245	0	0	0	0.008000002	0.004372129	0	0	0	0	0	0
LDA	Plug-in Hybrid	0.116427746	0.000719232	0	0.002257461	0.002000001	0.00134584	0.000782231	0	0.002455194	0.008000002	0.003845258	0.001459493	0	0.175247594	0.039831169	0.034982316	0.440142048
LDT1	Gasoline	0.447688954	0.001942928	0	0.003066408	0.002000001	0.003132672	0.002112969	0	0.003334674	0.008000002	0.008950491	0.033966806	0	0.661113225	0.189184144	0.557608799	3.000288899
LDT1	Diesel	0	0.241141005	0	0	0.002000001	0.003703413	0.252044331	0	0	0.008000002	0.01058118	0.307145974	0	0	0	0	0
LDT1	Electricity	0	0	0	0	0.002000001	0.001540278	0	0	0	0.008000002	0.004400794	0	0	0	0	0	0
LDT1	Plug-in Hybrid	0.116506851	0.000428955	0	0.001478529	0.002000001	0.001353005	0.000466528	0	0.001608035	0.008000002	0.003865728	0.001342063	0	0.175387045	0.025128879	0.023153771	0.295817595
LDT2	Gasoline	0.385918548	0.001323589	0	0.00206398	0.002000001	0.003007424	0.00143951	0	0.002244731	0.008000002	0.00859264	0.013201416	0	0.44074983	0.087230171	0.227738798	1.396661827
LDT2	Diesel	0	0.005829259	0	0	0.002000001	0.003006011	0.006092832	0	0	0.008000002	0.008588602	0.014920283	0	0	0	0	0
LDT2	Electricity	0	0	0	0	0.002000001	0.00152378	0	0	0	0.008000002	0.004353656	0	0	0	0	0	0
LDT2	Plug-in Hybrid	0.116500776	0.000572805	0	0.001904711	0.002000001	0.001348573	0.000622978	0	0.002071547	0.008000002	0.003853066	0.001391282	0	0.175376705	0.02679548	0.02535619	0.326181129
LHD1	Gasoline	0.680148451	0.001651614	0	0.000346253	0.002000001	0.027300008	0.00179628	0	0.000376582	0.008000002	0.078000022	0.052237727	0.442918498	0.180041668	0.051600449	0.277681749	2.844215493
LHD1	Diesel	0	0.044772734	0.027289338	0	0.003000001	0.027300008	0.046797158	0.028523241	0	0.012000003	0.078000022	0.21085342	0.109759705	0	0	0	0
LHD2	Gasoline	0.669448763	0.001475957	0	0.000275335	0.002000001	0.031850009	0.001605238	0	0.000299452	0.008000002	0.091000026	0.038452073	0.43929865	0.173050133	0.047386482	0.248481947	2.583760984
LHD2	Diesel	0	0.037265759	0.026820896	0	0.003000001	0.031850009	0.038950751	0.028033618	0	0.012000003	0.091000026	0.180078867	0.109759705	0	0	0	0
MCY	Gasoline	0.161729983	0.001853968	0	0.003756655	0.001	0.004200001	0.001976624	0	0.00398039	0.004000001	0.012000003	1.264063003	0	1.543236397	3.56996426	3.764903187	4.096937733
MDV	Gasoline	0.525026911	0.001363475	0	0.002272879	0.002000001	0.003060511	0.001482762	0	0.002471584	0.008000002	0.008744318	0.020898702	0	0.627132246	0.107540754	0.298085493	1.755561618
MDV	Diesel	0	0.006036742	0	0	0.002000001	0.003056496	0.006309697	0	0	0.008000002	0.008732845	0.012869045	0	0	0	0	0
MDV	Electricity	0	0	0	0	0.002000001	0.001522896	0	0	0	0.008000002	0.004351132	0	0	0	0	0	0
MDV	Plug-in Hybrid	0.116484934	0.000729571	0	0.002361458	0.002000001	0.001345075	0.000793475	0	0.002568301	0.008000002	0.003843071	0.001429819	0	0.175386589	0.030288148	0.029598562	0.372445551
MH	Gasoline	0.409733834	0.001849689	0	0.000446044	0.003000001	0.015756104	0.002011705	0	0.000485114	0.012000003	0.04501744	0.092657695	0	0.16872819	13.66975347	0.31547941	4.848257936
MH	Diesel	0	0.106363662	0	0	0.004000001	0.015674848	0.111172955	0	0	0.016000005	0.044785279	0.12612746	0	0	0	0	0
Motor Coach	Diesel	1.913528087	0.028788933	0.018085689	0	0.003000001	0.026246345	0.030090641	0.018903444	0	0.012000003	0.074989558	0.024143876	3.997813032	0	0	0	0
OBUS	Gasoline	0.400545902	0.000896386	0	0.000274897	0.003000001	0.015679547	0.000974901	0	0.000298976	0.012000003	0.044798704	0.072736245	0.745311506	0.187850824	0.031684334	0.134708783	2.339170385
PTO	Diesel	0	0.006609804	0	0	0	0	0.00690867	0	0	0	0	0.056569233	0	0	0	0	0
SBUS	Gasoline	0.679020177	0.001059624	0	0.000634445	0.002000001	0.015720998	0.001152438	0	0.000690016	0.008000002	0.044917136	0.062289219	10.58980243	0.420146945	0.114568802	0.28010429	1.555121517
SBUS	Diesel	0.483980643	0.019678195	0.020152952	0	0.003000001	0.015720998	0.020567956	0.021064179	0	0.012000003	0.044917136	0.055739134	0.174372205	0	0	0	0
SBUS	Natural Gas	0	0.003378346	0.010335838	0	0.003000001	0.015720998	0.00367426	0.011241167	0	0.012000003	0.044917136	0.051792343	0.225541713	0	0	0	0
T6 CAIRP Class 4	Diesel	0.557819947	0.010367901	0.00364202	0	0.003000001	0.014809837	0.010836691	0.003806696	0	0.012000003	0.04231382	0.015157614	0.058882998	0	0	0	0
T6 CAIRP Class 5	Diesel	0.568458609	0.007605982	0.001096054	0	0.003000001	0.014809837	0.007949891	0.001145612	0	0.012000003	0.04231382	0.009838795	0.051649704	0	0	0	0
T6 CAIRP Class 6	Diesel	0.577950929	0.009041221	0.002694071	0	0.003000001	0.014809837	0.009450024	0.002815885	0	0.012000003	0.04231382	0.01230211	0.055298167	0	0	0	0
T6 CAIRP Class 7	Diesel	0.563745702	0.007753773	0.000715232	0	0.003000001	0.014809837	0.008104364	0.000747572	0	0.012000003	0.04231382	0.008936523	0.050424439	0	0	0	0
T6 Instate Delivery Class 4	Diesel	1.344556744	0.034322177	0.046493937	0	0.003000001	0.016647027	0.035874074	0.048596187	0	0.012000003	0.047562934	0.097188034	0.284990104	0	0	0	0
T6 Instate Delivery Class 4	Natural Gas	0	0.001057797	0.012315767	0	0.003000001	0.016647027	0.001150451	0.013394521	0	0.012000003	0.047562934	0.011160181	0.210382479	0	0	0	0
T6 Instate Delivery Class 5	Diesel	1.442825534	0.015451813	0.020229155	0	0.003000001	0.016647027	0.016150476	0.021143828	0	0.012000003	0.047562934	0.047466035	0.217537122	0	0	0	0
T6 Instate Delivery Class 5	Natural Gas	0	0.000944599	0.011575546	0	0.003000001	0.016647027	0.001027338	0.012589463	0	0.012000003	0.047562934	0.010973471	0.215857015	0	0	0	0
T6 Instate Delivery Class 6	Diesel	1.42029173	0.020083125	0.027199924	0	0.003000001	0.016647027	0.020991195	0.028429784	0	0.012000003	0.047562934	0.058224178	0.237368908	0	0	0	0
T6 Instate Delivery Class 6	Natural Gas	0	0.000850453	0.010987655	0	0.003000001	0.016647027	0.000924945	0.011950077	0	0.012000003	0.047562934	0.010818184	0.220204945	0	0	0	0
T6 Instate Delivery Class 7	Diesel	1.414152818	0.005338356	0.009106947	0	0.003000001	0.016647027	0.005579733	0.009518723	0	0.012000003	0.047562934	0.033804448	0.195475898	0	0	0	0
T6 Instate Delivery Class 7	Natural Gas	0	0.001071288	0.011596403	0	0.003000001	0.016647027	0.001165124	0.012612203	0	0.012000003	0.047562934	0.011179437	0.215702373	0	0	0	0
T6 Instate Other Class 4	Diesel	1.362149652	0.043115927	0.099317066	0	0.003000001	0.015702312	0.045065438	0.103807743	0	0.012000003	0.044863749	0.099298907	0.446274566	0	0	0	0
T6 Instate Other Class 4	Natural Gas	0	0.000919773	0.014408698	0	0.003000001	0.015702312	0.001000337	0.015670774	0	0.012000003	0.044863749	0.008901724	0.217495624	0	0	0	0
T6 Instate Other Class 5	Diesel	1.688399197	0.009249739	0.01471	0	0.003000001	0.015702312	0.009667971	0.015375121	0	0.012000003	0.044863749	0.024607305	0.216149335	0	0	0	0
T6 Instate Other Class 5	Natural Gas	0	0.000608619	0.011483774	0	0.003000001	0.015702312	0.000661929	0.012489652	0	0.012000003	0.044863749	0.008256093	0.239127809	0	0	0	0
T6 Instate Other Class 6	Diesel	1.581076523	0.023617372	0.056911581	0	0.003000001	0.015702312	0.024685244	0.059484871	0	0.012000003	0.044863749	0.054014257	0.333443023	0	0	0	0
T6 Instate Other Class 6	Natural Gas	0	0.000563486	0.011083327	0	0.003000001	0.015702312	0.000612843	0.01205413	0	0.012000003	0.044863749	0.008162444	0.242089437	0	0	0	0
T6 Instate Other Class 7	Diesel	1.650880412	0.007485431	0.024085262	0	0.003000001	0.015702312	0.007823889	0.025174291	0	0.012000003	0.044863749	0.023711136	0.253896174	0	0	0	0
T6 Instate Other Class 7	Natural Gas	0	0.000815572	0.012208485	0	0.003000001	0.015702312	0.000887009	0.013277842	0	0.012000003	0.044863749	0.008679057	0.233767982	0	0	0	0
T6 Instate Tractor Class 6	Diesel	1.423790761	0.051872608	0.171429338	0	0.003000001	0.015702312	0.054218058	0.179180612	0	0.012000003	0.044863749	0.101639174	0.702673302	0	0	0	0
T6 Instate Tractor Class 6	Natural Gas	0	0.000729626	0.012249367	0	0.003000001	0.015702312	0.000793535	0.013322304	0	0.012000003	0.044863749	0.008507176	0.233465632	0	0	0	0
T6 Instate Tractor Class 7	Diesel	1.553133124	0.007993588	0.010595142	0	0.003000001	0.015702312	0.008355023	0.011074208	0	0.012000003	0.044863749	0.030255515	0.21495209	0	0	0	0
T6 Instate Tractor Class 7	Natural Gas	0	0.000776449	0.01205863	0	0.003000001	0.015702312	0.000844459	0.013114861	0	0.012000003	0.044863749	0.008598858	0.234876281	0	0	0	0
T6 OOS Class 4	Diesel	0.552243992	0.011807696	0.004764803	0	0.003000001	0.014809837	0.012341588	0.004980246	0	0.012000003	0.04231382	0.017982114	0.062086545	0	0	0	0
T6 OOS Class 5	Diesel	0.565943788	0.007874945	0.001240682	0	0.003000001	0.014809837	0.008231015	0.00129678	0	0.012000003	0.04231382	0.010482088	0.052051125	0	0	0	0
T6 OOS Class 6	Diesel	0.573247141	0.010210712	0.003470824	0	0.003000001	0.014809837	0.010672395	0.003627759	0	0.012000003	0.04231382	0.014565371	0.057329957	0	0	0	0
T6 OOS Class 7	Diesel	0.560362459	0.007772879	0.000718416	0	0.003000001	0.014809837	0.008124334	0.0007509	0	0.012000003	0.04231382	0.009184707	0.050499959	0	0	0	0
T6 Public Class 4	Diesel	0.549762859	0.032281512	0.059501653	0	0.003000001	0.016159287	0.033741138	0.062192054	0	0.012000003	0.046169392	0.091101171	0.281082779	0	0	0	0
T6 Public Class 4	Natural Gas	0	0.001592494	0.028105431	0	0.003000001	0.016159287	0.001731982	0.030567221	0	0.012000003	0.046169392	0.012540947	0.258988315	0	0	0	0
T6 Public Class 5	Diesel	1.336236268	0.013553474	0.023115206	0	0.003000001	0.016159287	0.014166302	0.024160373	0	0.012000003	0.046169392	0.048154702	0.273106827	0	0	0	0
T6 Public Class 5	Natural Gas	0	0.001294305	0.021157049	0	0.003000001	0.016159287	0.001407674	0.023010221	0	0.012000003	0.046169392	0.012127395	0.310377227	0	0	0	0
T6 Public Class 6	Diesel	0.816624138	0.034123332	0.079700854	0	0.003000001	0.016159287	0.035666237	0.083304573	0	0.012000003	0.046169392	0.087113364	0.375767885	0	0	0	0
T6 Public Class 6	Natural Gas	0	0.001435387	0.024100327	0	0.003000001	0.016159287	0.001561114	0.026211305	0	0.012000003	0.046169392	0.012323744	0.2886093	0	0	0	0
T6 Public Class 7	Diesel	0.788701675	0.038793369	0.103498386	0	0.003000001	0.016159287	0.040547433	0.108178123	0	0.012000003	0.046169392	0.092043568	0.455891468	0	0	0	0
T6 Public Class 7	Natural Gas	0	0.001516559	0.025980665	0	0.003000001	0.016159287	0.001649397	0.028256344	0	0.012000003	0.046169392	0.012435615	0.27470268	0	0	0	0
T6 Utility Class 5	Diesel	1.333266153	0.00405674	0.002157068	0	0.003000001	0.015923846	0.004240167	0.002254601	0	0.012000003	0.045496703	0.015848329	0.141405438	0	0	0	0
T6 Utility Class 5	Natural Gas	0	0.000693112	0.009192933	0	0.003000001	0.015923846	0.000753822	0.009998153	0	0.012000003	0.045496703	0.009721641	0.177641436	0	0	0	0
T6 Utility Class 6	Diesel	1.27592962	0.004632725	0.002471195	0	0.003000001	0.015923846	0.004842196	0.002582932	0	0.012000003	0.045496703	0.020742211	0.144792095	0	0	0	0
T6 Utility Class 6	Natural Gas	0	0.000737916	0.009512892	0	0.003000001	0.015923846	0.000802551	0.010346138	0	0.012000003	0.045496703	0.009799787	0.17527508	0	0	0	0
T6 Utility Class 7	Diesel	1.282396347	0.003332516	0.001992301	0	0.003000001	0.015923846	0.003483198	0.002082384	0	0.012000003	0.045496703	0.012155745	0.14011977	0	0	0	0
T6 Utility Class 7	Natural Gas	0	0.000649736	0.008636107	0	0.003000001	0.015923846	0.000706647	0.009392554	0	0.012000003	0.045496703	0.009645985	0.181759615	0	0	0	0
T6TS	Gasoline	0.461558796	0.001370282	0	0.000571731	0.003000001	0.015756104	0.001490307	0	0.00062181	0.012000003	0.04501744	0.111640675	1.0072053	0.289962478	0.041386409	0.335944684	3.202479782
T7 CAIRP Class 8	Diesel	2.075238484	0.032779626	0.043729866	0	0.009000003	0.026131226	0.034261775	0.045707136	0	0.03600001	0.074660646	0.021684686	10.43179445	0	0	0	0
T7 CAIRP Class 8	Natural Gas	0	0.00164479	0.205885623	0	0.009000003	0.025934421	0.001788859	0.2239194	0	0.03600001	0.074098345	0.013231442	2.342035006	0	0	0	0
T7 NNOOS Class 8	Diesel	2.202316646	0.030479693	0.053648597	0	0.009000003	0.026046023	0.031857849	0.056074349	0	0.03600001	0.074417209	0.016934526	12.94938278	0	0	0	0
T7 NOOS Class 8	Diesel	2.083418728	0.033641375	0.054268003	0	0.009000003	0.02614502	0.035162489	0.056721761	0	0.03600001	0.074700056	0.022820317	12.94731611	0	0	0	0
T7 Other Port Class 8	Diesel	1.639740562	0.023562109	0.018266652	0	0.009000003	0.031113171	0.024627483	0.019092589	0	0.03600001	0.088894774	0.06446824	3.42537423	0	0	0	0
T7 POAK Class 8	Diesel	1.733284928	0.025508276	0.020589639	0	0.009000003	0.031515638	0.026661647	0.021520611	0	0.03600001	0.09004468	0.076634185	3.440022482	0	0	0	0
T7 POAK Class 8	Natural Gas	0	0.001400244	0.045850926	0	0.009000003	0.029833581	0.001522893	0.049867066	0	0.03600001	0.085238803	0.016928357	0.927101764	0	0	0	0
T7 Public Class 8	Diesel	3.080558509	0.049387565	0.086786325	0	0.009000003	0.039905808	0.051620651	0.090710417	0	0.03600001	0.114016593	0.120820485	1.148428036	0	0	0	0
T7 Public Class 8	Natural Gas	0	0.002540256	0.019293121	0	0.009000003	0.036205933	0.00276276	0.020983029	0	0.03600001	0.103445524	0.025497641	0.304633577	0	0	0	0
T7 Single Concrete/Transit M	Diesel	3.276131104	0.014764669	0.011674704	0	0.009000003	0.028227182	0.015432261	0.012202583	0	0.03600001	0.080649093	0.014083292	1.870856371	0	0	0	0
T7 Single Concrete/Transit M	Natural Gas	0	0.001753807	0.034114498	0	0.009000003	0.028203708	0.001907426	0.03710263	0	0.03600001	0.080582022	0.01518019	0.43767045	0	0	0	0
T7 Single Dump Class 8	Diesel	2.742621624	0.017551278	0.023303358	0	0.009000003	0.02860786	0.018344869	0.024357033	0	0.03600001	0.081736742	0.025851291	1.908595259	0	0	0	0
T7 Single Dump Class 8	Natural Gas	0	0.001556902	0.029270088	0	0.009000003	0.028491674	0.001693273	0.031833892	0	0.03600001	0.081404783	0.015139126	0.473498784	0	0	0	0
T7 Single Other Class 8	Diesel	2.882602644	0.016637866	0.022610512	0	0.009000003	0.028505087	0.017390157	0.023632859	0	0.03600001	0.081443104	0.02279946	1.90653234	0	0	0	0
T7 Single Other Class 8	Natural Gas	0	0.001643982	0.031361697	0	0.009000003	0.028420315	0.001787981	0.034108707	0	0.03600001	0.0812009	0.015156273	0.458029642	0	0	0	0
T7 SWCV Class 8	Diesel	1.773497755	0.013315679	0.048838722	0	0.009000003	0.073500021	0.013917755	0.051046992	0	0.03600001	0.21000006	0.031494731	1.110745572	0	0	0	0
T7 SWCV Class 8	Natural Gas	0	0.00265777	0.000641192	0	0.009000003	0.073500021	0.002890567	0.000697354	0	0.03600001	0.21000006	0.119738828	0.335782212	0	0	0	0
T7 Tractor Class 8	Diesel	3.277213356	0.023625897	0.018943454	0	0.009000003	0.028118543	0.024694156	0.019799993	0	0.03600001	0.080338693	0.035857454	3.453998959	0	0	0	0
T7 Tractor Class 8	Natural Gas	0	0.001272743	0.047047286	0	0.009000003	0.027445708	0.001384224	0.051168216	0	0.03600001	0.078416308	0.014282359	0.932239585	0	0	0	0
T7 Utility Class 8	Diesel	4.459465146	0.008254147	0.002998702	0	0.009000003	0.033699677	0.008627363	0.00313429	0	0.03600001	0.096284792	0.031599981	0.636255678	0	0	0	0
T7IS	Gasoline	0.415701368	0.002018662	0	0.001293676	0.005000001	0.032622451	0.002195479	0	0.00140699	0.020000006	0.093207003	0.949354307	0	0.000527299	0.099927542	0.874667316	6.632794659
UBUS	Gasoline	0.628363315	0.000894711	0	0.000214772	0.002176428	0.033023249	0.00097308	0	0.000233584	0.008705711	0.09435214	0.00762038	0	0.261338862	0.053874662	0.101361143	0.585687622
UBUS	Diesel	0	0.007164085	0	0	0.008151756	0.038463757	0.007488013	0	0	0.032607025	0.109896449	0.088203512	0	0	0	0	0
UBUS	Electricity	0	0	0	0	0.008270666	0.019249662	0	0	0	0.033082662	0.054999033	0	0	0	0	0	0
UBUS	Natural Gas	0	0.00045335	0	0	0.007449441	0.038365118	0.000473849	0	0	0.029797765	0.109614624	0.045983204	0	0	0	0	0

Vehicle Category	Fuel	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
All Other Buses	Diesel	0.084296756	0.089652692	0	0	0	0	0.205385441	0.228103695	2.079447317	0	0.01113707	0.005937301	0
All Other Buses	Natural Gas	0.784858434	4.409646206	0	0	0	0	1.06	3.198396371	6.987788896	0	0	0	0
LDA	Gasoline	0.017286571	0	0.432087492	0.101625933	0.260392796	1.554907826	0.032908669	0.829228065	0	3.799866569	0.002852201	0	0.00072876
LDA	Diesel	0.038595535	0	0	0	0	0	0.0031	0.370372227	0	0	0.002284017	0	0
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hybrid	0.002129688	0	0.191874056	0.039831169	0.034982316	0.440142048	0.019762483	0.219258936	0	1.361317573	0.001418814	0	0.000664405
LDT1	Gasoline	0.04953367	0	0.723831844	0.189184144	0.557608799	3.000288899	0.035411606	1.616083875	0	6.411631273	0.00336322	0	0.000901297
LDT1	Diesel	0.349665271	0	0	0	0	0	0.0031	1.711897714	0	0	0.003989286	0	0
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hybrid	0.001958336	0	0.192026738	0.025128879	0.023153771	0.295817595	0.020130589	0.20144399	0	1.363030138	0.001306233	0	0.000727073
LDT2	Gasoline	0.019259808	0	0.482565084	0.087230171	0.227738798	1.396661827	0.034712779	0.911097082	0	4.175259339	0.003545656	0	0.000909445
LDT2	Diesel	0.01698575	0	0	0	0	0	0.0031	0.141630409	0	0	0.003101323	0	0
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hybrid	0.002030155	0	0.192015417	0.02679548	0.02535619	0.326181129	0.020794357	0.208824926	0	1.36289895	0.00135374	0	0.00079045
LHD1	Gasoline	0.076225168	0.646305633	0.197122964	0.051600449	0.277681749	2.844215493	0.044872137	1.290406333	3.750594653	3.079637596	0.008993644	0.001200457	0.000258252
LHD1	Diesel	0.2400426	0.124954127	0	0	0	0	0.152318059	0.609087827	0.909745076	0	0.006083598	0.001284344	0
LHD2	Gasoline	0.056109175	0.641023559	0.189468113	0.047386482	0.248481947	2.583760984	0.044959394	1.049067966	3.756792245	3.126538441	0.010051923	0.001385485	0.00025692
LHD2	Diesel	0.205007818	0.124954127	0	0	0	0	0.172884179	0.475831191	0.909745076	0	0.007364654	0.002040429	0
MCY	Gasoline	1.499446917	0	1.677103592	3.56996426	3.764903187	4.096937733	0.00863341	14.60996114	0	8.316065557	0.00190182	0	0.000524757
MDV	Gasoline	0.030447863	0	0.686623988	0.107540754	0.298085493	1.755561618	0.034669578	1.118037937	0	4.790995106	0.004302491	0	0.00111269
MDV	Diesel	0.014650553	0	0	0	0	0	0.0031	0.213388412	0	0	0.004024177	0	0
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hybrid	0.002086389	0	0.192026238	0.030288148	0.029598562	0.372445551	0.021509867	0.215125165	0	1.362739217	0.001394558	0	0.000987229
MH	Gasoline	0.135205892	0	0.184736129	13.66975347	0.31547941	4.848257936	0.044645377	2.407133035	0	3.761302348	0.019265437	0	0.000317359
MH	Diesel	0.143587728	0	0	0	0	0	0.143520724	0.425046307	0	0	0.010242356	0	0
Motor Coach	Diesel	0.027485965	4.551205818	0	0	0	0	0.210709039	0.10075409	55.36166557	0	0.016806812	0.101952495	0
OBUS	Gasoline	0.106136558	1.0875568	0.205673007	0.031684334	0.134708783	2.339170385	0.04491952	1.641322827	5.768895971	3.96372818	0.017767287	0.003783152	0.000314018
PTO	Diesel	0.064399766	0	0	0	0	0	0.210961602	0.345735061	0	0	0.020041185	0	0
SBUS	Gasoline	0.090892282	15.45261485	0.46000802	0.114568802	0.28010429	1.555121517	0.045	1.590689766	81.92742476	10.78105787	0.008040131	0.025662628	0.000582248
SBUS	Diesel	0.063454761	0.198509482	0	0	0	0	0.147267477	0.171525671	4.70445547	0	0.010996693	0.021240145	0
SBUS	Natural Gas	3.699453039	16.11012238	0	0	0	0	1.06	12.53467914	18.44394167	0	0	0	0
T6 CAIRP Class 4	Diesel	0.01725579	0.067033811	0	0	0	0	0.210479165	0.0516444	2.031146736	0	0.010819064	0.005823466	0
T6 CAIRP Class 5	Diesel	0.011200719	0.058799257	0	0	0	0	0.212466142	0.038922251	2.003414102	0	0.010790674	0.005839953	0
T6 CAIRP Class 6	Diesel	0.014005015	0.062952753	0	0	0	0	0.213819415	0.044534587	2.055304017	0	0.010676615	0.005682989	0
T6 CAIRP Class 7	Diesel	0.010173551	0.057404386	0	0	0	0	0.2136823	0.03888055	2.021814631	0	0.010055134	0.005776521	0
T6 Instate Delivery Class 4	Diesel	0.110641179	0.324439539	0	0	0	0	0.195688392	0.30159992	7.185695924	0	0.011330873	0.020250231	0
T6 Instate Delivery Class 4	Natural Gas	0.797155792	15.02731996	0	0	0	0	1.06	3.45832802	22.91635752	0	0	0	0
T6 Instate Delivery Class 5	Diesel	0.054036468	0.247649455	0	0	0	0	0.205083827	0.166122254	6.916538357	0	0.011310001	0.019962805	0
T6 Instate Delivery Class 5	Natural Gas	0.783819361	15.4183582	0	0	0	0	1.06	3.407186901	21.24739431	0	0	0	0
T6 Instate Delivery Class 6	Diesel	0.066283795	0.270226433	0	0	0	0	0.202614342	0.195393337	6.970265208	0	0.011311113	0.020069096	0
T6 Instate Delivery Class 6	Natural Gas	0.772727453	15.72892466	0	0	0	0	1.06	3.36465284	19.92188712	0	0	0	0
T6 Instate Delivery Class 7	Diesel	0.038483791	0.22253443	0	0	0	0	0.201755911	0.137945115	6.549844266	0	0.011281059	0.020423898	0
T6 Instate Delivery Class 7	Natural Gas	0.798531183	15.40731233	0	0	0	0	1.06	3.478334609	21.29453841	0	0	0	0
T6 Instate Other Class 4	Diesel	0.113044247	0.508049623	0	0	0	0	0.185538957	0.292828895	8.074744857	0	0.01082675	0.022104724	0
T6 Instate Other Class 4	Natural Gas	0.635837405	15.53540175	0	0	0	0	1.06	2.756970129	27.27165736	0	0	0	0
T6 Instate Other Class 5	Diesel	0.028013544	0.246069564	0	0	0	0	0.207672968	0.095873296	7.298509525	0	0.01089534	0.021653606	0
T6 Instate Other Class 5	Natural Gas	0.589720896	17.08055779	0	0	0	0	1.06	2.808839764	20.67688396	0	0	0	0
T6 Instate Other Class 6	Diesel	0.06149112	0.3795995	0	0	0	0	0.201312213	0.175316955	7.790981145	0	0.0108157	0.021734102	0
T6 Instate Other Class 6	Natural Gas	0.58303169	17.29210268	0	0	0	0	1.06	2.816363461	19.7740039	0	0	0	0
T6 Instate Other Class 7	Diesel	0.026993323	0.289041468	0	0	0	0	0.205707651	0.09867848	7.157720527	0	0.010657807	0.022111371	0
T6 Instate Other Class 7	Natural Gas	0.619932659	16.69771299	0	0	0	0	1.06	2.797432327	22.31087732	0	0	0	0
T6 Instate Tractor Class 6	Diesel	0.115708462	0.799940066	0	0	0	0	0.191439924	0.292010163	8.910263978	0	0.010871859	0.021730784	0
T6 Instate Tractor Class 6	Natural Gas	0.607655438	16.6761166	0	0	0	0	1.06	2.788667851	22.40305137	0	0	0	0
T6 Instate Tractor Class 7	Diesel	0.034443601	0.244706592	0	0	0	0	0.197064579	0.114061616	6.730682873	0	0.010204958	0.022386266	0
T6 Instate Tractor Class 7	Natural Gas	0.61420412	16.77687721	0	0	0	0	1.06	2.800450097	21.97300201	0	0	0	0
T6 OOS Class 4	Diesel	0.020471268	0.070680805	0	0	0	0	0.209201185	0.058509326	2.038445086	0	0.010814057	0.005832628	0
T6 OOS Class 5	Diesel	0.011933059	0.059256244	0	0	0	0	0.211914637	0.040410924	2.000803457	0	0.010789198	0.005846128	0
T6 OOS Class 6	Diesel	0.016581566	0.065265793	0	0	0	0	0.212831279	0.050095079	2.060782285	0	0.010675106	0.005690706	0
T6 OOS Class 7	Diesel	0.01045609	0.057490359	0	0	0	0	0.212608874	0.039412055	2.017294238	0	0.01004302	0.005780299	0
T6 Public Class 4	Diesel	0.103711748	0.319991347	0	0	0	0	0.094029575	0.21400329	4.806176983	0	0.011869049	0.03376027	0
T6 Public Class 4	Natural Gas	0.895781921	18.49916533	0	0	0	0	1.06	3.057844443	55.85536883	0	0	0	0
T6 Public Class 5	Diesel	0.054820463	0.310911334	0	0	0	0	0.161975214	0.141642993	7.790090354	0	0.011623125	0.032882352	0
T6 Public Class 5	Natural Gas	0.866242489	22.16980195	0	0	0	0	1.06	3.083380812	40.18897914	0	0	0	0
T6 Public Class 6	Diesel	0.099171934	0.427783134	0	0	0	0	0.119913123	0.20318136	6.164235807	0	0.011838338	0.032413591	0
T6 Public Class 6	Natural Gas	0.880267452	20.61495001	0	0	0	0	1.06	3.075162578	46.8251349	0	0	0	0
T6 Public Class 7	Diesel	0.104784596	0.518997734	0	0	0	0	0.125560613	0.20794853	6.467401085	0	0.011908713	0.031723535	0
T6 Public Class 7	Natural Gas	0.888258219	19.62161999	0	0	0	0	1.06	3.064232725	51.06469793	0	0	0	0
T6 Utility Class 5	Diesel	0.018042117	0.160979328	0	0	0	0	0.209960035	0.070854808	5.397567908	0	0.010691877	0.016179921	0
T6 Utility Class 5	Natural Gas	0.694402899	12.68867397	0	0	0	0	1.06	2.862355087	16.7739915	0	0	0	0
T6 Utility Class 6	Diesel	0.023613428	0.164834778	0	0	0	0	0.200792587	0.082600216	5.218317493	0	0.010726181	0.016379039	0
T6 Utility Class 6	Natural Gas	0.699984757	12.51964857	0	0	0	0	1.06	2.855893726	17.49539709	0	0	0	0
T6 Utility Class 7	Diesel	0.013838391	0.159515692	0	0	0	0	0.210683271	0.061691856	5.459382516	0	0.01068113	0.016141324	0
T6 Utility Class 7	Natural Gas	0.688998944	12.98282961	0	0	0	0	1.06	2.868610514	15.51852619	0	0	0	0
T6TS	Gasoline	0.162905811	1.46971161	0.317472415	0.041386409	0.335944684	3.202479782	0.044918922	2.369601518	15.05261494	6.404382346	0.018103136	0.005385651	0.000476432
T7 CAIRP Class 8	Diesel	0.024686365	11.8758039	0	0	0	0	0.213278783	0.088852737	148.9999487	0	0.014913237	0.241335018	0
T7 CAIRP Class 8	Natural Gas	0.945103005	167.2882147	0	0	0	0	1.06	4.20182692	402.0081704	0	0	0	0
T7 NNOOS Class 8	Diesel	0.019278669	14.74188657	0	0	0	0	0.216553799	0.068726294	188.0731449	0	0.015008016	0.29296402	0
T7 NOOS Class 8	Diesel	0.025979194	14.73953382	0	0	0	0	0.212869455	0.091840874	184.9811226	0	0.014921849	0.299153792	0
T7 Other Port Class 8	Diesel	0.073392183	3.899527817	0	0	0	0	0.187097502	0.245550805	41.34675776	0	0.015926501	0.088029361	0
T7 POAK Class 8	Diesel	0.087242186	3.916203737	0	0	0	0	0.180347459	0.280919325	42.60028799	0	0.015922655	0.086923852	0
T7 POAK Class 8	Natural Gas	1.209168346	66.2215546	0	0	0	0	1.06	10.14966711	83.00109014	0	0	0	0
T7 Public Class 8	Diesel	0.137544925	1.307397899	0	0	0	0	0.128814329	0.393676171	9.850024305	0	0.018005284	0.031185938	0
T7 Public Class 8	Natural Gas	1.821260052	21.75954123	0	0	0	0	1.06	9.701777859	36.3007102	0	0	0	0
T7 Single Concrete/Transit M	Diesel	0.016032756	2.129827566	0	0	0	0	0.215467696	0.074338424	26.62638766	0	0.015957543	0.042996893	0
T7 Single Concrete/Transit M	Natural Gas	1.084299315	31.262175	0	0	0	0	1.06	6.171332462	65.81297444	0	0	0	0
T7 Single Dump Class 8	Diesel	0.029429727	2.172790417	0	0	0	0	0.208756273	0.12207616	25.20855445	0	0.015923706	0.045650395	0
T7 Single Dump Class 8	Natural Gas	1.081366174	33.82134175	0	0	0	0	1.06	7.483713004	54.89037227	0	0	0	0
T7 Single Other Class 8	Diesel	0.025955449	2.170441941	0	0	0	0	0.211262428	0.107184851	25.53541211	0	0.015740963	0.044320974	0
T7 Single Other Class 8	Natural Gas	1.082590936	32.71640303	0	0	0	0	1.06	6.907991977	59.60628459	0	0	0	0
T7 SWCV Class 8	Diesel	0.035854354	1.264499282	0	0	0	0	0.085177851	0.083584266	8.894130875	0	0.038561709	0.037262494	0
T7 SWCV Class 8	Natural Gas	4.593443286	17.09689172	0	0	0	0	0.58	21.59419369	66.34640392	0	0	0	0
T7 Tractor Class 8	Diesel	0.040820982	3.932114892	0	0	0	0	0.201122065	0.13999195	45.85998574	0	0.014894305	0.084389892	0
T7 Tractor Class 8	Natural Gas	1.020168484	66.5885418	0	0	0	0	1.06	8.806936318	85.47341337	0	0	0	0
T7 Utility Class 8	Diesel	0.035974173	0.724328656	0	0	0	0	0.205060328	0.176581357	8.664130058	0	0.016575701	0.015646543	0
T7IS	Gasoline	1.385295576	0	0.000577326	0.099927542	0.874667316	6.632794659	0.043786445	46.7880064	0	4.392403063	0.023321517	0	0.000537374
UBUS	Gasoline	0.01111964	0	0.286133159	0.053874662	0.101361143	0.585687622	0.045	0.532837296	0	6.611716174	0.011105093	0	0.000514975
UBUS	Diesel	0.100412989	0	0	0	0	0	0.190792883	0.104029685	0	0	0.012133226	0	0
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Gas	3.151897401	0	0	0	0	0	0.97	36.82333894	0	0	0	0	0

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: County
Region: San Francisco
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Region	Calendar Ye	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Francisco	2022	All Other Buses	Aggregate	Aggregate	Diesel	703.4516	35139.29	35139.29	0	6260.719	0	1.514299844	3.380588808	1.365061063	0.037907221	0.016722644	0	0.003000001	0.016148056	0.039621218	0.017478767	0	0.012000003	0.046137304	0.099748293	0.100287613	0	0	0	0	0.113555839	0.114169814	0	0	0	0	0.206771883	0.287391756	2.192507516	0	0.011083882	0.005840116	0
San Francisco	2022	All Other Buses	Aggregate	Aggregate	Natural Ga	11.53346	527.104	527.104	0	102.6478	0	0.10930178	1.485524834	0	0.001448289	0.005136889	0	0.003000001	0.016148056	0.001575146	0.005586835	0	0.012000003	0.046137304	0.011921327	0.051383131	0	0	0	0	0.851523329	3.670223635	0	0	0	0	1.06	3.374381108	10.14366711	0	0	0	0
San Francisco	2022	LDA	Aggregate	Aggregate	Gasoline	132742.9	4702683	4702683	0	615941.8	0	0.052523306	0	0.291467632	0.001669176	0	0.002112512	0.002000001	0.003238032	0.001815359	0	0.00229744	0.008000002	0.009251521	0.013879416	0	0.391333706	0.101541477	0.256020317	1.487315879	0.020245805	0	0.428459158	0.101541477	0.256020317	1.487315879	0.033256188	0.892746758	0	3.808198255	0.003011328	0	0.000727691
San Francisco	2022	LDA	Aggregate	Aggregate	Diesel	665.3796	18638.28	18638.28	0	2854.52	0	0.218558625	0	0	0.021411272	0	0	0.002000001	0.003284679	0.022379395	0	0	0.008000002	0.009384797	0.040171722	0	0	0	0	0	0.045732835	0	0	0	0	0	0.0031	0.467089276	0	0	0.002471413	0	0
San Francisco	2022	LDA	Aggregate	Aggregate	Electricity	7597.574	325792.7	0	325792.7	37876.72	125782.8563	0	0	0	0	0	0	0.002000001	0.001529908	0	0	0	0.008000002	0.004371165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	LDA	Aggregate	Aggregate	Plug-in Hyb	2958.433	134716.4	69898.61	64817.75	12233.12	19576.89222	0.004156081	0	0.116967433	0.00092723	0	0.002257666	0.002000001	0.001486587	0.001008447	0	0.002455418	0.008000002	0.004247392	0.002022246	0	0.175544867	0.04002749	0.034903919	0.425787158	0.002950857	0	0.192199534	0.04002749	0.034903919	0.425787158	0.019848362	0.265811972	0	1.369749453	0.001638451	0	0.000664697
San Francisco	2022	LDT1	Aggregate	Aggregate	Gasoline	13734.9	422281.7	422281.7	0	62099.75	0	0.115433691	0	0.389212988	0.002165855	0	0.002701703	0.002000001	0.004128992	0.002355454	0	0.002938091	0.008000002	0.011797121	0.029679066	0	0.542639436	0.14986199	0.420750739	2.309763912	0.043283309	0	0.594118678	0.14986199	0.420750739	2.309763912	0.033800221	1.411093391	0	5.274155512	0.003539717	0	0.000871459
San Francisco	2022	LDT1	Aggregate	Aggregate	Diesel	10.14101	104.3145	104.3145	0	29.82591	0	1.531587948	0	0	0.280623545	0	0	0.002000001	0.004801599	0.293312096	0	0	0.008000002	0.013718855	0.353547876	0	0	0	0	0	0.402490752	0	0	0	0	0	0.0031	1.626898634	0	0	0.00438386	0	0
San Francisco	2022	LDT1	Aggregate	Aggregate	Electricity	27.33227	944.5347	0	944.5347	126.9742	364.6683364	0	0	0	0	0	0	0.002000001	0.001540651	0	0	0	0.008000002	0.00440186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	LDT1	Aggregate	Aggregate	Plug-in Hyb	5.471938	249.8404	119.9877	129.8526	22.62646	39.21936861	0.003846892	0	0.116967433	0.000568253	0	0.001507816	0.002000001	0.001484889	0.000618027	0	0.001639888	0.008000002	0.00424254	0.001871803	0	0.175544867	0.025420061	0.023347134	0.293872605	0.00273133	0	0.192199534	0.025420061	0.023347134	0.293872605	0.020170819	0.246037086	0	1.369749453	0.00151656	0	0.00072817
San Francisco	2022	LDT2	Aggregate	Aggregate	Gasoline	60806.75	2110436	2110436	0	287021.3	0	0.073573696	0	0.358791419	0.001740859	0	0.002095632	0.002000001	0.003983933	0.001893335	0	0.002279169	0.008000002	0.011382665	0.014575149	0	0.413675768	0.079640311	0.200254399	1.218126445	0.021265889	0	0.452922589	0.079640311	0.200254399	1.218126445	0.03508822	0.950803779	0	3.976105714	0.003738654	0	0.000897364
San Francisco	2022	LDT2	Aggregate	Aggregate	Diesel	310.8812	11021.16	11021.16	0	1482.849	0	0.053364063	0	0	0.006643087	0	0	0.002000001	0.004013159	0.006943458	0	0	0.008000002	0.011466167	0.02408783	0	0	0	0	0	0.027422393	0	0	0	0	0	0.0031	0.230839175	0	0	0.003399489	0	0
San Francisco	2022	LDT2	Aggregate	Aggregate	Electricity	144.6706	5213.525	0	5213.525	740.9444	2012.850873	0	0	0	0	0	0	0.002000001	0.00152404	0	0	0	0.008000002	0.0043544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	LDT2	Aggregate	Aggregate	Plug-in Hyb	287.132	12661.68	6304.327	6357.356	1187.291	1920.110962	0.003988257	0	0.116967433	0.000762859	0	0.001952861	0.002000001	0.001484909	0.000829679	0	0.002123915	0.008000002	0.004242597	0.001940587	0	0.175544867	0.027072012	0.025521237	0.322684819	0.0028317	0	0.192199534	0.027072012	0.025521237	0.322684819	0.020849658	0.255078371	0	1.369749453	0.00157229	0	0.000791858
San Francisco	2022	LHD1	Aggregate	Aggregate	Gasoline	4841.068	187976.3	187976.3	0	72124.7	0	0.171454709	0.038805403	0.657267602	0.001452655	0	0.000285656	0.002000001	0.027300008	0.001579895	0	0.000310677	0.008000002	0.078000022	0.043492452	0.444723151	0.167011752	0.043350522	0.221564513	2.235868483	0.063464083	0.648938977	0.182856846	0.043350522	0.221564513	2.235868483	0.044888627	1.170768868	3.756660795	3.165068184	0.00883325	0.001199633	0.000259531
San Francisco	2022	LHD1	Aggregate	Aggregate	Diesel	1307.637	57646.31	57646.31	0	16448.43	0	1.328617701	1.978690246	0	0.031403193	0.027457778	0	0.003000001	0.027300008	0.032823106	0.028699296	0	0.012000003	0.078000022	0.155952688	0.109759705	0	0	0	0	0.177541767	0.124954127	0	0	0	0	0.181364614	0.402471665	0.909745076	0	0.006123698	0.001252111	0
San Francisco	2022	LHD2	Aggregate	Aggregate	Gasoline	608.9836	23079.57	23079.57	0	9072.948	0	0.184209916	0.038293007	0.653451358	0.001400516	0	0.000244264	0.002000001	0.031850009	0.001523189	0	0.00026566	0.008000002	0.091000026	0.033387178	0.438880877	0.162400687	0.043043473	0.218100719	2.223460798	0.048718491	0.640413945	0.177808311	0.043043473	0.218100719	2.223460798	0.044972858	0.981154642	3.756713538	3.216789751	0.009921006	0.001383479	0.00025714
San Francisco	2022	LHD2	Aggregate	Aggregate	Diesel	850.5594	35929.26	35929.26	0	10698.97	0	1.047682223	2.086722511	0	0.027751875	0.026964887	0	0.003000001	0.031850009	0.029006692	0.02818412	0	0.012000003	0.091000026	0.140208851	0.109759705	0	0	0	0	0.159618455	0.124954127	0	0	0	0	0.190797098	0.343262958	0.909745076	0	0.007462195	0.002029311	0
San Francisco	2022	MCY	Aggregate	Aggregate	Gasoline	10264.52	58081.13	58081.13	0	20529.04	0	0.64823364	0	0.154635803	0.002247445	0	0.003864973	0.001	0.004200001	0.002396288	0	0.004091957	0.004000001	0.012000003	1.521994334	0	1.499163257	3.58307663	3.730362223	3.680293936	1.816516675	0	1.629307471	3.58307663	3.730362223	3.680293936	0.00869125	15.65280705	0	8.260124856	0.00204296	0	0.000511275
San Francisco	2022	MDV	Aggregate	Aggregate	Gasoline	23369.61	880373.5	880373.5	0	109991.3	0	0.102390416	0	0.429357268	0.001701646	0	0.002185487	0.002000001	0.004002673	0.00185054	0	0.00237652	0.008000002	0.011436208	0.021013094	0	0.523651143	0.089801493	0.235977149	1.396764344	0.030610025	0	0.573324838	0.089801493	0.235977149	1.396764344	0.035294253	1.077552108	0	4.30666191	0.004490705	0	0.00107994
San Francisco	2022	MDV	Aggregate	Aggregate	Diesel	478.5856	18310.32	18310.32	0	2276.176	0	0.066101566	0	0	0.006665534	0	0	0.002000001	0.004059923	0.00696692	0	0	0.008000002	0.011599781	0.020110613	0	0	0	0	0	0.022894596	0	0	0	0	0	0.0031	0.34914003	0	0	0.004380545	0	0
San Francisco	2022	MDV	Aggregate	Aggregate	Electricity	138.2556	5014.009	0	5014.009	709.0444	1935.821345	0	0	0	0	0	0	0.002000001	0.00152309	0	0	0	0.008000002	0.004351685	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	MDV	Aggregate	Aggregate	Plug-in Hyb	143.5603	6643.414	3367.017	3276.397	593.6218	989.5695248	0.004059661	0	0.116967433	0.00088364	0	0.002224854	0.002000001	0.001485985	0.00096104	0	0.002419732	0.008000002	0.004245672	0.001975331	0	0.175544867	0.029566764	0.028484447	0.350585411	0.002882398	0	0.192199534	0.029566764	0.028484447	0.350585411	0.021286452	0.259645217	0	1.369749453	0.00160044	0	0.000981555
San Francisco	2022	MH	Aggregate	Aggregate	Gasoline	267.5348	2411.913	2411.913	0	26.76418	0	0.869944784	0	0.38440174	0.002730867	0	0.000658984	0.003000001	0.015756104	0.002970067	0	0.000716705	0.012000003	0.04501744	0.17453305	0	0.197180504	19.26562707	0.460926369	6.220245193	0.254678216	0	0.215887832	19.26562707	0.460926369	6.220245193	0.044149853	4.900920432	0	4.681420775	0.019308048	0	0.000332737
San Francisco	2022	MH	Aggregate	Aggregate	Diesel	94.45947	1052.152	1052.152	0	9.445947	0	3.804328139	0	0	0.091101943	0	0	0.004000001	0.015674848	0.095221169	0	0	0.016000005	0.044785279	0.118751993	0	0	0	0	0	0.135191249	0	0	0	0	0	0.163320227	0.389732156	0	0	0.010280893	0	0
San Francisco	2022	Motor Coach	Aggregate	Aggregate	Diesel	40.33207	5768.483	5768.483	0	926.831	0	2.129297978	52.84858226	1.913528087	0.028788903	0.018085689	0	0.003000001	0.026246344	0.030090609	0.018903444	0	0.012000003	0.074989556	0.02414384	3.997813032	0	0	0	0	0.027485924	4.551205818	0	0	0	0	0.210709061	0.100753922	55.36166557	0	0.01680681	0.101952495	0
San Francisco	2022	OBUS	Aggregate	Aggregate	Gasoline	243.8428	12763.86	12763.86	0	4878.806	0	0.418293584	0.064927301	0.378027809	0.00088833	0	0.000302274	0.003000001	0.015679547	0.000966139	0	0.00032875	0.012000003	0.044798704	0.061378698	0.744163553	0.189307396	0.031291264	0.130582135	2.146491305	0.089563653	1.08588171	0.20726777	0.031291264	0.130582135	2.146491305	0.044973611	1.475806448	5.762161268	3.797811681	0.017832979	0.003786969	0.00031173
San Francisco	2022	PTO	Aggregate	Aggregate	Diesel	0	4170.758	4170.758	0	0	0	3.22254295	0	0	0.006519391	0	0	0	0	0.006814168	0	0	0	0	0.051879536	0	0	0	0	0	0.059060902	0	0	0	0	0	0.212132822	0.327028933	0	0	0.019979145	0	0
San Francisco	2022	SBUS	Aggregate	Aggregate	Gasoline	109.3599	5710.33	5710.33	0	437.4398	0	0.151926772	0.9258503	0.706912944	0.00088539	0	0.000580175	0.002000001	0.015720998	0.000962943	0	0.000630994	0.008000002	0.044917136	0.011585217	10.63157942	0.315575071	0.067442955	0.098999558	0.718343042	0.016905122	15.51357574	0.34551498	0.067442955	0.098999558	0.718343042	0.045	0.246257584	82.18052726	8.082253258	0.008017051	0.025664945	0.000536385
San Francisco	2022	SBUS	Aggregate	Aggregate	Diesel	151.6575	3843.386	3843.386	0	2196.001	0	1.010418172	12.31021575	0.743474826	0.00640408	0.007289575	0	0.003000001	0.015720998	0.006693644	0.007619177	0	0.012000003	0.044917136	0.015862917	0.17354118	0	0	0	0	0.018058723	0.197563423	0	0	0	0	0.205762622	0.066916827	6.561469576	0	0.011096479	0.019945747	0
San Francisco	2022	SBUS	Aggregate	Aggregate	Natural Ga	17.46119	451.3926	451.3926	0	252.838	0	0.672083467	5.336761024	0	0.003378346	0.009786192	0	0.003000001	0.015720998	0.00367426	0.010643377	0	0.012000003	0.044917136	0.053174009	0.229606787	0	0	0	0	3.798143475	16.40048481	0	0	0	0	1.06	12.9897434	17.20466591	0	0	0	0
San Francisco	2022	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	2.24491	150.4403	150.4403	0	51.58804	0	0.676013964	3.330255114	0.557982608	0.010352487	0.003630929	0	0.003000001	0.014809837	0.010820581	0.003795103	0	0.012000003	0.04231382	0.015128509	0.058847212	0	0	0	0	0.017222656	0.066993071	0	0	0	0	0.210504682	0.05156504	2.031363331	0	0.010818377	0.005821268	0
San Francisco	2022	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	3.0214	206.3771	206.3771	0	69.43177	0	0.596432369	3.156239357	0.568561153	0.007599162	0.001094758	0	0.003000001	0.014809837	0.007942763	0.001144258	0	0.012000003	0.04231382	0.009826153	0.051642452	0	0	0	0	0.011186327	0.058791001	0	0	0	0	0.212483329	0.038883716	2.003681739	0	0.01079014	0.005838065	0
San Francisco	2022	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	9.139923	539.2692	539.2692	0	210.0354	0	0.555014653	3.169253399	0.578107585	0.00901907	0.002680532	0	0.003000001	0.014809837	0.009426872	0.002801734	0	0.012000003	0.04231382	0.012262099	0.055258022	0	0	0	0	0.013959466	0.062907052	0	0	0	0	0.213850294	0.044422067	2.055530436	0	0.010675833	0.005679987	0
San Francisco	2022	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	16.18021	3382.569	3382.569	0	371.8212	0	0.63822341	3.025599718	0.563938041	0.007734995	0.000715061	0	0.003000001	0.014809837	0.008084737	0.000747393	0	0.012000003	0.04231382	0.00890856	0.050418834	0	0	0	0	0.010141717	0.057398005	0	0	0	0	0.213721633	0.038780368	2.022159109	0	0.010052437	0.005773732	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Diesel	360.7452	12256.92	12256.92	0	5147.834	0	1.678394208	13.98792196	1.309797048	0.018409394	0.024182092	0	0.003000001	0.016647027	0.019241785	0.025275499	0	0.012000003	0.047562934	0.0672598	0.231796646	0	0	0	0	0.076570162	0.263882836	0	0	0	0	0.193328198	0.214571974	6.630001013	0	0.011451213	0.020482386	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Natural Ga	1.29388	45.90332	45.90332	0	18.46366	0	0.175979287	5.165615658	0	0.001243038	0.013634204	0	0.003000001	0.016647027	0.001351918	0.01482844	0	0.012000003	0.047562934	0.011465722	0.200631576	0	0	0	0	0.818980138	14.33082687	0	0	0	0	1.06	3.542017683	25.8890114	0	0	0	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Diesel	273.7878	9644.87	9644.87	0	3906.952	0	1.531299337	12.16945779	1.436488368	0.025796541	0.04157148	0	0.003000001	0.016647027	0.026962946	0.043451157	0	0.012000003	0.047562934	0.073704174	0.271774213	0	0	0	0	0.083906592	0.309394254	0	0	0	0	0.203931289	0.235719658	7.31114253	0	0.011306604	0.019756414	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Natural Ga	0.966012	33.54059	33.54059	0	13.78499	0	0.192953887	5.19333237	0	0.001153628	0.012973087	0	0.003000001	0.016647027	0.001254675	0.014109416	0	0.012000003	0.047562934	0.011318246	0.205521068	0	0	0	0	0.808446162	14.68007629	0	0	0	0	1.06	3.501623122	24.39840417	0	0	0	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Diesel	449.75	15560.87	15560.87	0	6417.932	0	1.612975439	12.51188594	1.411569492	0.022421132	0.031659575	0	0.003000001	0.016647027	0.023434916	0.033091081	0	0.012000003	0.047562934	0.065995042	0.25062639	0	0	0	0	0.075130332	0.285319067	0	0	0	0	0.201928982	0.216701847	6.974478225	0	0.011271176	0.020162721	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Natural Ga	2.09362	71.01563	71.01563	0	29.87595	0	0.217798928	5.230366345	0	0.001022761	0.012089729	0	0.003000001	0.016647027	0.001112346	0.013148684	0	0.012000003	0.047562934	0.011102392	0.212054214	0	0	0	0	0.793028004	15.14672955	0	0	0	0	1.06	3.44249922	22.40671373	0	0	0	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Diesel	96.79461	5324.537	5324.537	0	1381.259	0	1.367788314	10.6610634	1.541389468	0.004419479	0.008700103	0	0.003000001	0.016647027	0.004619308	0.009093483	0	0.012000003	0.047562934	0.020461728	0.188028012	0	0	0	0	0.02329412	0.214055578	0	0	0	0	0.213738011	0.11698408	6.868447496	0	0.011007934	0.020177877	0
San Francisco	2022	T6 Instate Delivery Cl	Aggregate	Aggregate	Natural Ga	1.63308	91.66724	91.66724	0	23.30405	0	0.248819222	5.294846284	0	0.00086515	0.010551713	0	0.003000001	0.016647027	0.000940929	0.011475951	0	0.012000003	0.047562934	0.010840357	0.223429089	0	0	0	0	0.774311179	15.95922062	0	0	0	0	1.06	3.380893944	18.93897692	0	0	0	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Diesel	312.6627	12750.51	12750.51	0	3614.381	0	1.936103167	16.14068908	1.474747903	0.033265659	0.076033007	0	0.003000001	0.015702312	0.034769785	0.079470882	0	0.012000003	0.044863749	0.075506324	0.37970709	0	0	0	0	0.085958202	0.432267618	0	0	0	0	0.193645455	0.234188304	7.922702277	0	0.010775416	0.021978777	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Natural Ga	1.325107	54.64402	54.64402	0	15.31824	0	0.16590104	5.611457047	0	0.000809912	0.013255122	0	0.003000001	0.015702312	0.000880853	0.014416154	0	0.012000003	0.044863749	0.008673766	0.226027259	0	0	0	0	0.619554716	16.14480419	0	0	0	0	1.06	2.775284116	24.67070903	0	0	0	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Diesel	453.7568	20006.81	20006.81	0	5245.429	0	1.081512654	12.94534401	1.65251756	0.010083629	0.016610904	0	0.003000001	0.015702312	0.010539565	0.017361975	0	0.012000003	0.044863749	0.027857549	0.220883281	0	0	0	0	0.031713699	0.251458802	0	0	0	0	0.205741215	0.104039857	7.258802502	0	0.010908201	0.021744867	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Natural Ga	2.424694	97.21464	97.21464	0	28.02946	0	0.202423196	5.6856943	0	0.000610389	0.011484368	0	0.003000001	0.015702312	0.000663853	0.012490298	0	0.012000003	0.044863749	0.008259764	0.239123417	0	0	0	0	0.589983145	17.08024405	0	0	0	0	1.06	2.808544798	20.67822301	0	0	0	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Diesel	399.1005	17203.25	17203.25	0	4613.602	0	1.472629262	14.10113851	1.626042242	0.023650155	0.055254988	0	0.003000001	0.015702312	0.02471951	0.057753373	0	0.012000003	0.044863749	0.053164911	0.32562879	0	0	0	0	0.060524204	0.37070359	0	0	0	0	0.203830245	0.174236213	7.843075857	0	0.010757191	0.021658007	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Natural Ga	1.141833	46.99857	46.99857	0	13.1996	0	0.198202322	5.676617697	0	0.000633448	0.011700869	0	0.003000001	0.015702312	0.000688932	0.012725762	0	0.012000003	0.044863749	0.00830761	0.237522217	0	0	0	0	0.593400738	16.96587268	0	0	0	0	1.06	2.804700854	21.16636355	0	0	0	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Diesel	210.4808	10100.89	10100.89	0	2433.158	0	1.331126587	12.96828295	1.639287745	0.008006948	0.024243142	0	0.003000001	0.015702312	0.008368986	0.02533931	0	0.012000003	0.044863749	0.026326878	0.254752817	0	0	0	0	0.029971146	0.29001669	0	0	0	0	0.204265084	0.10494975	7.076701518	0	0.010687566	0.022273069	0
San Francisco	2022	T6 Instate Other Clas	Aggregate	Aggregate	Natural Ga	4.372427	240.266	240.266	0	50.54525	0	0.172341144	5.668544841	0	0.000791637	0.011893428	0	0.003000001	0.015702312	0.000860978	0.012935188	0	0.012000003	0.044863749	0.008628901	0.236098089	0	0	0	0	0.616350081	16.86414921	0	0	0	0	1.06	2.803187458	21.60052242	0	0	0	0
San Francisco	2022	T6 Instate Tractor Cla	Aggregate	Aggregate	Diesel	3.265125	151.0074	151.0074	0	37.74484	0	2.738574651	15.55342173	0.967052471	0.087103629	0.378475409	0	0.003000001	0.015702312	0.091042069	0.395588388	0	0.012000003	0.044863749	0.176187476	1.453900817	0	0	0	0	0.20057603	1.655155407	0	0	0	0	0.143021166	0.450856684	9.670929276	0	0.011105902	0.022550974	0
San Francisco	2022	T6 Instate Tractor Cla	Aggregate	Aggregate	Natural Ga	0.072262	3.097791	3.097791	0	0.835344	0	0.198928914	5.686785618	0	0.000629478	0.011458337	0	0.003000001	0.015702312	0.000684615	0.012461987	0	0.012000003	0.044863749	0.008299374	0.239315936	0	0	0	0	0.592812425	17.09399539	0	0	0	0	1.06	2.80536256	20.61953186	0	0	0	0
San Francisco	2022	T6 Instate Tractor Cla	Aggregate	Aggregate	Diesel	6.739836	408.1129	408.1129	0	77.91251	0	1.248743953	11.59052546	1.847075926	0.008622417	0.019882325	0	0.003000001	0.015702312	0.009012284	0.020781316	0	0.012000003	0.044863749	0.021843803	0.234313285	0	0	0	0	0.024867507	0.266747839	0	0	0	0	0.219854476	0.095587415	7.39536333	0	0.01018046	0.021971345	0
San Francisco	2022	T6 Instate Tractor Cla	Aggregate	Aggregate	Natural Ga	0.192135	12.81411	12.81411	0	2.221085	0	0.200366621	5.702575733	0	0.000630998	0.011081701	0	0.003000001	0.015702312	0.000686268	0.012052361	0	0.012000003	0.044863749	0.008298677	0.242101462	0	0	0	0	0.592762645	17.29296158	0	0	0	0	1.06	2.818890563	19.77033809	0	0	0	0
San Francisco	2022	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1.151218	76.60406	76.60406	0	26.45499	0	0.741952892	3.405711626	0.552427763	0.011770581	0.004749487	0	0.003000001	0.014809837	0.012302794	0.004964237	0	0.012000003	0.04231382	0.017911537	0.062038699	0	0	0	0	0.020390922	0.070626336	0	0	0	0	0.209256785	0.058320912	2.038634559	0	0.010811539	0.005830385	0
San Francisco	2022	T6 OOS Class 5	Aggregate	Aggregate	Diesel	1.543639	105.087	105.087	0	35.47281	0	0.616117716	3.185471852	0.566055008	0.00786072	0.001238921	0	0.003000001	0.014809837	0.008216147	0.001294939	0	0.012000003	0.04231382	0.010455134	0.052042555	0	0	0	0	0.011902374	0.059246487	0	0	0	0	0.211949746	0.040330613	2.00108128	0	0.010787185	0.005844201	0
San Francisco	2022	T6 OOS Class 6	Aggregate	Aggregate	Diesel	4.676579	274.5953	274.5953	0	107.4678	0	0.607948903	3.231191361	0.573436257	0.010162986	0.003451978	0	0.003000001	0.014809837	0.010622511	0.003608061	0	0.012000003	0.04231382	0.014477847	0.057275911	0	0	0	0	0.016481927	0.065204264	0	0	0	0	0.212892254	0.049855425	2.060972658	0	0.010672198	0.005687625	0
San Francisco	2022	T6 OOS Class 7	Aggregate	Aggregate	Diesel	7.907402	1996.649	1996.649	0	181.7121	0	0.657542824	3.038856613	0.560554389	0.007757207	0.000718245	0	0.003000001	0.014809837	0.008107953	0.000750721	0	0.012000003	0.04231382	0.009160301	0.050484474	0	0	0	0	0.010428306	0.057484115	0	0	0	0	0.212646564	0.039326074	2.017630757	0	0.010040777	0.005777624	0
San Francisco	2022	T6 Public Class 4	Aggregate	Aggregate	Diesel	113.4514	3712.724	3712.724	0	582.0059	0	6.911947085	53.61110457	0.404748322	0.033536265	0.057095671	0	0.003000001	0.016159287	0.035052626	0.059677284	0	0.012000003	0.046169392	0.099469205	0.272173381	0	0	0	0	0.113238119	0.309848676	0	0	0	0	0.079337352	0.234267184	4.220803571	0	0.011949392	0.034583601	0
San Francisco	2022	T6 Public Class 4	Aggregate	Aggregate	Natural Ga	1.492559	64.33179	64.33179	0	7.656829	0	0.060046265	7.672151497	0	0.00164235	0.028920524	0	0.003000001	0.016159287	0.001786206	0.031453708	0	0.012000003	0.046169392	0.012610809	0.252960044	0	0	0	0	0.900772044	18.06857456	0	0	0	0	1.06	3.05761776	57.69314345	0	0	0	0
San Francisco	2022	T6 Public Class 5	Aggregate	Aggregate	Diesel	134.9269	5213.854	5213.854	0	692.1751	0	1.968439384	26.0802801	1.570535189	0.008933353	0.012573182	0	0.003000001	0.016159287	0.00933728	0.013141686	0	0.012000003	0.046169392	0.036884842	0.267570071	0	0	0	0	0.041990585	0.304608158	0	0	0	0	0.177938484	0.121684142	8.623568452	0	0.011602004	0.03251474	0
San Francisco	2022	T6 Public Class 5	Aggregate	Aggregate	Natural Ga	6.707305	281.8492	281.8492	0	34.40848	0	0.160526675	8.078049314	0	0.001204609	0.019238793	0	0.003000001	0.016159287	0.001310122	0.020923943	0	0.012000003	0.046169392	0.012002712	0.324564282	0	0	0	0	0.857336584	23.18316302	0	0	0	0	1.06	3.089452109	35.863923	0	0	0	0
San Francisco	2022	T6 Public Class 6	Aggregate	Aggregate	Diesel	87.69228	2982.407	2982.407	0	449.8614	0	6.30892322	41.89551432	0.699317934	0.034954568	0.080803664	0	0.003000001	0.016159287	0.036535058	0.084457247	0	0.012000003	0.046169392	0.097896251	0.391601803	0	0	0	0	0.11144743	0.445808843	0	0	0	0	0.108735344	0.226465506	5.841053396	0	0.011853649	0.032992109	0
San Francisco	2022	T6 Public Class 6	Aggregate	Aggregate	Natural Ga	2.386658	99.90857	99.90857	0	12.24356	0	0.143609607	7.997685389	0	0.001278338	0.021155684	0	0.003000001	0.016159287	0.00139031	0.023008737	0	0.012000003	0.046169392	0.012104664	0.310387321	0	0	0	0	0.86461885	22.17052294	0	0	0	0	1.06	3.08143175	40.18590195	0	0	0	0
San Francisco	2022	T6 Public Class 7	Aggregate	Aggregate	Diesel	219.4212	9223.601	9223.601	0	1125.631	0	6.390075802	42.25290559	0.572676447	0.03822972	0.092502885	0	0.003000001	0.016159287	0.039958298	0.096685455	0	0.012000003	0.046169392	0.101110459	0.421813818	0	0	0	0	0.11510656	0.480202923	0	0	0	0	0.105557558	0.228587332	5.515077733	0	0.011992542	0.032944357	0
San Francisco	2022	T6 Public Class 7	Aggregate	Aggregate	Natural Ga	7.539524	429.4275	429.4275	0	38.67776	0	0.077911928	7.743422148	0	0.001564553	0.027220531	0	0.003000001	0.016159287	0.001701594	0.029604812	0	0.012000003	0.046169392	0.012502205	0.265532865	0	0	0	0	0.893014609	18.96663323	0	0	0	0	1.06	3.060278749	53.86020152	0	0	0	0
San Francisco	2022	T6 Utility Class 5	Aggregate	Aggregate	Diesel	4.802836	195.5731	195.5731	0	61.47631	0	0.80188676	8.981254503	1.33288079	0.004066063	0.002158325	0	0.003000001	0.015923846	0.004249912	0.002255915	0	0.012000003	0.045496703	0.015902017	0.141431332	0	0	0	0	0.018103236	0.161008806	0	0	0	0	0.20991252	0.071041275	5.396040685	0	0.010692738	0.01618724	0
San Francisco	2022	T6 Utility Class 5	Aggregate	Aggregate	Natural Ga	0.061257	2.461314	2.461314	0	0.784086	0	0.225152884	4.289938431	0	0.000690517	0.009174875	0	0.003000001	0.015923846	0.000751	0.009978514	0	0.012000003	0.045496703	0.009717115	0.177774987	0	0	0	0	0.694079622	12.69821333	0	0	0	0	1.06	2.862729301	16.73327723	0	0	0	0
San Francisco	2022	T6 Utility Class 6	Aggregate	Aggregate	Diesel	3.971473	156.1785	156.1785	0	50.83486	0	2.057122332	10.63404929	0.841164387	0.008598336	0.002017822	0	0.003000001	0.015923846	0.008987115	0.002109059	0	0.012000003	0.045496703	0.057839896	0.163393404	0	0	0	0	0.065846318	0.186010952	0	0	0	0	0.134986688	0.15525829	3.935375371	0	0.010812739	0.017608225	0
San Francisco	2022	T6 Utility Class 6	Aggregate	Aggregate	Natural Ga	0.020683	0.864948	0.864948	0	0.264741	0	0.137966597	4.163734529	0	0.001105846	0.01218517	0	0.003000001	0.015923846	0.001202708	0.013252484	0	0.012000003	0.045496703	0.010441514	0.155511417	0	0	0	0	0.745822432	11.10795836	0	0	0	0	1.06	2.802833654	23.52053424	0	0	0	0
San Francisco	2022	T6 Utility Class 7	Aggregate	Aggregate	Diesel	1.039564	51.08202	51.08202	0	13.30642	0	0.678683312	8.521983523	1.28187598	0.003338864	0.001992748	0	0.003000001	0.015923846	0.003489833	0.002082852	0	0.012000003	0.045496703	0.012194709	0.140136941	0	0	0	0	0.013882748	0.15953524	0	0	0	0	0.210635856	0.061845901	5.458316717	0	0.010682076	0.016147328	0
San Francisco	2022	T6 Utility Class 7	Aggregate	Aggregate	Natural Ga	0.021967	0.987878	0.987878	0	0.281175	0	0.234115366	4.312950197	0	0.000647823	0.008625984	0	0.003000001	0.015923846	0.000704566	0.009381545	0	0.012000003	0.045496703	0.009642649	0.181834481	0	0	0	0	0.688760621	12.98817723	0	0	0	0	1.06	2.868886389	15.4957024	0	0	0	0
San Francisco	2022	T6TS	Aggregate	Aggregate	Gasoline	697.272	34191.93	34191.93	0	13951.02	0	0.579800959	0.088436682	0.447442503	0.001116268	0	0.000478048	0.003000001	0.015756104	0.001214043	0	0.000519921	0.012000003	0.04501744	0.095101322	1.011869744	0.270261693	0.038773726	0.297250548	2.782356251	0.138771626	1.476517955	0.295902536	0.038773726	0.297250548	2.782356251	0.044928395	2.011103185	15.10710467	5.749320789	0.018442802	0.005448727	0.000469952
San Francisco	2022	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	48.21612	10035.55	10035.55	0	1108.006	0	1.97346422	128.9758552	2.077941489	0.032613242	0.043723315	0	0.009000003	0.026130009	0.034087868	0.045700289	0	0.03600001	0.074657169	0.021594944	10.43180725	0	0	0	0	0.0245842	11.87581847	0	0	0	0	0.213320353	0.088285758	149.0271834	0	0.014902521	0.241050779	0
San Francisco	2022	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Ga	0.093521	20.32086	20.32086	0	2.149107	0	0.236000916	64.89938856	0	0.00164731	0.206326706	0	0.009000003	0.025934421	0.0017916	0.224399118	0	0.03600001	0.074098345	0.013233548	2.338772839	0	0	0	0	0.9452534	167.0552028	0	0	0	0	1.06	4.181099165	403.0026725	0	0	0	0
San Francisco	2022	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	43.54044	11939.43	11939.43	0	1000.559	0	1.708569752	156.8445937	2.204073352	0.030367598	0.053639327	0	0.009000003	0.026044873	0.031740686	0.05606466	0	0.03600001	0.074413923	0.016854902	12.94939184	0	0	0	0	0.019188023	14.74189689	0	0	0	0	0.216589318	0.0683389	188.1062197	0	0.014997846	0.292675459	0
San Francisco	2022	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	18.13487	4338.395	4338.395	0	416.7394	0	2.029591199	160.0005233	2.086071196	0.033503748	0.054254078	0	0.009000003	0.02614303	0.035018639	0.056707207	0	0.03600001	0.074694371	0.02269069	12.94734295	0	0	0	0	0.025831623	14.73956438	0	0	0	0	0.212936825	0.091263891	185.0387887	0	0.014912541	0.298826443	0
San Francisco	2022	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	5.048749	871.3539	871.3539	0	82.59754	0	3.125728438	51.89239446	1.639740562	0.023564028	0.018266652	0	0.009000003	0.031113367	0.024629489	0.019092589	0	0.03600001	0.088895335	0.06447684	3.42537423	0	0	0	0	0.073401974	3.899527817	0	0	0	0	0.187092457	0.245580323	41.34675776	0	0.015926771	0.088029361	0
San Francisco	2022	T7 POAK Class 8	Aggregate	Aggregate	Diesel	31.55887	3099.898	3099.898	0	516.3031	0	3.445525891	50.99971117	1.732583761	0.025498277	0.020613016	0	0.009000003	0.031521545	0.026651196	0.021545045	0	0.03600001	0.090061556	0.076665591	3.44012195	0	0	0	0	0.087277939	3.916316973	0	0	0	0	0.18020822	0.281098542	42.58724066	0	0.015923906	0.086929681	0
San Francisco	2022	T7 POAK Class 8	Aggregate	Aggregate	Natural Ga	0.059555	5.840973	5.840973	0	0.974312	0	0.627616056	22.16854105	0	0.001404216	0.046001845	0	0.009000003	0.029833581	0.001527213	0.050031204	0	0.03600001	0.085238803	0.016927634	0.9259856	0	0	0	0	1.209116709	66.1418286	0	0	0	0	1.06	10.12734903	83.34136315	0	0	0	0
San Francisco	2022	T7 Public Class 8	Aggregate	Aggregate	Diesel	457.6959	19265.33	19265.33	0	2347.98	0	9.574420796	34.26512387	2.913973146	0.056614624	0.104121578	0	0.009000003	0.040056854	0.059174486	0.108829493	0	0.03600001	0.114448156	0.131095474	1.206116171	0	0	0	0	0.149242218	1.373071449	0	0	0	0	0.124260177	0.432772443	9.739149938	0	0.018081334	0.031252264	0
San Francisco	2022	T7 Public Class 8	Aggregate	Aggregate	Natural Ga	1.579772	79.22463	79.22463	0	8.104228	0	0.606842552	7.723416385	0	0.002493827	0.018832799	0	0.009000003	0.036047871	0.002712265	0.020482387	0	0.03600001	0.102993917	0.025605203	0.308038033	0	0	0	0	1.828943099	22.00271667	0	0	0	0	1.06	9.861272649	35.26282996	0	0	0	0
San Francisco	2022	T7 Single Concrete/Tr	Aggregate	Aggregate	Diesel	28.0715	2100.821	2100.821	0	264.4336	0	1.08401902	22.18294321	3.504007814	0.01371815	0.011078642	0	0.009000003	0.028126325	0.014338424	0.011579569	0	0.03600001	0.080360927	0.011211111	1.87131815	0	0	0	0	0.012762997	2.130353266	0	0	0	0	0.21995518	0.061641984	27.23591213	0	0.016085165	0.042567831	0
San Francisco	2022	T7 Single Concrete/Tr	Aggregate	Aggregate	Natural Ga	1.981367	149.819	149.819	0	18.66448	0	0.298696175	11.66543421	0	0.001809453	0.034954822	0	0.009000003	0.028124083	0.001967945	0.038016559	0	0.03600001	0.080354522	0.01519529	0.431455573	0	0	0	0	1.085377864	30.81825523	0	0	0	0	1.06	5.784350521	67.70763764	0	0	0	0
San Francisco	2022	T7 Single Dump Class	Aggregate	Aggregate	Diesel	160.8004	10242.07	10242.07	0	1514.739	0	1.700987663	24.28289708	2.886163167	0.016593952	0.021649788	0	0.009000003	0.028619506	0.017344257	0.022628695	0	0.03600001	0.081770018	0.021818154	1.901767042	0	0	0	0	0.024838307	2.165017012	0	0	0	0	0.210650567	0.10661107	25.48856155	0	0.016045512	0.044825573	0
San Francisco	2022	T7 Single Dump Class	Aggregate	Aggregate	Natural Ga	10.78631	738.2241	738.2241	0	101.6071	0	0.360370511	11.7922567	0	0.001679211	0.031929772	0	0.009000003	0.02846303	0.001826295	0.034726541	0	0.03600001	0.081322942	0.015165907	0.453828269	0	0	0	0	1.083279055	32.41630492	0	0	0	0	1.06	6.662651778	60.88711255	0	0	0	0
San Francisco	2022	T7 Single Other Class	Aggregate	Aggregate	Diesel	131.538	7373.186	7373.186	0	1239.088	0	1.660352551	24.12803615	2.829170496	0.016871169	0.02780025	0	0.009000003	0.028476518	0.017634008	0.029057254	0	0.03600001	0.08136148	0.023348802	1.922531666	0	0	0	0	0.026580833	2.188655956	0	0	0	0	0.211615526	0.10923714	25.43753747	0	0.015678611	0.04394893	0
San Francisco	2022	T7 Single Other Class	Aggregate	Aggregate	Natural Ga	6.730513	400.6482	400.6482	0	63.40143	0	0.385183401	11.83857683	0	0.00162094	0.030824915	0	0.009000003	0.028435171	0.00176292	0.033524908	0	0.03600001	0.081243345	0.015150164	0.461999579	0	0	0	0	1.082154545	32.99996996	0	0	0	0	1.06	7.067576417	58.39601224	0	0	0	0
San Francisco	2022	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	251.0771	16281.55	16281.55	0	1154.954	0	8.719780345	39.24452153	1.835590819	0.012298185	0.048896147	0	0.009000003	0.073500021	0.012854255	0.051107014	0	0.03600001	0.21000006	0.037790301	1.156777399	0	0	0	0	0.043021381	1.316903013	0	0	0	0	0.089992617	0.098539625	9.321832747	0	0.038350239	0.037230122	0
San Francisco	2022	T7 SWCV Class 8	Aggregate	Aggregate	Natural Ga	192.6409	12474.56	12474.56	0	886.1482	0	2.455948364	7.355022639	0	0.002815727	0.000668149	0	0.009000003	0.073500021	0.00306236	0.000726673	0	0.03600001	0.21000006	0.124313447	0.343846711	0	0	0	0	4.256481196	16.51587608	0	0	0	0	0.58	20.28101102	65.0561228	0	0	0	0
San Francisco	2022	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	127.582	10775.45	10775.45	0	1853.767	0	2.312753097	46.40725963	3.31203633	0.023879271	0.017945417	0	0.009000003	0.028188113	0.024958986	0.01875683	0	0.03600001	0.080537466	0.034665681	3.452915779	0	0	0	0	0.039464239	3.930881774	0	0	0	0	0.200818012	0.136550112	45.88531739	0	0.014991849	0.084172005	0
San Francisco	2022	T7 Tractor Class 8	Aggregate	Aggregate	Natural Ga	22.24656	1971.741	1971.741	0	323.2425	0	0.547444766	22.53804249	0	0.001176491	0.043536987	0	0.009000003	0.027442402	0.001279541	0.047350446	0	0.03600001	0.078406862	0.014239987	0.958201085	0	0	0	0	1.017141917	68.44293465	0	0	0	0	1.06	9.502239727	77.5588078	0	0	0	0
San Francisco	2022	T7 Utility Class 8	Aggregate	Aggregate	Diesel	15.55231	741.4707	741.4707	0	199.0696	0	1.613603391	8.729102844	4.542195495	0.007463154	0.003093967	0	0.009000003	0.033547475	0.007800605	0.003233863	0	0.03600001	0.095849928	0.025400277	0.637067176	0	0	0	0	0.028916281	0.725252485	0	0	0	0	0.20962947	0.159309992	8.870388978	0	0.016572197	0.015580563	0
San Francisco	2022	T7IS	Aggregate	Aggregate	Gasoline	4.764241	152.1637	152.1637	0	95.32293	0	9.161882564	0	0.086083684	0.004795081	0	0.002034927	0.005000001	0.035991365	0.005215088	0	0.002213169	0.020000006	0.102832472	2.5437262	0	0.000157021	0.143883468	1.274917727	9.347303205	3.711799301	0	0.000171918	0.143883468	1.274917727	9.347303205	0.040094599	102.4061443	0	5.369293513	0.026095494	0	0.000568288
San Francisco	2022	UBUS	Aggregate	Aggregate	Gasoline	134.3791	6559.251	6559.251	0	537.5163	0	0.036522441	0	0.585780188	0.000713893	0	0.000116033	0.002013339	0.03193871	0.000776423	0	0.000126196	0.008053356	0.091253458	0.006932327	0	0.210255156	0.064011857	0.108912537	0.644345993	0.010115635	0	0.23020293	0.064011857	0.108912537	0.644345993	0.045	0.584487186	0	5.786580568	0.009945793	0	0.000403728
San Francisco	2022	UBUS	Aggregate	Aggregate	Diesel	786.2462	63690.8	63690.8	0	3144.985	0	0.411295441	0	0	0.007487415	0	0	0.008771808	0.038491863	0.007825962	0	0	0.035087231	0.109976752	0.072742002	0	0	0	0	0	0.082811233	0	0	0	0	0	0.215724628	0.084577841	0	0	0.012559386	0	0
San Francisco	2022	UBUS	Aggregate	Aggregate	Natural Ga	58.71304	5123.065	5123.065	0	234.8522	0	0.057852413	0	0	0.000341506	0	0	0.007853704	0.038459081	0.000356948	0	0	0.031414817	0.109883089	0.059441091	0	0	0	0	0	4.205773434	0	0	0	0	0	0.97	47.02499797	0	0	0	0	0

OFFROAD2017 Grams Per Horsepower-Hour Calculation

Constants	
year	days
1	365
lbs	grams
1	453.5924
ton	lbs
1	2000

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_g_hp-hr	CO_g_hp-hr	NOx_g_hp-hr	PM10_g_hp-hr	PM2.5_g_hp-hr	Horsepower_Hours_hhpy	Fuel Consumption
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	25	Diesel	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	50	Diesel	0.321301735	2.205149548	2.180305727	0.12241172	0.112618782	1136.124601	33.57328843
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	75	Diesel	0.11209156	1.667242373	1.696274661	0.083878075	0.077167829	2049.044769	52.33565427
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	100	Diesel	0.090348896	1.649032647	1.062956008	0.043412067	0.039939102	6130.165403	157.9932805
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	175	Diesel	0.069336235	1.474558665	0.651717225	0.029051691	0.026727556	9391.558362	245.0349993
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	300	Diesel	0.061133524	0.534148332	0.63126134	0.02061702	0.018967659	13671.49036	351.6300769
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	600	Diesel	0.051004372	0.489896643	0.473767957	0.015838932	0.014571817	23088.5086	592.2389584
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	750	Diesel	0.040829837	0.485736894	0.324740073	0.012719567	0.011702001	12203.19285	320.5574147
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	9999	Diesel	0.083512817	0.496402155	1.932182413	0.044370983	0.040821304	7071.547057	183.4659826
San Francisco	2022	ConstMin - Cranes	Aggregate	25	Diesel	0.336765743	1.568785802	1.381011785	0.106082208	0.097595632	39.17012172	0.648619353
San Francisco	2022	ConstMin - Cranes	Aggregate	50	Diesel	0.613420004	2.207105487	1.759231603	0.182053824	0.167489518	628.4164757	10.50895578
San Francisco	2022	ConstMin - Cranes	Aggregate	75	Diesel	0.379610603	1.311104985	2.861182911	0.266540294	0.24521707	282.8767799	4.238953277
San Francisco	2022	ConstMin - Cranes	Aggregate	100	Diesel	0.165110138	1.147587269	1.479851118	0.098286673	0.090423739	15986.12158	237.4749588
San Francisco	2022	ConstMin - Cranes	Aggregate	175	Diesel	0.131511588	1.000477581	1.323731007	0.071144862	0.065453273	48738.73707	727.1748894
San Francisco	2022	ConstMin - Cranes	Aggregate	300	Diesel	0.094757432	0.519767715	1.076101888	0.044578645	0.041012354	84238.37	1253.876067
San Francisco	2022	ConstMin - Cranes	Aggregate	600	Diesel	0.0680279	0.546940089	0.749870596	0.030068827	0.027663321	146820.1141	2186.201781
San Francisco	2022	ConstMin - Cranes	Aggregate	750	Diesel	0.096549707	0.753489005	0.987046399	0.048393454	0.044521978	2952.533551	43.87194787
San Francisco	2022	ConstMin - Cranes	Aggregate	9999	Diesel	0.194955862	1.638932939	2.280543177	0.104879957	0.09648956	8113.479811	120.7724649
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	50	Diesel	0.822809526	3.051553784	2.331457375	0.233519052	0.214837528	1388.275968	34.03537222
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	75	Diesel	0.837940453	2.716403406	6.636013733	0.486540323	0.447617097	164.8363382	3.663133224
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	100	Diesel	0.253861754	1.669272992	2.159265312	0.172806789	0.158982246	67442.15214	1499.489004
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	175	Diesel	0.16760464	1.402515386	1.64696552	0.092044782	0.084681199	73898.57189	1640.049163
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	300	Diesel	0.151776725	0.840331083	1.802897518	0.07253825	0.06673519	77639.70194	1720.498644
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	600	Diesel	0.094520622	0.662681795	1.019487229	0.039481838	0.036323291	271625.1566	6016.278985
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	750	Diesel	0.183796247	1.137533062	2.316575466	0.082854594	0.076226227	2803.73291	61.78970144
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	9999	Diesel	0.152570145	0.681840945	2.580497534	0.069892954	0.064301517	15627.96931	346.9713134
San Francisco	2022	ConstMin - Excavators	Aggregate	25	Diesel	1.515194435	4.254947078	2.89014486	0.402799623	0.370575653	18.99530235	0.41870114
San Francisco	2022	ConstMin - Excavators	Aggregate	50	Diesel	0.181765381	1.628093938	1.410026379	0.060750969	0.055890892	61997.43005	1360.903126
San Francisco	2022	ConstMin - Excavators	Aggregate	75	Diesel	0.743674545	2.410815781	5.889481141	0.431805926	0.397261452	16.26069474	0.320707127
San Francisco	2022	ConstMin - Excavators	Aggregate	100	Diesel	0.095074294	1.329906557	0.988781597	0.051896904	0.047745152	89844.06749	1766.302804
San Francisco	2022	ConstMin - Excavators	Aggregate	175	Diesel	0.07364215	1.174795048	0.645850937	0.03137225	0.02886247	188693.3096	3728.065198
San Francisco	2022	ConstMin - Excavators	Aggregate	300	Diesel	0.058048957	0.425820977	0.546908706	0.017416762	0.016023421	240739.6265	4759.613946
San Francisco	2022	ConstMin - Excavators	Aggregate	600	Diesel	0.048536903	0.401565517	0.390310311	0.013124297	0.012074353	429986.2529	8464.815472
San Francisco	2022	ConstMin - Excavators	Aggregate	750	Diesel	0.092196596	0.680898649	1.085543053	0.036265106	0.033363897	3356.012013	67.41053057
San Francisco	2022	ConstMin - Excavators	Aggregate	9999	Diesel	0.042511948	0.377967093	1.048081374	0.014537194	0.013374218	11884.97512	235.0174678
San Francisco	2022	ConstMin - Graders	Aggregate	25	Diesel	0.812527696	3.163338209	2.48849861	0.299887732	0.275896713	11.13031699	0.261639704
San Francisco	2022	ConstMin - Graders	Aggregate	50	Diesel	0.9192375	3.233440522	2.314313624	0.25740265	0.236810438	371.8470096	8.740342904
San Francisco	2022	ConstMin - Graders	Aggregate	75	Diesel	0.628252406	2.113798992	4.904099478	0.411717917	0.378780483	174.052929	3.770296077
San Francisco	2022	ConstMin - Graders	Aggregate	100	Diesel	0.357019862	1.803350137	2.807380592	0.223149964	0.205297967	9610.372952	200.2493492
San Francisco	2022	ConstMin - Graders	Aggregate	175	Diesel	0.177041725	1.413992278	1.659940241	0.092142933	0.084771499	107329.8068	2276.975549
San Francisco	2022	ConstMin - Graders	Aggregate	300	Diesel	0.124772972	0.531955925	1.470145792	0.048652247	0.044760067	227117.3085	4802.10933
San Francisco	2022	ConstMin - Graders	Aggregate	600	Diesel	0.139403011	0.464859706	1.825166877	0.056083803	0.051597099	9727.533977	206.3939891
San Francisco	2022	ConstMin - Graders	Aggregate	9999	Diesel	0.191892503	0.805720937	2.648444616	0.081205845	0.074709377	7708.95104	162.9868802
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	50	Diesel	0.336859684	2.228085745	1.857101308	0.112340667	0.103353413	22589.56623	564.4199926
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	75	Diesel	0.141704927	1.607618809	1.397804748	0.076344596	0.070237028	14375.92614	324.3688299
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	100	Diesel	0.156297104	1.603318813	1.519266217	0.109294464	0.100550907	17422.33242	393.0839695
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	175	Diesel	0.101913684	1.387554651	0.984024781	0.04747356	0.043675675	27259.98439	614.1000797
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	300	Diesel	0.080431019	0.514619819	0.777936275	0.027479051	0.025280727	23005.12271	517.407114
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	600	Diesel	0.058432622	0.459479081	0.454051614	0.015757322	0.014496736	77028.83375	1730.358641
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	750	Diesel	0.100688517	0.460739535	0.747264901	0.037897668	0.034881855	3424.293798	75.88691113
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	9999	Diesel	0.111442594	0.558316091	1.570015067	0.041959544	0.038602781	4240.64869	95.47690083
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	25	Diesel	0.887314416	3.223827675	2.113836679	0.22748165	0.209283118	101.324549	2.223665619
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	50	Diesel	0.278888357	2.055377181	1.647314087	0.098987976	0.091068938	2390.505536	52.21314757
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	75	Diesel	0.125976871	1.550135056	0.880831951	0.03576336	0.032902291	792.4070611	15.63879268
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	100	Diesel	0.125754388	1.472101677	1.132210384	0.07216905	0.066395526	1949.203513	38.58533338
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	175	Diesel	0.094067339	1.260598866	0.70897299	0.0347115	0.03193458	65512.01393	1291.510381
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	300	Diesel	0.082792164	0.499258172	0.628205223	0.024826039	0.022839956	133891.0738	2633.180034
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	600	Diesel	0.074448597	0.47108272	0.568693105	0.020583352	0.018936683	570110.5719	11262.45255
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	750	Diesel	0.100418998	0.669091278	0.856266106	0.033375973	0.030705895	194397.2556	3833.394457
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	9999	Diesel	0.079890857	0.473359591	1.346742333	0.027994957	0.02575536	341756.0387	6771.245079
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	50	Diesel	0.380538379	2.13815064	1.961817164	0.143910409	0.132397576	12714.11634	305.1196011
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	75	Diesel	0.447167699	1.911275337	3.707405586	0.29086367	0.267594576	1876.023512	39.79331978
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	100	Diesel	0.170365096	1.501637523	1.607591186	0.111794632	0.102851061	42670.63463	915.9399209
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	175	Diesel	0.123403068	1.313336311	0.795736392	0.053376231	0.049113693	24286.85873	519.7531927
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	300	Diesel	0.098014121	0.580253706	1.125007508	0.043391281	0.039919978	31692.20136	682.7109952
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	600	Diesel	0.07429142	0.574692464	0.784847884	0.028934051	0.026619327	122468.5831	2629.507446
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	750	Diesel	0.077779515	0.453708138	0.897268065	0.029501396	0.027141284	24306.47972	520.284176
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	9999	Diesel	0.05319908	0.410569997	1.195763092	0.021748603	0.020008715	7838.613485	168.2953874
San Francisco	2022	ConstMin - Pavers	Aggregate	50	Diesel	0.451618628	2.11597725	1.829089904	0.136397423	0.125485629	1562.450523	37.33010468
San Francisco	2022	ConstMin - Pavers	Aggregate	75	Diesel	0.43270782	1.718322708	3.232859364	0.311632624	0.286702014	2678.677134	57.02333432
San Francisco	2022	ConstMin - Pavers	Aggregate	100	Diesel	0.099887029	1.411019751	1.176841171	0.061946512	0.056988951	14166.21817	303.1221058
San Francisco	2022	ConstMin - Pavers	Aggregate	175	Diesel	0.090914364	1.24691529	0.918122996	0.044110966	0.040581997	22893.92095	492.8421384
San Francisco	2022	ConstMin - Pavers	Aggregate	300	Diesel	0.062110961	0.420840247	0.827046281	0.025292609	0.023269201	17912.32336	384.876249
San Francisco	2022	ConstMin - Pavers	Aggregate	600	Diesel	0.045831217	0.404047884	0.528574593	0.015310786	0.014085923	3258.021744	69.99502897
San Francisco	2022	ConstMin - Pavers	Aggregate	750	Diesel	0.021730845	0.38853588	0.107558361	0.003652122	0.003359953	672.0428834	14.43798009
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	50	Diesel	0.203373716	1.510444291	1.365121951	0.066995276	0.061636654	2288.79931	46.47790559
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	75	Diesel	0.186266433	1.386915199	1.967367877	0.144472471	0.132914674	388.5938728	7.194899261
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	100	Diesel	0.092366787	1.222305814	0.965447562	0.05119814	0.047102288	10508.88949	193.255579
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	175	Diesel	0.085689479	1.099779951	0.812509871	0.043009986	0.039566427	11427.35005	209.4927352
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	300	Diesel	0.070081541	0.411486311	0.795736392	0.030484136	0.028045405	7653.071454	140.5996892
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	600	Diesel	0.059664765	0.389177246	0.661882172	0.021304655	0.019600283	8211.25506	150.5821751
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	750	Diesel	0.043746926	0.347376982	0.414058204	0.010420429	0.009586794	1634.805849	30.05628067
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	9999	Diesel	0.035825826	0.35028636	0.831365928	0.013692994	0.012597555	742.3479723	13.63999568
San Francisco	2022	ConstMin - Rollers	Aggregate	50	Diesel	0.275662513	1.646945675	1.544840468	0.093461504	0.085984584	35479.63125	765.4603248
San Francisco	2022	ConstMin - Rollers	Aggregate	75	Diesel	0.734930287	2.383094446	5.466293087	0.395228158	0.363609905	435.2363199	8.492899831
San Francisco	2022	ConstMin - Rollers	Aggregate	100	Diesel	0.111973384	1.28953284	1.172853274	0.067106019	0.061737537	61291.55002	1189.31422
San Francisco	2022	ConstMin - Rollers	Aggregate	175	Diesel	0.061593632	1.092065597	0.642528385	0.029497622	0.027137996	63846.96946	1237.944134
San Francisco	2022	ConstMin - Rollers	Aggregate	300	Diesel	0.082675566	0.579646705	0.963652625	0.036332202	0.033430599	10564.59323	205.0273854
San Francisco	2022	ConstMin - Rollers	Aggregate	600	Diesel	0.056960755	0.52308405	0.650706355	0.022018826	0.02025732	6159.526115	120.1690311
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	25	Diesel	0.156416062	1.60730957	2.004533949	0.112164442	0.103191287	17.321516	0.400652243
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	50	Diesel	0.318412548	1.729404929	1.618791023	0.095200178	0.087584163	1670.249573	38.59070859
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	75	Diesel	0.710126686	2.379983533	5.852836187	0.399186657	0.367251725	51.15685211	1.06384701
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	100	Diesel	0.052167631	1.292028813	0.775099567	0.02081984	0.019154253	146543.0735	3048.787784
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	175	Diesel	0.1012742	1.207192389	0.899037486	0.0600147	0.055213524	32254.4647	670.5707001
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	300	Diesel	0.046828981	0.396826608	0.625534759	0.014502517	0.013342316	2366.776982	49.21610345
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	600	Diesel	0.027632686	0.378034755	0.237119839	0.003589351	0.003302203	885.6876051	18.29778788
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	750	Diesel	0.043847381	0.391507054	0.537828106	0.003809007	0.003504287	151.563265	3.148523308
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	50	Diesel	0.499195802	2.475994854	1.803085375	0.146767016	0.135025654	1496.047045	34.00363011
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	75	Diesel	0.352522601	1.782092601	2.845474756	0.213906195	0.1957937	1662.201623	34.18477674
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	100	Diesel	0.273487749	1.664869608	2.289067512	0.174975742	0.160977683	5267.425966	108.4568699
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	175	Diesel	0.254438196	1.504273262	2.31515005	0.147816665	0.135991332	7467.179772	152.7219157
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	300	Diesel	0.211138285	1.196332094	2.32213461	0.106743139	0.098203872	8049.706667	165.1258722
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	600	Diesel	0.186044428	1.477250686	1.922624475	0.086250333	0.079350306	83441.59304	1718.137186
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	750	Diesel	0.098975298	0.430236322	1.429308234	0.040085796	0.036878932	2402.664875	49.12257243
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	50	Diesel	0.427738351	2.251703355	1.723195555	0.128591554	0.11830423	5102.650417	106.5113227
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	100	Diesel	0.159493725	1.391970834	1.365707845	0.096589484	0.088862325	139830.3583	2592.235743
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	175	Diesel	0.106706245	1.194360406	0.911064528	0.049142178	0.045210804	329287.5929	6146.875603
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	300	Diesel	0.08142387	0.446627143	0.838510974	0.028274852	0.026012864	477578.8416	8910.803597
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	600	Diesel	0.088459577	0.506064219	0.823984652	0.030936177	0.028461282	616686.4189	11482.77598
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	750	Diesel	0.063712833	0.529163297	0.46579033	0.016450782	0.01513472	60167.0322	1116.866645
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	9999	Diesel	0.073721985	0.412847137	1.3653785	0.028664815	0.026371163	42522.35872	797.100957
San Francisco	2022	ConstMin - Scrapers	Aggregate	25	Diesel	0.063732399	1.483957533	1.361537396	0.004746627	0.004366897	9.811230798	0.272198565
San Francisco	2022	ConstMin - Scrapers	Aggregate	50	Diesel	1.619952964	4.564759878	3.239257711	0.451296505	0.415192785	79.41755276	2.166491813
San Francisco	2022	ConstMin - Scrapers	Aggregate	75	Diesel	0.489213994	2.115650027	3.756761908	0.324701944	0.298725789	765.5981376	19.11869415
San Francisco	2022	ConstMin - Scrapers	Aggregate	100	Diesel	0.265450339	1.92521745	2.770130431	0.205904471	0.189432114	3435.313036	86.16676478
San Francisco	2022	ConstMin - Scrapers	Aggregate	175	Diesel	0.1910943	1.643513028	1.875902434	0.100099986	0.092091987	46316.58207	1162.463968
San Francisco	2022	ConstMin - Scrapers	Aggregate	300	Diesel	0.163322544	0.849629593	1.753320322	0.076443598	0.07032811	55053.50787	1370.102659
San Francisco	2022	ConstMin - Scrapers	Aggregate	600	Diesel	0.117072961	0.874299784	1.278118737	0.048763379	0.044862308	679446.9015	16978.33188
San Francisco	2022	ConstMin - Scrapers	Aggregate	750	Diesel	0.332209156	3.083000811	4.56128814	0.184688377	0.169913307	10409.22023	260.8672247
San Francisco	2022	ConstMin - Scrapers	Aggregate	9999	Diesel	0.241315491	2.423312197	3.308745798	0.123167291	0.113313908	15729.36521	392.3448574
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	50	Diesel	0.134190551	1.344289813	1.262142828	0.037868206	0.03483875	27265.59516	579.3568423
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	75	Diesel	0.060139816	1.20295862	0.800635751	0.02927348	0.026931602	159206.4185	3034.611064
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	100	Diesel	0.078654302	1.258802185	1.158175837	0.075718029	0.069660587	2339.191971	44.21319359
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	175	Diesel	0.057493135	1.054376963	0.579644047	0.02627951	0.024177149	1093.518984	20.78947766
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	300	Diesel	0.038219037	0.361608593	0.457442762	0.013111933	0.012062978	1013.852228	19.31976977
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	600	Diesel	0.058865947	0.365691967	0.785678839	0.033157775	0.030505153	292.8830208	5.985405617
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	9999	Diesel	0.116596371	0.643300716	1.717466302	0.057200871	0.052624801	397.312361	7.560616742

OFFROAD2017 Gallons Per Horsepower-Hour Calculation

Constants	
year	days
1	365
lbs	grams
1	453.5924
ton	lbs
1	2000

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_g_hp-hr	CO_g_hp-hr	NOx_g_hp-hr	PM10_g_hp-hr	PM2.5_g_hp-hr	Horsepower_Hours_hhpy	Fuel Consumption
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	50	Diesel	0.127193307	1.121515701	1.162830334	0.04591332	0.042240254	307.563873	5.369788349
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	75	Diesel	0.170990019	1.14741424	1.981532856	0.121635938	0.111905063	206.7029409	3.237876708
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	100	Diesel	0.062181958	0.993767739	0.748842635	0.03536736	0.032537972	2122.858072	33.22061941
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	175	Diesel	0.097686576	0.939649134	1.014314573	0.055069377	0.050663827	1747.702351	27.26997169
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	300	Diesel	0.062788709	0.403105183	0.875296668	0.02896796	0.026650523	3541.972253	55.29655451
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	600	Diesel	0.034011603	0.320182754	0.377397754	0.014188674	0.01305358	12437.17549	193.910244
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	750	Diesel	0.0387188	0.307803401	0.454463472	0.018277836	0.016815609	4815.109912	75.08404806
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	9999	Diesel	0.043703658	0.33597709	0.990952353	0.01925391	0.017713597	2054.320934	32.0417083
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	50	Diesel	0.458660182	2.479979087	2.042919682	0.152203413	0.14002714	13487.34784	353.2807478
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	75	Diesel	0.231438658	1.737520657	1.973986513	0.144934861	0.133340072	4452.883429	104.735851
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	100	Diesel	0.153998465	1.65908116	1.479462486	0.095788633	0.088125542	18719.4739	441.2712605
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	175	Diesel	0.146083801	1.464545188	1.364839321	0.09573814	0.090479093	5777.988581	136.1959838
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	300	Diesel	0.080144119	0.504867638	0.903106144	0.028763063	0.026462018	3469.944936	81.79188593
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	600	Diesel	0.237526475	3.19351259	2.68976669	0.135826879	0.124960729	468.6119317	11.04589922
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	9999	Diesel	0.022892765	0.424598102	1.027820645	0.008018191	0.007376736	602.0953304	14.19230688
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	50	Diesel	0.256433431	1.774210678	1.502351029	0.081163233	0.074670174	54437.67759	1144.189418
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	75	Diesel	0.586083932	1.954925931	4.597641153	0.372215145	0.342437933	8845.663797	168.4976631
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	100	Diesel	0.090877575	1.290403385	0.937161443	0.049245502	0.045305862	955394.1381	18274.20335
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	175	Diesel	0.073832143	1.138690717	0.648114271	0.032972163	0.03033439	188193.7715	3188.675007
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	300	Diesel	0.07048092	0.454618392	0.737987213	0.025959055	0.02388233	105651.8601	2010.194234
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	600	Diesel	0.060281364	0.449828377	0.546850798	0.020087187	0.018480212	138722.6813	2624.009413
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	750	Diesel	0.08980438	0.890776759	0.811284803	0.030943247	0.028467788	2687.652634	49.65888792
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	9999	Diesel	0.060295487	0.375436846	1.170495417	0.022191967	0.02041661	47015.18432	896.0469616
San Francisco	2022	ConstMin - Trenchers	Aggregate	50	Diesel	0.362218509	2.265748871	2.140586788	0.13809986	0.127051871	14005.95307	405.6803832
San Francisco	2022	ConstMin - Trenchers	Aggregate	75	Diesel	0.439174785	2.206502885	3.663952379	0.25144953	0.231333567	930.6544716	24.21890271
San Francisco	2022	ConstMin - Trenchers	Aggregate	100	Diesel	0.250532047	1.861640796	2.361362243	0.168454453	0.154978097	10276.93079	267.4340498
San Francisco	2022	ConstMin - Trenchers	Aggregate	175	Diesel	0.193661012	1.672017046	2.021475743	0.10298479	0.094746007	2408.863571	62.51514552
San Francisco	2022	ConstMin - Trenchers	Aggregate	300	Diesel	0.160362309	0.885545698	1.831215999	0.076769479	0.070627921	5175.12213	134.9595543
San Francisco	2022	ConstMin - Trenchers	Aggregate	600	Diesel	0.09901166	0.9213605	1.015050635	0.04221849	0.038841011	7841.842207	204.833411
San Francisco	2022	ConstMin - Trenchers	Aggregate	750	Diesel	0.026115504	0.469969256	0.130129026	0.004414823	0.004061637	2530.149054	65.79686946
San Francisco	2022	ConstMin - Trenchers	Aggregate	9999	Diesel	0.587118102	7.050816069	6.712345999	0.311889195	0.28693806	203.6317257	5.29393844
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	50	Diesel	0.049860959	0.958559586	0.895254048	0.007475675	0.006877621	474316.2833	8406.799746
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	75	Diesel	0.032859146	0.981087803	0.510187108	0.009282544	0.008539941	650269.9042	10366.50219
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	100	Diesel	0.030821236	0.972432151	0.479409464	0.009345379	0.008597749	269851.398	4302.36901
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	175	Diesel	0.028166016	0.878403438	0.221282952	0.008364607	0.007695438	56256.42927	896.5024264
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	300	Diesel	0.022924174	0.294688325	0.209503119	0.002798737	0.002574838	3361.793516	53.57290854
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	600	Diesel	0.018425249	0.292319358	0.080587161	0.002781296	0.002558792	2387.360613	38.04459317
San Francisco	2022	Industrial - Forklifts	Aggregate	50	Diesel	0.172634733	1.065668475	0.86635683	0.054198298	0.049862434	488994.4554	5658.11392
San Francisco	2022	Industrial - Forklifts	Aggregate	75	Diesel	0.319488318	1.063865709	2.504141253	0.202636391	0.18642548	49903.51805	513.9089962
San Francisco	2022	Industrial - Forklifts	Aggregate	100	Diesel	0.070711904	0.735537989	0.660323451	0.043455201	0.039978785	6515520.26	67635.2782
San Francisco	2022	Industrial - Forklifts	Aggregate	175	Diesel	0.054965811	0.642511256	0.499903578	0.026734365	0.024595616	2073261.81	21540.21628
San Francisco	2022	Industrial - Forklifts	Aggregate	300	Diesel	0.047302486	0.626079168	0.461809604	0.018010614	0.016569765	451074.7126	4695.59125
San Francisco	2022	Industrial - Forklifts	Aggregate	600	Diesel	0.04680123	0.249657575	0.407367886	0.015187573	0.013972567	112939.9944	1181.336102
San Francisco	2022	Industrial - Forklifts	Aggregate	9999	Diesel	0.018632361	0.20243258	0.476942531	0.004248654	0.003908761	9029.009704	93.8249767
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	25	Diesel	1.387231018	3.812005452	2.624871234	0.360868027	0.331998585	65.74960166	1.292199542
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	50	Diesel	0.239583449	1.733435125	1.433297046	0.081160883	0.074668012	617726.1321	12166.93319
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	75	Diesel	0.08245111	1.217766451	0.870946737	0.04334973	0.039881751	457156.0318	8083.825164
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	100	Diesel	0.262789229	1.437971882	2.07249961	0.178796468	0.164492751	96429.99217	1712.919677
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	175	Diesel	0.088981679	1.115492982	0.779598906	0.041337531	0.038030529	258931.8036	4581.13264
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	300	Diesel	0.07437881	0.447065255	0.799937185	0.025877579	0.023807373	260997.4074	4622.986371
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	600	Diesel	0.053841835	0.375930177	0.39201436	0.013617343	0.012527956	822019.0619	14536.49552
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	750	Diesel	0.0565244	0.620953914	0.427397709	0.022117575	0.020348169	135372.1441	2399.168935
San Francisco	2022	Industrial - Other General Industrial Equipme	Aggregate	9999	Diesel	0.047527837	0.345902992	1.109858765	0.018350455	0.016882419	46889.06542	829.1835501
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	25	Diesel	0.292704203	2.028919737	1.433970904	0.056561567	0.052036641	606.9671951	13.79512407
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	50	Diesel	0.443227161	2.392646378	1.973313391	0.155836725	0.143369787	24279.94575	555.2545089
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	75	Diesel	0.201110235	1.600800833	1.790454544	0.141237806	0.129938781	5948.537355	121.1037266
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	100	Diesel	0.081063558	1.388892574	0.911288855	0.034113668	0.031384575	303663.1691	6213.849221
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	175	Diesel	0.110788396	1.298962518	0.900429299	0.058261059	0.053600175	212044.8342	4341.180134
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	300	Diesel	0.099999846	0.471972902	0.959374569	0.038173194	0.035119338	337268.307	6897.344383
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	600	Diesel	0.07907873	0.54367695	0.743643772	0.027241002	0.025061722	463290.6474	9483.308743
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	750	Diesel	0.121697804	0.436453488	1.03854115	0.052563276	0.048358214	19894.56901	406.7041014
San Francisco	2022	Industrial - Other Material Handling Equipme	Aggregate	9999	Diesel	0.033107313	0.391906542	0.92837979	0.008061741	0.007416801	32161.11343	657.4687158
San Francisco	2022	OFF - ConstMin - Asphalt Pavers	Aggregate	25	Gasoline	4.120782756	191.7543359	3.207470227	2.134368126	1.612633695	61630.25	4244.95
San Francisco	2022	OFF - ConstMin - Asphalt Pavers	Aggregate	50	Gasoline	1.016835532	80.74555916	1.548859667	0.035816024	0.027060996	31886.4	2368.85
San Francisco	2022	OFF - ConstMin - Asphalt Pavers	Aggregate	100	Gasoline	0.489926422	23.35211252	1.389814024	0.033809535	0.027053373	33387.5	2106.05
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	25	Gasoline	4.743702699	231.5343514	3.648116604	2.564433923	1.937572298	19016.5	1580.45
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	25	Diesel	0.422148111	1.904654624	3.222842508	0.121364867	0.111655678	25860.25	1105.95
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	50	Gasoline	0.823631914	50.96981866	1.555955266	0.038072542	0.028765921	3036.8	222.65
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	100	Gasoline	0.471285822	17.05468564	1.703081222	0.044553696	0.033662792	32762.4	2500.25
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	175	Gasoline	0.268233332	19.82248204	1.68358133	0.040173951	0.030353652	12877.2	865.05
San Francisco	2022	OFF - ConstMin - Cement and Mortar Mixers	Aggregate	25	Gasoline	3.979784369	152.6970175	2.881301249	1.421322347	1.073887996	886968.25	51822.7
San Francisco	2022	OFF - ConstMin - Cement and Mortar Mixers	Aggregate	25	Diesel	0.310001646	1.81876147	2.347453296	0.092146644	0.084773992	88716.9	2839.7
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	25	Gasoline	4.774057228	219.4291454	3.889634077	2.465812455	1.8630583	580528.85	46526.55
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	25	Diesel	0.418055132	1.726522555	3.196546543	0.11943995	0.109884754	2168.1	91.25
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	50	Gasoline	0.672275469	55.36317241	1.154692841	0.042125299	0.031828004	62980.75	5044.3
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	50	Diesel	0.397921372	3.227517979	2.873313173	0.115740757	0.106481497	34448.7	1438.1
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	100	Gasoline	0.255231035	13.94006542	0.682810169	0.042061768	0.031780002	68174.7	4880.05
San Francisco	2022	OFF - ConstMin - Cranes	Aggregate	50	Gasoline	0.83656849	61.55796941	1.282939132	0.025699001	0.019417023	13640.05	737.3
San Francisco	2022	OFF - ConstMin - Cranes	Aggregate	100	Gasoline	0.426357562	18.35425463	1.214352838	0.025699001	0.019417023	54560.2	2496.6
San Francisco	2022	OFF - ConstMin - Cranes	Aggregate	175	Gasoline	0.28283481	14.18800493	1.347198039	0.025955991	0.019611194	3650	164.25
San Francisco	2022	OFF - ConstMin - Crushing/Proc. Equipment	Aggregate	25	Gasoline	5.127048427	241.8669577	4.137961758	2.736400043	2.067532477	7935.1	693.5
San Francisco	2022	OFF - ConstMin - Crushing/Proc. Equipment	Aggregate	100	Gasoline	0.595879361	23.79801344	1.90412135	0.0451739	0.034131391	24528	1927.2
San Francisco	2022	OFF - ConstMin - Dumpers/Tenders	Aggregate	25	Gasoline	2.702894058	110.1768381	2.063566312	1.161991979	0.877949495	120165.3	4964
San Francisco	2022	OFF - ConstMin - Dumpers/Tenders	Aggregate	25	Diesel	0.217041482	0.896358083	1.659549688	0.062367111	0.057377742	12964.8	281.05
San Francisco	2022	OFF - ConstMin - Dumpers/Tenders	Aggregate	100	Gasoline	0.227994419	8.404037829	0.806785845	0.020787416	0.015706047	5781.6	215.35
San Francisco	2022	OFF - ConstMin - Excavators	Aggregate	25	Diesel	0.323199407	1.334778605	2.471257426	0.09233931	0.084952165	61031.65	1992.9
San Francisco	2022	OFF - ConstMin - Other Construction Equipm	Aggregate	25	Diesel	0.341109647	2.023946201	2.589125668	0.100339207	0.09231207	189463.9	6610.15
San Francisco	2022	OFF - ConstMin - Other Construction Equipm	Aggregate	175	Gasoline	0.136948492	12.9291198	0.481202993	0.025719474	0.019431736	11805.2	513.9.2
San Francisco	2022	OFF - ConstMin - Pavers	Aggregate	25	Diesel	0.350318066	1.446300432	2.67964616	0.101695303	0.093559678	15242.4	540.2
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	25	Gasoline	3.817676238	154.5230692	2.989784597	1.615961081	1.220948372	1531817.4	89866.65
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	25	Diesel	0.299897695	1.238545024	2.293086961	0.085681915	0.078827362	21082.4	631.45
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	50	Gasoline	0.538261249	44.10414189	0.931374702	0.031827215	0.024047229	45241.75	2763.05
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	100	Gasoline	0.215510449	11.5210017	0.610553079	0.032329038	0.024426385	20476.5	1124.2
San Francisco	2022	OFF - ConstMin - Plate Compactors	Aggregate	25	Gasoline	3.795632415	135.9847928	2.784101804	1.290668228	0.97517155	649524.8	34656.75
San Francisco	2022	OFF - ConstMin - Plate Compactors	Aggregate	25	Diesel	0.235027275	1.491704401	1.789914636	0.069589941	0.064522746	79482.4	1960.05
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	25	Gasoline	3.847196509	176.227098	3.03145342	1.937813898	1.464126056	327616.7	20980.2
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	25	Diesel	0.31158727	1.647568288	2.371281584	0.090712162	0.083455189	366073.1	11720.15
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	50	Gasoline	1.335102347	103.9268593	1.87465626	0.033487564	0.025301715	41325.3	3102.5
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	100	Gasoline	0.693213757	31.4790334	1.791797959	0.03362081	0.02540239	156858.75	9581.25
San Francisco	2022	OFF - ConstMin - Rough Terrain Forklifts	Aggregate	50	Gasoline	1.097222309	80.6822278	1.684364205	0.033779905	0.025522595	7033.55	500.05
San Francisco	2022	OFF - ConstMin - Rough Terrain Forklifts	Aggregate	100	Gasoline	0.564140382	24.26955849	1.60858437	0.034084332	0.025752607	179014.25	10822.25
San Francisco	2022	OFF - ConstMin - Rough Terrain Forklifts	Aggregate	175	Gasoline	0.442754512	22.25205754	2.111607981	0.040734591	0.030777246	8811.1	602.25
San Francisco	2022	OFF - ConstMin - Rubber Tired Loaders	Aggregate	25	Diesel	0.307127588	1.268404013	2.348368624	0.087747532	0.08072773	17155	532.9
San Francisco	2022	OFF - ConstMin - Rubber Tired Loaders	Aggregate	50	Gasoline	0.990082179	78.38438677	1.442435308	0.029200135	0.022062324	18396	1164.35
San Francisco	2022	OFF - ConstMin - Rubber Tired Loaders	Aggregate	100	Gasoline	0.501719033	23.222575	1.351524789	0.029152746	0.022026519	220226.4	11493.85
San Francisco	2022	OFF - ConstMin - Signal Boards	Aggregate	25	Gasoline	4.56157023	208.3230341	3.864515702	2.371615956	1.791887612	13804.3	1062.15
San Francisco	2022	OFF - ConstMin - Signal Boards	Aggregate	25	Diesel	0.448288861	2.845263151	3.396899627	0.132735228	0.12211641	651284.1	30561.45
San Francisco	2022	OFF - ConstMin - Signal Boards	Aggregate	50	Diesel	0.416223182	3.326719408	2.984472543	0.118865567	0.109356321	14450.35	635.1
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	25	Gasoline	3.675388343	170.5678917	2.792306011	1.879352657	1.419955341	1127550.7	68758.7
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	25	Diesel	0.315129074	1.291899459	2.405429631	0.094602664	0.087034451	1646734	51673.05
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	50	Gasoline	0.533018365	46.32512272	0.886653976	0.031290421	0.023641651	243644.8	14724.1
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	100	Gasoline	0.204680779	11.90891838	0.549514002	0.031263606	0.023621391	364708	19498.3
San Francisco	2022	OFF - ConstMin - Surfacing Equipment	Aggregate	25	Gasoline	3.17624317	132.2970297	2.621024973	1.47333218	1.113184314	887398.95	43865.7
San Francisco	2022	OFF - ConstMin - Tampers/Rammers	Aggregate	25	Gasoline	2.482380807	126.1946262	2.305063879	1.780769711	1.345470448	122851.7	6248.8
San Francisco	2022	OFF - ConstMin - Tractors/Loaders/Backhoes	Aggregate	25	Diesel	0.311519948	1.286543773	2.381953689	0.088971693	0.081853957	314224.85	9862.3
San Francisco	2022	OFF - ConstMin - Tractors/Loaders/Backhoes	Aggregate	100	Gasoline	0.303777176	23.31888001	0.834352438	0.025943197	0.019601526	173382.3	8121.25

OFFROAD2017 Gallons Per Horsepower-Hour Calculation

Constants	
year	days
1	365
lbs	grams
1	453.5924
ton	lbs
1	2000

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_g_hp-hr	CO_g_hp-hr	NOx_g_hp-hr	PM10_g_hp-hr	PM2.5_g_hp-hr	Horsepower_Hours_hhpy	Fuel Consumption
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	25	Gasoline	4.14505658	190.0079193	3.307923591	2.138067006	1.615428405	616152.85	42288.9
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	25	Diesel	0.421844493	1.920476523	3.219991328	0.121358125	0.111649475	109343.05	4675.65
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	50	Gasoline	1.141810743	83.6377912	1.762645459	0.035580766	0.026883246	197757	14738.7
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	100	Gasoline	0.58159501	24.92773363	1.668711299	0.035601785	0.026899126	144299.1	9106.75
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	25	Gasoline	2.944322377	135.2135179	2.237774329	1.489727573	1.125571946	145394.1	7033.55
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	25	Diesel	0.260004556	1.249506051	1.978078754	0.077495448	0.071295812	212134.35	5573.55
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	50	Gasoline	0.450514437	41.00525312	0.727000783	0.024823704	0.018755688	292452.6	14253.25
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	100	Gasoline	0.174804331	10.72044663	0.470412462	0.024823705	0.018755688	593767.4	25349.25
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	25	Gasoline	1.293801632	88.60254014	1.162438605	0.064838231	0.048988886	9738.2	306.6
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	50	Gasoline	0.54562224	71.07256022	1.357543453	0.016200746	0.012240564	6038227.85	240827
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	100	Gasoline	0.192267443	20.15979253	1.027288655	0.016200059	0.012240045	3617956.5	1094737.2
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	175	Gasoline	0.131607747	10.2373822	0.836132977	0.016200901	0.012240681	2757757.5	76438.3
San Francisco	2022	OFF - Industrial - Other General Industrial Eq	Aggregate	25	Gasoline	2.247104268	152.5333735	1.944174004	0.111800955	0.084471833	156971.9	8639.55
San Francisco	2022	OFF - Industrial - Other General Industrial Eq	Aggregate	25	Diesel	0.279367292	1.330177673	2.18672579	0.082564679	0.075959505	241790.6	7044.5
San Francisco	2022	OFF - Industrial - Other General Industrial Eq	Aggregate	50	Gasoline	0.616288658	65.48290663	1.468130704	0.029154867	0.022028122	167644.5	10117.8
San Francisco	2022	OFF - Industrial - Other General Industrial Eq	Aggregate	100	Gasoline	0.220854247	17.77903388	1.407336828	0.029219922	0.022077274	144751.7	7409.5
San Francisco	2022	OFF - Industrial - Other General Industrial Eq	Aggregate	175	Gasoline	0.147075152	15.8228580	1.348146722	0.02957339	0.022344339	30484.8	1522.05
San Francisco	2022	OFF - Industrial - Other Material Handling Eq	Aggregate	50	Gasoline	0.770756384	65.90424351	1.660091403	0.027935626	0.021106917	1795.8	105.85
San Francisco	2022	OFF - Industrial - Other Material Handling Eq	Aggregate	100	Gasoline	0.359213007	19.30916965	1.743379982	0.028692105	0.021678479	101900.7	5168.4
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	25	Gasoline	2.864898175	205.2092099	2.49585385	0.14237757	0.107574164	94177.3	6887.55
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	25	Diesel	0.364869274	1.882161506	2.897553374	0.110091007	0.101283726	36868.65	1438.1
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	50	Gasoline	0.696943984	66.78013264	1.624893512	0.038322409	0.028954709	412249.25	31273.2
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	100	Gasoline	0.250822567	17.58513001	1.707590508	0.038327937	0.028958885	668650.8	44183.25
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	175	Gasoline	0.169338538	20.53056202	1.768039477	0.040021494	0.030238462	7665	514.65
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	25	Gasoline	4.66559155	119.3450622	2.982948761	0.915898763	0.692012399	1614679.7	82865.95
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	25	Diesel	0.289027425	1.268258483	2.135083968	0.09233777	0.084950749	136875	3759.5
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	50	Gasoline	0.989283862	79.6201407	1.434122201	0.030248722	0.02285459	379880.75	24648.45
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	50	Diesel	0.305613455	2.950663862	1.942656828	0.082354599	0.075766231	1534168	42332.7
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	100	Gasoline	0.488898082	23.39727129	1.326741241	0.030246807	0.022853143	2463275.5	133031.55
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	175	Gasoline	0.341973546	16.83121271	1.439906452	0.030273093	0.022873003	316936.8	16304.55
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	25	Gasoline	3.155428155	189.3293204	2.39389769	0.192456731	0.145411752	17542991.35	1210110.05
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	25	Diesel	0.408461498	2.146684952	3.266404807	0.139185094	0.128050286	2326130.4	98363.85
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	50	Gasoline	0.710557196	49.94893178	1.587262194	0.036718318	0.027742729	2719950.4	190588.4
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	50	Diesel	0.321122092	2.818496355	2.777829585	0.099508302	0.091547638	2754450.6	116621.15
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	100	Gasoline	0.316717694	13.75239795	1.935705935	0.036717629	0.027742208	1360548.45	85428.25
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	175	Gasoline	0.18867366	18.04102954	2.029167438	0.036573931	0.027633637	227015.4	13994.1
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	25	Gasoline	5.009531913	204.8263598	2.758467301	0.503750267	0.380611313	1182110.9	95816.15
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	25	Diesel	0.159863035	0.97342242	1.319792804	0.056982992	0.052424353	32313.45	540.2
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	50	Gasoline	0.798030777	58.43011315	1.439829527	0.046082501	0.03481789	21910.95	1905.3
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	50	Diesel	0.09279195	0.979881708	1.084954745	0.033191447	0.030536131	32594.5	551.15
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	25	Gasoline	4.603941583	172.419707	3.385372234	1.841948953	1.391694765	4022365.7	270280.6
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	25	Diesel	0.437853334	2.243085111	3.264797277	0.144507337	0.13294675	1194174.15	50526.95
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	50	Gasoline	0.741848285	59.78823047	1.248840589	0.037251006	0.028145205	404171.8	29437.25
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	50	Diesel	0.352225437	2.954701397	2.813315485	0.105474379	0.097036428	1612226.9	68317.05
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	100	Gasoline	0.318420717	16.13556103	0.941943162	0.037279158	0.028166475	1535671.8	98498.9
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	175	Gasoline	0.239402161	19.23620943	1.029697412	0.03794275	0.028667855	70430.4	4507.75
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	25	Gasoline	3.214960142	148.7674116	2.487896963	1.652427158	1.248500519	5673191.35	302906.2
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	25	Diesel	0.26829836	1.277062813	1.991355073	0.087148636	0.080176745	1726362.4	44402.25
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	50	Gasoline	0.649111762	45.98153768	1.106383404	0.027541189	0.020808898	1096861.5	59465.8
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	50	Diesel	0.26544494	2.06097167	1.782358029	0.073958196	0.068041541	7520241	194311.4
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	100	Gasoline	0.310758542	13.08867093	0.98582617	0.0275445	0.0208114	1741232.5	82938.95
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	175	Gasoline	0.207831039	14.07283182	1.078535174	0.027649501	0.020890734	222066	10366
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	50	Diesel	0.084766944	1.278697183	0.932384514	0.02476762	0.022786211	3397.926959	58.47049777
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	75	Diesel	0.072282153	1.047189935	0.930265807	0.029770751	0.027389091	225292.8541	3487.193689
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	100	Diesel	0.047718022	1.062771159	0.552403531	0.038102626	0.035054416	554685.8342	8585.700366
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	175	Diesel	0.037082399	0.904509278	0.416540831	0.015901819	0.014629673	442039.4071	6842.103522
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	300	Diesel	0.042630784	0.333508234	0.372635709	0.015231971	0.013829413	455322.2125	7047.701322
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	600	Diesel	0.03833914	0.30354296	0.353119845	0.013502409	0.012422216	831599.7201	12871.90979
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	750	Diesel	0.057641717	0.3002164	0.979582125	0.029026098	0.02670401	43246.34311	669.3881852
San Francisco	2022	Portable Equipment - Non-Rental Compressi	Aggregate	9999	Diesel	0.049626782	0.340585528	0.531769861	0.007332175	0.006745601	154451.2254	2390.67209
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	50	Diesel	0.15117402	1.804648545	0.967292655	0.014254043	0.013113719	57254.36362	985.215745
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	75	Diesel	0.091241681	1.153934912	0.854087113	0.02396408	0.022046953	711099.1962	11006.74337
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	100	Diesel	0.06059414	1.168745899	0.550566292	0.044662455	0.041089459	1282955.78	19858.22105
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	175	Diesel	0.057797247	1.009131795	0.401686571	0.019017266	0.017491745	2848175.573	44085.46343
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	300	Diesel	0.069610405	0.367059487	0.516433728	0.022613343	0.020804276	2954439.672	45730.27146
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	600	Diesel	0.062558559	0.357776245	0.390757948	0.017287262	0.015904281	6438711.204	99661.54156
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	750	Diesel	0.056107276	0.336534014	0.254548781	0.01418606	0.013051175	2425752.878	37546.99704
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	9999	Diesel	0.057681658	0.331621318	0.714984787	0.018859948	0.017351153	13209497.76	204463.1082
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	50	Diesel	0.08023917	1.242836711	0.857685609	0.009640835	0.008869568	1336.796117	23.00318263
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	75	Diesel	0.048668017	0.989720449	0.818829804	0.024351432	0.022403317	144347.2447	2234.277704
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	100	Diesel	0.03169927	0.995265915	0.537565724	0.034745818	0.031966152	398552.3944	6168.990134
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	175	Diesel	0.034512763	0.881300088	0.415847329	0.016552399	0.015228207	1467080.267	22708.19049
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	300	Diesel	0.044956155	0.337242043	0.479662668	0.018411739	0.016938798	863891.1228	13371.73202
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	600	Diesel	0.037939041	0.305089376	0.425993525	0.016122803	0.01483297	836299.6509	12944.65764
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	750	Diesel	0.039614293	0.297101416	0.546106895	0.019762145	0.018181174	331151.1342	5125.720252
San Francisco	2022	Portable Equipment - Non-Rental Other Port	Aggregate	9999	Diesel	0.041952544	0.318423015	0.604655219	0.010648255	0.009796394	5706996.512	88335.70108
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	50	Diesel	0.059923853	1.08193716	0.907143789	0.022823163	0.02099731	2518.549354	43.33843434
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	75	Diesel	0.049666179	0.995005157	0.803494799	0.019424592	0.017870625	186479.8245	2886.426512
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	100	Diesel	0.038859886	1.003225365	0.624882634	0.038532591	0.035449984	258874.7219	4006.990368
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	175	Diesel	0.034616465	0.884391291	0.447383909	0.018302914	0.016838681	497627.8421	7702.528679
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	300	Diesel	0.030899608	0.308892414	0.294042388	0.010456312	0.009619807	565548.2954	8753.834887
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	600	Diesel	0.031456554	0.293330261	0.337215398	0.013285051	0.012222247	737613.4438	11417.14395
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	750	Diesel	0.044525449	0.293653873	0.724242885	0.02761096	0.025402083	125659.5369	1945.020164
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	9999	Diesel	0.033773808	0.292859124	0.719093077	0.016256802	0.014956258	210673.9742	3260.915469
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	75	Diesel	0.049255372	0.998743459	0.761855013	0.008056428	0.007411913	52801.27462	817.2841182
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	100	Diesel	0.032877771	1.042658107	0.425823226	0.030310439	0.027885604	72590.50872	1123.591624
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	175	Diesel	0.028929221	0.870350194	0.348880081	0.010781478	0.00991896	1189422.921	18410.47342
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	300	Diesel	0.025581435	0.295429387	0.241463315	0.008071416	0.007425703	1331455.651	20608.92583
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	600	Diesel	0.025493255	0.29443244	0.132504807	0.00642713	0.005912959	7459326.917	115459.1336
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	750	Diesel	0.023567158	0.294055234	0.110307067	0.007095768	0.006528107	99171.04816	1535.018297
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	9999	Diesel	0.040304078	0.287143821	0.929032971	0.021279913	0.01957752	67913.05339	1051.191668
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	50	Diesel	0.113237861	1.504189984	1.337172175	0.052105978	0.0479375	20113.53757	346.1076615
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	75	Diesel	0.079092983	1.107540402	0.838569435	0.022795582	0.020971935	151940.591	23518.49458
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	100	Diesel	0.047327769	1.123997951	0.499050953	0.037999587	0.03495962	3266119.628	50554.60724
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	175	Diesel	0.047434489	0.979008132	0.349810668	0.019489894	0.009631475	5246321.931	81205.15317
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	300	Diesel	0.053851156	0.347086873	0.264119242	0.010934495	0.010059735	3740995.345	57904.96732
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	600	Diesel	0.050070335	0.324308906	0.24705065	0.01101753	0.010136127	17873208.36	276650.3165
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	750	Diesel	0.039303614	0.314735912	0.307904774	0.013422922	0.012349089	5546185.342	85846.58664
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	9999	Diesel	0.058532382	0.327127145	0.77840798	0.021593465	0.019865988	35524799.87	549870.3383
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	75	Diesel	0.084580793	1.13011899	0.820159899	0.013800302	0.012696278	237174.0498	3671.096684
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	100	Diesel	0.056812705	1.188047883	0.54302218	0.045245289	0.041625666	212459.5804	3288.553962
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	175	Diesel	0.059523837	1.004110505	0.467359446	0.020975239	0.01929722	602057.2034	9318.937737
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	300	Diesel	0.059605628	0.347620805	0.416931179	0.015967872	0.014690443	522610.261	8089.218856
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	600	Diesel	0.053766506	0.328838511	0.32204204	0.013270624	0.01220874	894175.8677	13840.49421
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	750	Diesel	0.049375379	0.34013664	0.05078094	0.005062466	0.004657469	363822.4468	5631.42291
San Francisco	2022	Portable Equipment - Rental Other Portable	Aggregate	9999	Diesel	0.052158143	0.33154726	0.631681393	0.011543194	0.010619739	8680824.794	134366.079
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	75	Diesel	0.057278889	1.028582986	0.818644277	0.025328735	0.023302437	675888.3384	10461.73238
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	100	Diesel	0.046904735	1.149138081	0.424995422	0.035180685	0.03236623	538774.3598	8339.414735
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	175	Diesel	0.042614215	0.965510006	0.337307845	0.011899769	0.010947788	1179742.904	18260.64136
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	300	Diesel	0.039316245	0.322528087	0.269877561	0.009345004	0.008597404	1174447.011	18178.66892
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	600	Diesel	0.039910435	0.314398832	0.154713133	0.009273796	0.007611892	1461169.966	22616.70794
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	750	Diesel	0.031423761	0.30808345	0.047374989	0.003819121	0.003513591	100125.4762	1549.791404

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Francisco
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2.5_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	HC_tpd	TOG_tpd	SOx_tpd	NH3_tpd
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	50	Diesel	1.10243E-06	7.56616E-06	7.48092E-06	4.20011E-07	3.8641E-07	33.57328843	29.3548306	0.08247123	1136.124601	9.11098E-07	1.31198E-06	9.54E-09	8.45E-09
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	75	Diesel	6.93643E-07	1.03172E-05	1.04969E-05	5.19052E-07	4.77528E-07	52.33565427	28.70329438	0.06337263	2049.044769	5.73258E-07	8.25492E-07	1.48968E-08	1.32E-08
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	100	Diesel	1.67266E-06	3.0529E-05	1.96788E-05	8.037E-07	7.39404E-07	157.9932805	71.91194693	0.188381652	6130.165403	1.38236E-06	1.9906E-06	4.49817E-08	3.97E-08
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	175	Diesel	1.96657E-06	4.18226E-05	1.84845E-05	8.23987E-07	7.58068E-07	245.0349993	62.93026723	0.198799071	9391.558362	1.62526E-06	2.34038E-06	6.97785E-08	6.16E-08
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	300	Diesel	2.5241E-06	2.20541E-05	2.60637E-05	8.51242E-07	7.83143E-07	351.6300769	65.44220216	0.202271544	13671.49036	2.08603E-06	3.00389E-06	1.00141E-07	8.85E-08
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	600	Diesel	3.55643E-06	3.41595E-05	3.30349E-05	1.10442E-06	1.01606E-06	592.2389584	56.57654946	0.167546815	23088.5086	2.9392E-06	4.23245E-06	1.68681E-07	1.49E-07
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	750	Diesel	1.50474E-06	1.79014E-05	1.1968E-05	4.68767E-07	4.31266E-07	320.5574147	19.09883729	0.03385661	12203.19285	1.24359E-06	1.79077E-06	9.13115E-08	8.06E-08
San Francisco	2022	ConstMin - Bore/Drill Rigs	Aggregate	9999	Diesel	1.78352E-06	1.06013E-05	4.12642E-05	9.476E-07	8.71792E-07	183.4659826	3.799140436	0.005208709	7071.547057	1.47399E-06	2.12254E-06	5.22378E-08	4.62E-08
San Francisco	2022	ConstMin - Cranes	Aggregate	25	Diesel	3.98377E-08	1.85579E-07	1.63367E-07	1.2549E-08	1.15451E-08	0.648619353	1.566804869	0.003270854	39.17012172	3.29237E-08	4.74101E-08	1.83849E-10	1.63E-10
San Francisco	2022	ConstMin - Cranes	Aggregate	50	Diesel	1.16417E-06	4.18873E-06	3.33874E-06	3.45509E-07	3.17868E-07	10.50869579	15.24209697	0.034889113	628.4164757	9.62125E-07	1.38546E-06	2.96579E-09	2.64E-09
San Francisco	2022	ConstMin - Cranes	Aggregate	75	Diesel	3.243E-07	1.12007E-06	2.4443E-06	2.27704E-07	2.09488E-07	4.238953277	4.065223444	0.010902848	282.8767799	2.68017E-07	3.85944E-07	1.19993E-09	1.07E-09
San Francisco	2022	ConstMin - Cranes	Aggregate	100	Diesel	7.97128E-06	5.54039E-05	7.14451E-05	4.74514E-06	4.36553E-06	237.4749588	181.944904	0.409947072	15986.12158	6.58784E-06	9.48649E-06	6.74753E-08	5.97E-08
San Francisco	2022	ConstMin - Cranes	Aggregate	175	Diesel	1.93575E-05	0.000147263	0.000194843	1.0472E-05	9.63423E-06	727.1748894	333.2063385	0.729400509	48738.73707	1.59979E-05	2.3037E-05	2.06742E-07	1.83E-07
San Francisco	2022	ConstMin - Cranes	Aggregate	300	Diesel	2.41065E-05	0.00013223	0.000273763	1.13409E-05	1.04336E-05	1253.876067	381.865718	0.810081581	84238.37	1.99227E-05	2.86888E-05	3.56718E-07	3.15E-07
San Francisco	2022	ConstMin - Cranes	Aggregate	600	Diesel	3.01637E-05	0.000242514	0.000332494	1.33326E-05	1.2266E-05	2186.201781	400.0072758	0.806810727	146820.1141	2.49286E-05	3.58972E-05	6.22251E-07	5.5E-07
San Francisco	2022	ConstMin - Cranes	Aggregate	750	Diesel	8.60909E-07	6.71867E-06	8.80124E-06	4.31512E-07	3.96991E-07	43.87194787	4.656823056	0.010902848	2952.533551	7.11495E-07	1.02455E-06	1.24808E-08	1.1E-08
San Francisco	2022	ConstMin - Cranes	Aggregate	9999	Diesel	4.777E-06	4.01587E-05	5.58801E-05	2.56987E-06	2.36428E-06	120.7724649	8.647318128	0.017444556	8113.479811	3.94793E-06	5.68502E-06	3.42979E-08	3.04E-08
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	50	Diesel	3.44974E-06	1.27941E-05	9.77495E-06	9.7906E-07	9.00736E-07	34.03537222	33.02244877	0.096765729	1388.275968	2.85103E-06	4.10548E-06	9.61349E-09	8.56E-09
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	75	Diesel	4.17136E-07	1.35225E-06	3.30348E-06	2.42205E-07	2.22829E-07	3.663133224	2.356693471	0.011611887	164.8363382	3.4474E-07	4.96426E-07	1.03354E-09	9.22E-10
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	100	Diesel	5.17059E-05	0.000339993	0.000439793	3.51968E-05	3.23811E-05	1499.489004	771.8933839	1.65082333	67442.15214	4.27321E-05	6.15343E-05	4.26025E-07	3.77E-07
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	175	Diesel	3.74053E-05	0.000313008	0.000367563	2.05422E-05	1.88988E-05	1640.049163	495.321256	1.092485076	73898.57189	3.09135E-05	4.45154E-05	4.66435E-07	4.13E-07
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	300	Diesel	3.55877E-05	0.000197036	0.000422733	1.70084E-05	1.56477E-05	1720.498644	377.8469399	0.846700125	77639.70194	2.94114E-05	4.23524E-05	4.89406E-07	4.33E-07
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	600	Diesel	7.75368E-05	0.000543609	0.000836302	3.23876E-05	2.97966E-05	6016.278985	703.5492732	1.481483305	271625.1566	6.408E-05	9.22752E-05	1.71253E-06	1.51E-06
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	750	Diesel	1.55627E-06	9.6319E-06	1.96153E-05	7.0156E-07	6.454355E-07	61.78970144	4.49673032	0.01064423	2803.73291	1.28617E-06	1.85209E-06	1.75695E-08	1.55E-08
San Francisco	2022	ConstMin - Crawler Tractors	Aggregate	9999	Diesel	7.20085E-06	3.21808E-05	0.000121792	3.29873E-06	3.03484E-06	346.9713134	16.07238418	0.029029719	15627.96931	5.95111E-06	8.5696E-06	9.86974E-08	8.73E-08
San Francisco	2022	ConstMin - Excavators	Aggregate	25	Diesel	8.69215E-08	2.44092E-07	1.65798E-07	2.31072E-08	2.12587E-08	0.41670114	0.759814494	0.002908777	18.99536235	7.1836E-08	1.03444E-07	1.16592E-10	1.05E-10
San Francisco	2022	ConstMin - Excavators	Aggregate	50	Diesel	3.40327E-05	0.000304835	0.000264005	1.13747E-05	1.04647E-05	1360.903126	1731.20742	2.365805064	61997.43005	2.81262E-05	4.05017E-05	3.86971E-07	3.42E-07
San Francisco	2022	ConstMin - Excavators	Aggregate	75	Diesel	3.65202E-08	1.1839E-07	2.89219E-07	2.1205E-08	1.95086E-08	0.320707127	0.306805561	0.000969592	16.26069474	3.0182E-08	4.34621E-08	9.0486E-11	8.07E-11
San Francisco	2022	ConstMin - Excavators	Aggregate	100	Diesel	2.57967E-05	0.000360846	0.000268288	1.40813E-05	1.29548E-05	1766.302804	1104.001599	1.704543157	89844.06749	2.13196E-05	3.07002E-05	5.02701E-07	4.44E-07
San Francisco	2022	ConstMin - Excavators	Aggregate	175	Diesel	4.19657E-05	0.000669468	0.000368044	1.78778E-05	1.64476E-05	3728.065198	1292.152048	2.184491316	188693.3095	3.46824E-05	4.99426E-05	1.06134E-06	9.38E-07
San Francisco	2022	ConstMin - Excavators	Aggregate	300	Diesel	4.2204E-05	0.000309589	0.000397625	1.26627E-05	1.16497E-05	4759.613946	1101.245887	1.889735275	240739.6265	3.48793E-05	5.02262E-05	1.35529E-06	1.2E-06
San Francisco	2022	ConstMin - Excavators	Aggregate	600	Diesel	6.30286E-05	0.000521462	0.000506846	1.70428E-05	1.56794E-05	8464.815472	1267.336241	1.971181023	429986.2529	5.20898E-05	7.50093E-05	2.41064E-06	2.13E-06
San Francisco	2022	ConstMin - Excavators	Aggregate	750	Diesel	9.34436E-07	6.90108E-06	1.10023E-05	3.67556E-07	3.38152E-07	67.41053057	5.233416159	0.010665515	3356.012013	7.72262E-07	1.11206E-06	1.91867E-08	1.7E-08
San Francisco	2022	ConstMin - Excavators	Aggregate	9999	Diesel	1.52588E-06	1.35664E-05	3.76188E-05	5.21783E-07	4.80041E-07	235.0174678	9.872050417	0.014543884	11884.97512	1.26106E-06	1.81592E-06	6.69348E-08	5.91E-08
San Francisco	2022	ConstMin - Graders	Aggregate	25	Diesel	2.73122E-08	1.06332E-07	8.36481E-08	1.00804E-08	9.27396E-09	0.261639704	0.44521268	0.001948692	11.13031699	2.25721E-08	3.25038E-08	7.3882E-11	6.58E-11
San Francisco	2022	ConstMin - Graders	Aggregate	50	Diesel	1.03229E-06	3.63112E-06	2.59895E-06	2.8906E-07	2.65936E-07	8.740342904	9.958294609	0.028256034	371.8470096	8.53136E-07	1.22852E-06	2.46513E-09	2.2E-09
San Francisco	2022	ConstMin - Graders	Aggregate	75	Diesel	3.30238E-07	1.11111E-06	2.57782E-06	2.16418E-07	1.99104E-07	3.770296077	2.480947657	0.007794768	174.052929	2.72924E-07	3.9301E-07	1.06623E-09	9.48E-10
San Francisco	2022	ConstMin - Graders	Aggregate	100	Diesel	1.0362E-05	5.23398E-05	8.14804E-05	6.47662E-06	5.95849E-06	200.2493492	107.2227957	0.286457723	9610.372952	8.56364E-06	1.23316E-05	5.68079E-08	5.04E-08
San Francisco	2022	ConstMin - Graders	Aggregate	175	Diesel	5.73862E-05	0.00045833	0.000538052	2.98671E-05	2.74778E-05	2276.975549	722.6425086	1.531671909	107329.8068	4.74266E-05	6.82943E-05	6.47444E-07	5.73E-07
San Francisco	2022	ConstMin - Graders	Aggregate	300	Diesel	8.55819E-05	0.000364869	0.001008375	3.33706E-05	3.0701E-05	4802.10303	1049.098045	1.381622625	227117.3085	7.07289E-05	0.00010185	1.36633E-06	1.21E-06
San Francisco	2022	ConstMin - Graders	Aggregate	600	Diesel	4.09531E-06	1.36564E-05	5.36188E-05	1.6476E-06	1.51579E-06	206.3939891	27.62767283	0.036050802	9727.533977	3.38455E-06	4.87375E-06	5.87143E-08	5.19E-08
San Francisco	2022	ConstMin - Graders	Aggregate	9999	Diesel	4.4675E-06	1.87582E-05	6.16592E-05	1.89058E-06	1.73933E-06	162.9868802	4.260685343	0.005846076	7708.95104	3.69215E-06	5.3167E-06	4.63354E-08	4.1E-08
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	50	Diesel	2.2981E-05	0.000152003	0.000126694	7.66401E-06	7.05089E-06	564.4199926	598.4278146	0.90789595	22589.56623	1.89925E-05	2.73492E-05	1.60272E-07	1.42E-07
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	75	Diesel	6.15222E-06	6.97966E-05	6.06867E-05	3.31456E-06	3.04939E-06	324.3688299	204.0608466	0.334840445	14375.92614	5.08448E-06	7.32166E-06	9.22824E-08	8.16E-08
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	100	Diesel	8.22373E-06	8.43602E-05	7.99377E-05	5.75064E-06	5.29058E-06	393.0839695	220.8930633	0.324316888	17422.33242	6.79647E-06	9.78691E-06	1.11813E-07	9.89E-08
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	175	Diesel	8.39015E-06	0.000114232	8.10108E-05	3.90831E-06	3.59564E-06	614.1000797	172.416017	0.251608677	27259.98439	6.934E-06	9.98497E-06	1.74791E-07	1.54E-07
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	300	Diesel	5.58804E-06	3.57538E-05	5.4048E-05	1.90914E-06	1.75641E-06	517.407114	107.5668478	0.165506849	23005.12271	4.61821E-06	6.65023E-06	1.47306E-07	1.3E-07
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	600	Diesel	1.35931E-05	0.000106888	0.000105626	3.66562E-06	3.37237E-06	1730.358641	215.3325959	0.312836644	77028.83375	1.1234E-05	1.6177E-05	4.92761E-07	4.35E-07
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	750	Diesel	1.04118E-06	4.76473E-06	7.72782E-06	3.89849E-07	3.58661E-07	75.88691113	5.374681311	0.007653496	3424.293759	8.60483E-07	1.2391E-06	2.15996E-08	1.91E-08
San Francisco	2022	ConstMin - Off-Highway Tractors	Aggregate	9999	Diesel	1.42723E-06	7.15029E-06	2.0107E-05	5.37371E-07	4.94382E-07	95.47690083	2.59116905	0.004783435	4240.64869	1.17953E-06	1.69853E-06	2.71725E-08	2.4E-08
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	25	Diesel	2.71521E-07	9.86502E-07	6.46841E-07	6.96101E-08	6.40413E-08	2.223665619	4.052981961	0.002843687	101.324549	2.24398E-07	3.23133E-07	6.26943E-10	5.59E-10
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	50	Diesel	2.01341E-06	1.48386E-05	1.18926E-05	7.14634E-07	6.57463E-07	52.21314757	82.87335677	0.051186363	2390.505536	1.66397E-06	2.39612E-06	1.48292E-08	1.31E-08
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	75	Diesel	3.01474E-07	3.70962E-06	2.10791E-06	8.55851E-08	7.87383E-08	15.63879268	11.11619365	0.007583165	792.4070611	2.49152E-07	3.5878E-07	4.44909E-09	3.93E-09
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	100	Diesel	7.40273E-07	8.66575E-06	6.66493E-06	4.24834E-07	3.90848E-07	38.58533338	22.31901261	0.017062121	1949.203513	6.11796E-07	8.80986E-07	1.09773E-08	9.71E-09
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	175	Diesel	1.86111E-05	0.000249407	0.000140269	6.86761E-06	6.3182E-06	1291.510381	415.1171757	0.295743433	65512.01393	1.5381E-05	2.21487E-05	3.67579E-07	3.25E-07
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	300	Diesel	3.34774E-05	0.000201878	0.000254018	1.00385E-05	9.23545E-06	2633.180034	634.9895521	0.498593096	133891.0738	2.76673E-05	3.98409E-05	7.49544E-07	6.62E-07
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	600	Diesel	0.000128182	0.000811087	0.000979148	3.5439E-05	3.26043E-05	11262.45255	1516.117359	1.113777353	570110.5719	0.000105936	0.000152547	3.20627E-06	2.83E-06
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	750	Diesel	5.89546E-05	0.000392814	0.000502702	1.95946E-05	1.8027E-05	3833.394457	293.1866296	0.239817592	194397.2556	4.87228E-05	7.01608E-05	1.09094E-06	9.64E-07
San Francisco	2022	ConstMin - Off-Highway Trucks	Aggregate	9999	Diesel	8.24565E-05	0.000488561	0.001389991	2.8894E-05	2.65825E-05	6771.245079	269.546581	0.19052702	341756.0387	6.81458E-05	9.813E-05	1.92755E-06	1.7E-06

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Francisco
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2.5_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	HC_tpd	TOG_tpd	SOx_tpd	NH3_tpd
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	50	Diesel	1.46115E-05	8.20986E-05	7.53279E-05	5.52573E-06	5.08367E-06	305.1196011	333.3903233	0.700912272	12714.11634	1.20757E-05	1.73889E-05	8.65873E-08	7.68E-08
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	75	Diesel	2.5335E-06	1.08286E-05	2.10049E-05	1.64793E-06	1.5161E-06	39.79331978	25.61092536	0.08490189	1876.023512	2.0938E-06	3.01507E-06	1.1277E-08	1E-08
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	100	Diesel	2.19544E-05	0.000193511	0.000207165	1.44066E-05	1.32541E-05	915.9399209	519.6422918	1.150892291	42670.63463	1.81441E-05	2.61275E-05	2.6047E-07	2.3E-07
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	175	Diesel	9.05105E-06	9.63294E-05	9.17072E-05	4.79515E-06	4.41154E-06	519.753192	159.5256974	0.385831924	24286.85873	7.48021E-06	1.07715E-05	1.47889E-07	1.31E-07
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	300	Diesel	9.38107E-06	5.55369E-05	0.000107676	4.15304E-06	3.8208E-06	682.7109952	144.7093795	0.355644585	31692.20136	7.75295E-06	1.11642E-05	1.94319E-07	1.72E-07
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	600	Diesel	2.74773E-05	0.000212555	0.000290283	1.07015E-05	9.84539E-06	2629.507446	321.3941598	0.719779359	122468.5831	2.27085E-05	3.27003E-05	7.48646E-07	6.62E-07
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	750	Diesel	5.70951E-06	3.3305E-05	6.58651E-05	2.16559E-06	1.99234E-06	520.284176	39.57914949	0.079241764	24306.47972	4.7186E-06	6.79479E-06	1.48123E-07	1.31E-07
San Francisco	2022	ConstMin - Other Construction Equipment	Aggregate	9999	Diesel	1.25937E-06	9.71936E-06	2.83071E-05	5.14852E-07	4.73663E-07	168.2953874	8.536975121	0.017923732	7838.613485	1.04081E-06	1.49876E-06	4.79277E-08	4.23E-08
San Francisco	2022	ConstMin - Pavers	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Pavers	Aggregate	50	Diesel	2.13103E-06	9.98455E-06	8.63083E-06	6.43612E-07	5.92123E-07	37.33010468	40.28906544	0.113545025	1562.450523	1.76118E-06	2.5361E-06	1.05851E-08	9.39E-09
San Francisco	2022	ConstMin - Pavers	Aggregate	75	Diesel	3.50047E-06	1.39007E-05	2.61528E-05	2.52101E-06	2.31933E-06	57.02333432	37.11017019	0.109760191	2678.677134	2.89295E-06	4.16585E-06	1.61631E-08	1.43E-08
San Francisco	2022	ConstMin - Pavers	Aggregate	100	Diesel	4.27341E-06	6.03868E-05	5.03481E-05	2.65014E-06	2.43812E-06	303.1221058	174.5365896	0.439040764	14166.21817	3.53174E-06	5.08571E-06	8.62744E-08	7.63E-08
San Francisco	2022	ConstMin - Pavers	Aggregate	175	Diesel	6.28585E-06	8.62122E-05	6.34793E-05	3.04984E-06	2.80585E-06	492.8421384	144.9948059	0.375644792	22893.92095	5.19492E-06	7.48068E-06	1.40289E-07	1.24E-07
San Francisco	2022	ConstMin - Pavers	Aggregate	300	Diesel	3.35991E-06	2.27657E-05	4.47397E-05	1.36822E-06	1.25877E-06	384.876249	81.30448844	0.180725832	17912.32336	2.77678E-06	3.99857E-06	1.09594E-07	9.68E-08
San Francisco	2022	ConstMin - Pavers	Aggregate	600	Diesel	4.50948E-07	3.97556E-06	5.20082E-06	1.50648E-07	1.38596E-07	69.99502897	8.6471139	0.019870379	3258.021744	3.72685E-07	5.36666E-07	1.99352E-08	1.76E-08
San Francisco	2022	ConstMin - Pavers	Aggregate	750	Diesel	4.41047E-08	7.88569E-07	2.18299E-07	7.41231E-09	6.81933E-09	14.43798009	0.896057178	0.001892417	672.0428834	3.64502E-08	5.24882E-08	4.11328E-09	3.63E-09
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	50	Diesel	1.40577E-06	1.04406E-05	9.43606E-06	4.63088E-07	4.26041E-07	46.47790559	65.87245614	0.13981366	2288.79931	1.16179E-06	1.67298E-06	1.32099E-08	1.17E-08
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	75	Diesel	2.18596E-07	1.62764E-06	2.30883E-06	1.69548E-07	1.55984E-07	7.194899261	5.677413406	0.014170303	388.5938728	1.80658E-07	2.60147E-07	2.0449E-09	1.81E-09
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	100	Diesel	2.93146E-06	3.87925E-05	3.06406E-05	1.62488E-06	1.49489E-06	193.255579	118.0634359	0.256010148	10508.88949	2.42269E-06	3.48868E-06	5.49991E-08	4.86E-08
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	175	Diesel	2.95654E-06	3.79544E-05	2.80405E-05	1.48421E-06	1.36547E-06	209.4927352	78.69924491	0.170988328	11427.35005	2.44342E-06	3.51852E-06	5.96256E-08	5.27E-08
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	300	Diesel	1.61976E-06	9.50957E-06	1.84328E-05	7.04565E-07	6.482E-07	140.5996982	33.1579936	0.070851517	7653.071454	1.33864E-06	1.92765E-06	4.00264E-08	3.54E-08
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	600	Diesel	1.47958E-06	9.65091E-06	1.64135E-05	5.28318E-07	4.86053E-07	150.5821751	20.65926573	0.044400284	8211.25506	1.22279E-06	1.76082E-06	4.28745E-08	3.79E-08
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	750	Diesel	2.15986E-07	1.71506E-06	2.04427E-06	5.14474E-08	4.73316E-08	30.05628067	2.555429566	0.004723434	1634.805849	1.78501E-07	2.57041E-07	8.55974E-09	7.56E-09
San Francisco	2022	ConstMin - Paving Equipment	Aggregate	9999	Diesel	8.03184E-08	7.85312E-07	1.86385E-06	3.06985E-08	2.82426E-08	13.63999568	0.880587215	0.001889374	742.3479723	6.63789E-08	9.55855E-08	3.88498E-09	3.43E-09
San Francisco	2022	ConstMin - Rollers	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Rollers	Aggregate	50	Diesel	2.95371E-05	0.00017647	0.000165529	1.00144E-05	9.21321E-06	765.4603248	993.5853913	2.869266512	35479.63125	2.44108E-05	3.51516E-05	2.174E-07	1.93E-07
San Francisco	2022	ConstMin - Rollers	Aggregate	75	Diesel	9.66012E-07	3.1324E-06	7.18504E-06	5.19499E-07	4.77939E-07	8.492899831	6.270711808	0.027252192	435.2363199	7.98357E-07	1.14963E-06	2.39626E-09	2.14E-09
San Francisco	2022	ConstMin - Rollers	Aggregate	100	Diesel	2.07265E-05	0.000238696	0.000217098	1.24215E-05	1.14278E-05	1189.31422	702.1273762	2.115938059	61291.55002	1.71294E-05	2.46663E-05	3.38403E-07	2.99E-07
San Francisco	2022	ConstMin - Rollers	Aggregate	175	Diesel	1.18765E-05	0.000210572	0.000123892	5.68776E-06	5.23274E-06	1237.944134	444.0508949	1.238028156	63846.96946	9.81527E-06	1.4134E-05	3.52481E-07	3.11E-07
San Francisco	2022	ConstMin - Rollers	Aggregate	300	Diesel	2.64418E-06	1.84939E-05	3.08323E-05	1.1592E-06	1.06646E-06	205.0273854	48.85151337	0.15864669	10564.59323	2.18527E-06	3.14679E-06	5.83608E-08	5.16E-08
San Francisco	2022	ConstMin - Rollers	Aggregate	600	Diesel	1.05958E-06	9.73039E-06	1.21044E-05	4.09593E-07	3.76826E-07	120.1690311	17.63582105	0.057424262	6159.526115	8.75687E-07	1.26099E-06	3.42181E-08	3.02E-08
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	25	Diesel	8.18236E-09	8.40808E-08	1.0486E-07	5.86749E-09	5.39809E-09	0.400653243	0.69286064	0.002246404	17.321516	6.76228E-09	9.73769E-09	1.13971E-10	1.01E-10
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	50	Diesel	1.60614E-06	8.72347E-06	8.16551E-06	4.80209E-07	4.41792E-07	38.59070859	34.96636696	0.128045009	1670.249573	1.32739E-06	1.91144E-06	1.09573E-08	9.71E-09
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	75	Diesel	1.09711E-07	3.67696E-07	9.04235E-07	6.16724E-08	5.67387E-08	1.06384701	0.771128231	0.003369605	51.15685211	9.06704E-08	1.30565E-07	3.00443E-10	2.68E-10
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	100	Diesel	2.30875E-05	0.000571806	0.000343032	9.21412E-06	8.47699E-06	3048.787784	1521.917152	5.386875989	146543.0735	1.90806E-05	2.74761E-05	8.68237E-07	7.67E-07
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	175	Diesel	9.86507E-06	0.000117592	8.75748E-05	5.846E-06	5.37832E-06	670.5707001	257.2873832	0.938996732	32254.4647	8.15295E-06	1.17402E-05	1.90847E-07	1.69E-07
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	300	Diesel	3.34721E-07	2.83641E-06	4.49975E-06	1.0366E-07	9.53674E-08	49.21610345	11.25641925	0.044928073	2366.776982	2.76629E-07	3.98346E-07	1.40168E-08	1.24E-08
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	600	Diesel	7.3912E-08	1.01117E-06	6.34249E-07	9.60081E-09	8.83275E-09	18.29778788	2.299270864	0.008985615	885.6876051	6.10843E-08	8.79614E-08	5.21246E-09	4.6E-09
San Francisco	2022	ConstMin - Rough Terrain Forklifts	Aggregate	750	Diesel	2.00701E-08	1.79203E-07	2.46178E-07	1.74348E-09	1.604E-09	3.148523308	0.242501224	0.001123202	151.563265	1.65868E-08	2.3885E-08	8.96733E-10	7.92E-10
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	50	Diesel	2.25542E-06	1.11868E-05	8.14653E-06	6.63109E-07	6.10061E-07	34.00363011	36.06779326	0.037965833	1496.047045	1.86398E-06	2.68414E-06	9.63405E-09	8.55E-09
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	75	Diesel	1.76963E-06	8.94593E-06	1.4284E-05	1.07379E-06	9.87885E-07	34.18477674	24.28919462	0.032409857	1662.201623	1.4625E-06	2.106E-06	9.69772E-09	8.6E-09
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	100	Diesel	4.35059E-06	2.64844E-05	3.6414E-05	2.78348E-06	2.5608E-06	108.4568699	62.31920615	0.072227682	5267.425966	3.59553E-06	5.17756E-06	3.07989E-08	2.73E-08
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	175	Diesel	5.73786E-06	3.3923E-05	5.22092E-05	3.33343E-06	3.06676E-06	152.7219157	52.39281462	0.066671706	7467.179772	4.74204E-06	6.82853E-06	4.33787E-08	3.84E-08
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	300	Diesel	5.13285E-06	2.90833E-05	5.6695E-05	2.59497E-06	2.38737E-06	165.1258722	36.38619094	0.051855772	8049.706667	4.24202E-06	6.10851E-06	4.69284E-08	4.15E-08
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	600	Diesel	4.68825E-05	0.000372262	0.000484494	2.17348E-05	1.9996E-05	1718.137186	226.0729324	0.31113463	83441.59304	3.87459E-05	5.579E-05	4.88453E-07	4.32E-07
San Francisco	2022	ConstMin - Rubber Tired Dozers	Aggregate	750	Diesel	7.18177E-07	3.12185E-06	1.03712E-05	2.90867E-07	2.67598E-07	49.12257243	3.693836234	0.003703984	2402.664875	5.93535E-07	8.5469E-07	1.39806E-08	1.24E-08
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	50	Diesel	6.59152E-06	3.46991E-05	2.65547E-05	1.98162E-06	1.82309E-06	106.5113227	122.7554553	0.142844911	5102.650417	5.44753E-06	7.84445E-06	3.0189E-08	2.68E-08
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	100	Diesel	6.73529E-05	0.000587818	0.000576727	4.0789E-05	3.75258E-05	2592.235743	1626.76392	1.774944541	139830.3583	5.56636E-05	8.01555E-05	7.37036E-07	6.52E-07
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	175	Diesel	0.000106115	0.001187742	0.000906016	4.88699E-05	4.49603E-05	6146.875603	2194.658675	2.327985988	329287.5929	8.76983E-05	0.000126286	1.74904E-06	1.55E-06
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	300	Diesel	0.000117438	0.000644172	0.001209387	4.07809E-05	3.75184E-05	8910.803597	2288.414921	2.146534344	477578.8416	9.70561E-05	0.000139761	2.53639E-06	2.24E-06
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	600	Diesel	0.000164748	0.0009425	0.001534599	5.76159E-05	5.30066E-05	11482.77598	1869.831585	1.920684957	616686.4189	0.000136156	0.000196064	3.26815E-06	2.89E-06
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	750	Diesel	1.1577E-05	9.61523E-05	8.4637E-05	2.98921E-06	2.75007E-06	1116.866445	93.11346054	0.092656159	60167.0322	9.56779E-06	1.37776E-05	3.17985E-07	2.81E-07
San Francisco	2022	ConstMin - Rubber Tired Loaders	Aggregate	9999	Diesel	9.46729E-06	5.30173E-05	0.00017534	3.6811E-06	3.38661E-06	797.100957	44.38526258	0.037641564	42522.35872	7.82421E-06	1.12669E-05	2.26914E-07	2.01E-07
San Francisco	2022	ConstMin - Scrapers	Aggregate	25	Diesel	1.8884E-09	4.397E-08	4.03427E-08	1.40644E-10	1.29392E-10	0.272198565	0.392449232	0.000954304	9.811230798	1.56067E-09	2.24736E-09	7.75213E-11	6.85E-11
San Francisco	2022	ConstMin - Scrapers	Aggregate	50	Diesel	3.88535E-07	1.09483E-06	7.76915E-07	1.08241E-07	9.95813E-08	2.166491813	2.050547237	0.005725823	79.41755276	3.21103E-07	4.62389E-07	6.07749E-10	5.45E-10
San Francisco	2022	ConstMin - Scrapers	Aggregate	75	Diesel	1.13113E-06	4.891666E-06	8.68612E-06	7.50753E-07	6.90693E-07	19.11869415	11.29163651	0.025766203	765.5981376	9.34815E-07	1.34613E-06	5.42019E-09	4.81E-09
San Francisco	2022	ConstMin - Scrapers	Aggregate	100	Diesel	2.75398E-06	1.99737E-05	2.87394E-05	2.13621E-06	1.96531E-06	86.16676478	38.09264864	0.062984051	3435.313036	2.27602E-06	3.27747E-06	2.44866E-08	2.17E-08
San Francisco	2022	ConstMin - Scrapers	Aggregate	175	Diesel	2.67298E-05	0.00022989	0.000262409	1.40017E-05	1.28816E-05	1162.463968	277.477959	0.621251777	46316.58207	2.20907E-05	3.18107E-05	3.30603E-07	2.92E-07
San Francisco	2022	ConstMin - Scrapers	Aggregate	300	Diesel	2.71545E-05	0.000141262	0.000291513	1.27098E-05	1.1693E-05	1370.102659	246.4908217	0.60693722	55053.50787	2.24418E-05	3.23162E-05	3.89763E-07	3.45E-07
San Francisco	2022	ConstMin - Scrapers	Aggregate	600	Diesel	0.000242075	0.00179402	0.002622636	0.00010006	9.20552E-05	16978.33186	1608.575272	3.349606354	679446.9015	0.000200062	0.000288089	4.83229E-06	4.27E-06
San Francisco	2022	ConstMin - Scrapers	Aggregate	750	Diesel	1.04434E-05	9.69177E-05	0.000143389	5.80589E-06	5.34142E-06	260.8672247	16.72705837	0.045806583	10409.22023	8.63089E-06	1.24285E-05	7.40801E-08	6.56E-08
San Francisco	2022	ConstMin - Scrapers	Aggregate	9999	Diesel	1.14633E-05	0.000115115	0.000157176	5.85084E-06	5.38277E-06	392.3448574	9.848295447	0.024811899	15729.36521	9.47376E-06	1.36422E-05	1.11522E-07	9.87E-08

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Francisco
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2.5_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	HC_tpd	TOG_tpd	SOx_tpd	NH3_tpd
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	50	Diesel	1.10496E-05	0.000110693	0.000103929	3.11818E-06	2.86872E-06	579.3568423	625.7241984	1.987325212	27265.59516	9.13194E-06	1.315E-05	1.64825E-07	1.46E-07
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	75	Diesel	2.89157E-05	0.000578392	0.000384952	1.40749E-05	1.29489E-05	3034.611064	2256.274994	6.317664483	159206.4185	2.38973E-05	3.44121E-05	8.64052E-07	7.63E-07
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	100	Diesel	5.55648E-07	8.89272E-06	8.18185E-06	5.34905E-07	4.92112E-07	44.21319359	30.96897907	0.095572903	2339.191971	4.59213E-07	6.61267E-07	1.25856E-08	1.11E-08
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	175	Diesel	1.89869E-07	3.48204E-06	1.91425E-06	8.67871E-08	7.98441E-08	20.78947766	7.183137359	0.026602767	1093.518984	1.56916E-07	2.2596E-07	5.91964E-09	5.23E-09
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	300	Diesel	1.17022E-07	1.1072E-06	1.40063E-06	4.0147E-08	3.69352E-08	19.31976977	4.943331132	0.01674989	1013.852228	9.6712E-08	1.39265E-07	5.50263E-09	4.86E-09
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	600	Diesel	5.20322E-08	3.23239E-07	6.76793E-07	2.93085E-08	2.69639E-08	5.585405617	0.619041922	0.001970575	292.6830208	4.30018E-08	6.19226E-08	1.59038E-09	1.41E-09
San Francisco	2022	ConstMin - Skid Steer Loaders	Aggregate	9999	Diesel	1.39903E-07	7.71894E-07	2.06078E-06	6.86351E-08	6.31443E-08	7.560616742	0.397312361	0.001970575	397.312361	1.15623E-07	1.66497E-07	2.15107E-09	1.9E-09
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	50	Diesel	1.18144E-07	1.04172E-06	1.0801E-06	4.26467E-08	3.9235E-08	5.369788349	8.501587609	0.034860524	307.563873	9.76395E-08	1.40601E-07	1.52729E-09	1.35E-09
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	75	Diesel	1.0674E-07	7.16272E-07	1.23697E-06	7.59311E-08	6.98567E-08	3.237876708	3.11227949	0.012514034	206.7029409	8.82152E-08	1.2703E-07	9.20047E-10	8.15E-10
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	100	Diesel	3.98655E-07	6.37114E-06	4.8009E-06	2.26744E-07	2.08604E-07	33.22061941	23.81894477	0.08581052	2122.858072	3.29467E-07	4.74432E-07	9.45695E-09	8.36E-09
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	175	Diesel	5.15601E-07	4.95958E-06	5.353675E-06	2.90662E-07	2.67409E-07	27.26997169	12.6604834	0.050949996	1747.702351	4.26117E-07	6.13608E-07	7.75831E-09	6.86E-09
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	300	Diesel	6.71428E-07	4.31196E-06	9.39502E-06	3.09866E-07	2.85077E-07	55.29655451	15.62062062	0.06346403	3541.972253	5.549E-07	7.99055E-07	1.57411E-08	1.39E-08
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	600	Diesel	1.2775E-06	1.20263E-05	1.41753E-05	5.32936E-07	4.90301E-07	193.910244	30.18135078	0.105475431	12437.17549	1.05578E-06	1.52033E-06	5.52267E-08	4.88E-08
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	750	Diesel	5.6304E-07	4.47601E-06	6.60871E-06	2.65792E-07	2.44529E-07	75.08404806	7.536658437	0.025921928	4815.109912	4.65323E-07	6.70064E-07	2.13826E-08	1.89E-08
San Francisco	2022	ConstMin - Surfacing Equipment	Aggregate	9999	Diesel	2.71142E-07	2.08444E-06	6.14798E-06	1.19453E-07	1.09897E-07	32.0417083	2.376074269	0.008938596	2054.320934	2.24085E-07	3.22682E-07	9.12416E-09	8.06E-09
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	50	Diesel	1.86822E-05	0.000101015	8.32126E-05	6.19958E-06	5.70361E-06	353.2807478	378.4569533	0.535327665	13487.34784	1.54399E-05	2.22334E-05	1.00211E-07	8.89E-08
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	75	Diesel	3.11235E-06	2.33659E-05	2.65459E-05	1.94906E-06	1.79314E-06	104.735851	60.8883796	0.10232812	4452.883429	2.57219E-06	3.70396E-06	2.97693E-08	2.63E-08
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	100	Diesel	8.70605E-06	9.37935E-05	8.3639E-05	5.41526E-06	4.98204E-06	441.2712605	236.6005365	0.333513873	18719.4739	7.19509E-06	1.03609E-05	1.25533E-07	1.11E-07
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	175	Diesel	2.54912E-06	2.55559E-05	2.3816E-05	1.14711E-06	1.05534E-06	136.1959838	36.1503107	0.050216577	5777.988581	2.10671E-06	3.03366E-06	3.87484E-08	3.43E-08
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	300	Diesel	8.39858E-07	5.29068E-06	9.46396E-06	3.01418E-07	2.77305E-07	81.79188593	16.54688473	0.022739582	3469.944936	6.94097E-07	9.995E-07	2.32873E-08	2.06E-08
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	600	Diesel	3.36153E-07	4.51953E-06	3.80662E-06	1.92225E-07	1.76847E-07	11.04589922	1.420036157	0.001894965	468.6119317	2.77812E-07	4.0005E-07	3.1394E-09	2.78E-09
San Francisco	2022	ConstMin - Sweepers/Scrubbers	Aggregate	9999	Diesel	4.1627E-08	7.72066E-07	1.86893E-06	1.45798E-08	1.34135E-08	14.19230688	0.710018078	0.000947483	602.0953304	3.44025E-08	4.95395E-08	4.04333E-09	3.57E-09
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	50	Diesel	4.21585E-05	0.000291686	0.000246992	1.33435E-05	1.2276E-05	1144.189418	1437.913852	2.781322873	54437.67759	3.48418E-05	5.01722E-05	3.25013E-07	2.88E-07
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	75	Diesel	1.56567E-05	5.22242E-05	0.000122822	9.94342E-06	9.14795E-06	168.4976631	123.2956219	0.537851636	8845.663797	1.29395E-05	1.86328E-05	4.76284E-08	4.24E-08
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	100	Diesel	0.000262211	0.003723226	0.00270401	0.000142089	0.000130722	18274.20335	11487.82663	18.34703994	955394.1381	0.000216703	0.000312053	5.20108E-06	4.6E-06
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	175	Diesel	3.75539E-05	0.000578398	0.00032921	1.67482E-05	1.54084E-05	3188.675007	1172.796272	2.112642461	168193.7715	3.10362E-05	4.46922E-05	9.07742E-07	8.02E-07
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	300	Diesel	2.24885E-05	0.000145056	0.000235471	8.2828E-06	7.62018E-06	2010.194234	505.6522013	0.897388495	105651.8601	1.85855E-05	2.67631E-05	5.72285E-07	5.06E-07
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	600	Diesel	2.52547E-05	0.000188454	0.000229101	8.41546E-06	7.74223E-06	2624.009413	409.207867	0.754930494	138722.6813	2.08716E-05	3.00552E-05	7.47134E-07	6.6E-07
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	750	Diesel	7.28924E-07	7.23025E-06	6.58503E-06	2.5116E-07	2.31067E-07	49.65888792	4.139227561	0.008721918	2687.652634	6.02416E-07	8.67479E-07	1.41332E-08	1.25E-08
San Francisco	2022	ConstMin - Tractors/Loaders/Backhoes	Aggregate	9999	Diesel	8.56119E-06	5.33073E-05	0.000166195	3.15098E-06	2.8989E-06	896.0469616	25.40327757	0.040702286	47015.18432	7.07537E-06	1.01885E-05	2.55133E-07	2.25E-07
San Francisco	2022	ConstMin - Trenchers	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	ConstMin - Trenchers	Aggregate	50	Diesel	1.53213E-05	9.58376E-05	9.05434E-05	5.8414E-06	5.37409E-06	405.6803832	351.3428646	0.912022052	14005.95307	1.26622E-05	1.82336E-05	1.15226E-07	1.02E-07
San Francisco	2022	ConstMin - Trenchers	Aggregate	75	Diesel	1.23435E-06	6.20161E-06	1.02979E-05	7.06725E-07	6.50187E-07	24.21890271	13.19462548	0.048710269	930.6544716	1.02012E-06	1.46897E-06	6.87103E-09	6.09E-09
San Francisco	2022	ConstMin - Trenchers	Aggregate	100	Diesel	7.77567E-06	5.77791E-05	7.32897E-05	5.22826E-06	4.81E-06	267.4340498	122.7946662	0.372063542	10276.93079	6.42618E-06	9.2537E-06	7.60176E-08	6.73E-08
San Francisco	2022	ConstMin - Trenchers	Aggregate	175	Diesel	1.40848E-06	1.21637E-05	1.47059E-05	7.49198E-07	6.89262E-07	62.51514552	17.13111088	0.058037767	2408.863571	1.16404E-06	1.67621E-06	1.77799E-08	1.57E-08
San Francisco	2022	ConstMin - Trenchers	Aggregate	300	Diesel	2.50631E-06	1.26368E-05	2.86201E-05	1.19983E-06	1.10385E-06	134.9959543	23.010385	0.074619986	5175.12213	2.07133E-06	2.98271E-06	3.84075E-08	3.4E-08
San Francisco	2022	ConstMin - Trenchers	Aggregate	600	Diesel	2.34485E-06	2.18202E-05	2.4039E-05	9.99844E-07	9.19856E-07	204.833411	20.62599956	0.05596499	7841.842207	1.9379E-06	2.79057E-06	5.8313E-08	5.15E-08
San Francisco	2022	ConstMin - Trenchers	Aggregate	750	Diesel	1.99552E-07	3.5911E-06	9.94333E-07	3.37342E-08	3.10355E-08	65.79686946	3.909255571	0.00829111	2530.149054	1.64919E-07	2.37483E-07	1.87451E-08	1.66E-08
San Francisco	2022	ConstMin - Trenchers	Aggregate	9999	Diesel	3.61062E-07	4.33607E-06	4.12792E-06	1.91804E-07	1.76459E-07	5.29393844	0.236781076	0.001036389	203.6317257	2.98399E-07	4.29694E-07	1.49965E-09	1.33E-09
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	50	Diesel	7.14233E-05	0.001373088	0.001282406	1.07085E-05	9.85185E-06	8406.799746	10282.41015	33.97636685	474316.2833	5.90275E-05	8.49997E-05	2.3939E-06	2.11E-06
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	75	Diesel	6.45299E-05	0.001926695	0.001001923	1.82294E-05	1.67715E-05	10366.50219	8992.5687	29.79145333	650269.9042	5.33305E-05	7.6796E-05	2.95253E-06	2.61E-06
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	100	Diesel	2.51181E-05	0.000792493	0.000390699	7.61611E-06	7.00682E-06	4302.36901	3436.158132	11.36821335	269851.398	2.07587E-05	2.98926E-05	1.22542E-06	1.08E-06
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	175	Diesel	4.7853E-06	0.000149237	3.75951E-05	1.42111E-06	1.30743E-06	896.5024264	431.2048761	1.427039476	56256.42927	3.95479E-06	5.6949E-06	2.55356E-07	2.26E-07
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	300	Diesel	2.32743E-07	2.99189E-06	2.12703E-06	2.84148E-08	2.61416E-08	53.57299854	14.61649355	0.048102454	3361.793516	1.92349E-07	2.76983E-07	1.52609E-08	1.35E-08
San Francisco	2022	Industrial - Aerial Lifts	Aggregate	600	Diesel	1.32844E-07	2.10759E-06	5.81026E-07	2.00529E-08	1.84486E-08	38.04459317	4.872164516	0.016034151	2387.360613	1.09789E-07	1.58096E-07	1.08382E-08	9.57E-09
San Francisco	2022	Industrial - Forklifts	Aggregate	25	Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2022	Industrial - Forklifts	Aggregate	50	Diesel	0.000254943	0.001573756	0.001279417	8.00389E-05	7.36358E-05	5658.11392	11533.25134	15.75068332	488994.4554	0.000210697	0.000303404	1.60606E-06	1.42E-06
San Francisco	2022	Industrial - Forklifts	Aggregate	75	Diesel	4.81501E-05	0.000160335	0.0003774	3.05394E-05	2.80962E-05	513.9089962	681.1906036	1.418863208	49903.51805	3.97935E-05	5.73026E-05	1.45254E-07	1.29E-07
San Francisco	2022	Industrial - Forklifts	Aggregate	100	Diesel	0.001391403	0.014473234	0.012993232	0.000855071	0.000786665	67635.2782	79031.19554	103.681151	6515520.26	0.00114992	0.001655885	1.92394E-05	1.7E-05
San Francisco	2022	Industrial - Forklifts	Aggregate	175	Diesel	0.000344158	0.004022965	0.003130054	0.000167392	0.000154001	21540.21628	14673.62776	19.57770886	2073261.81	0.000284428	0.000409577	6.12975E-06	5.42E-06
San Francisco	2022	Industrial - Forklifts	Aggregate	300	Diesel	6.44383E-05	0.000357837	0.000629105	2.45351E-05	2.25723E-05	4695.59125	2147.958583	2.863760604	451074.7126	5.32548E-05	7.66869E-05	1.3365E-06	1.18E-06
San Francisco	2022	Industrial - Forklifts	Aggregate	600	Diesel	1.59631E-05	8.51538E-05	0.000138946	5.18021E-06	4.76579E-06	1181.336102	319.7030775	0.442581184	112939.9944	1.31926E-05	1.89974E-05	3.36248E-07	2.97E-07
San Francisco	2022	Industrial - Forklifts	Aggregate	9999	Diesel	5.08065E-07	5.51991E-06	1.30052E-05	1.15852E-07	1.06584E-07	93.8249767	10.2602383	0.013017094	9029.009704	4.19889E-07	6.04639E-07	2.67246E-08	2.36E-08
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	25	Diesel	2.75457E-07	7.56934E-07	5.2121E-07	7.16561E-08	6.59236E-08	1.292199542	2.629984066	0.011511417	65.74960166	2.2765E-07	3.27816E-07	3.61407E-10	3.25E-10
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	50	Diesel	0.000446955	0.003233813	0.00267389	0.00015141	0.000139297	12166.93319	17583.91567	20.99682499	617726.1321	0.000389385	0.000531914	3.45611E-06	3.06E-06
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	75	Diesel	0.000113834	0.001681279	0.001202451	5.98497E-05	5.50618E-05	8083.825164	6399.382429	7.551489688	457156.0318	9.40778E-05	0.000135472	2.30081E-06	2.03E-06
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	100	Diesel	7.65299E-05	0.000418768	0.000603557	5.20694E-05	4.79038E-05	1712.919677	1214.053245	1.600086992	96429.99217	6.32478E-05	9.10769E-05	4.86231E-07	4.31E-07
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	175	Diesel	6.95822E-05	0.000873077	0.000609632	3.23252E-05	2.97392E-05	4581.13264	1743.942434	2.095077932	258931.8036	5.7506E-05	8.28086E-05	1.30375E-06	1.15E-06
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	300	Diesel	5.8627E-05	0.000352386	0.000630527	2.03972E-05	1.87655E-05	4622.866371	1215.341937	1.507995654	260997.4074	4.8452E-05	6.97709E-05	1.31592E-06	1.16E-06
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	600	Diesel	0.000133664	0.000933255	0.000973185	3.38054E-05	3.11009E-05	14536.49552	2163.92459	2.532511786	822019.0619	0.000110466	0.000159071	4.13913E-06	3.66E-06
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	750	Diesel	2.31088E-05	0.000253863	0.000174732	9.04229E-06	8.3189E-06	2399.168935	214.1596025	0.253251179	135372.1441	1.90981E-05	2.75013E-05	6.83115E-07	6.04E-07
San Francisco	2022	Industrial - Other General Industrial Equipmen	Aggregate	9999	Diesel	6.73025E-06	4.89821E-05	0.000157163	2.59854E-06	2.39066E-06	829.1835501	40.2913559	0.046045669	46889.06542	5.56219E-06	8.00955E-06	2.36124E-07	2.09E-07

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Francisco
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2.5_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	HC_tpd	TOG_tpd	SOx_tpd	NH3_tpd
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	25	Diesel	5.38544E-07	3.71913E-06	2.62855E-06	1.03681E-07	9.53863E-08	13.79512407	24.2786878	0.039407022	606.9671951	4.43425E-07	6.38532E-07	3.91788E-09	3.47E-09
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	50	Diesel	3.25002E-05	0.000175444	0.000144696	1.14269E-05	1.05128E-05	555.2545089	677.6124746	0.893225841	24279.94575	2.68596E-05	3.86779E-05	1.57424E-07	1.4E-07
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	75	Diesel	3.6129E-06	2.8758E-05	3.21651E-05	2.5373E-06	2.33432E-06	121.1037266	83.47487037	0.131356741	5948.537355	2.98587E-06	4.29965E-06	3.44212E-08	3.05E-08
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	100	Diesel	7.43411E-05	0.001266378	0.000837552	3.12847E-05	2.87819E-05	6213.849221	3263.937957	4.190280048	303663.1691	6.14389E-05	8.84721E-05	1.76891E-06	1.56E-06
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	175	Diesel	7.09469E-05	0.000831832	0.000576619	3.73093E-05	3.43246E-05	4341.189134	1534.178985	2.101707861	212044.8342	5.86338E-05	8.44327E-05	1.23534E-06	1.09E-06
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	300	Diesel	0.000101856	0.000480733	0.000977181	3.88817E-05	3.57712E-05	6897.344383	1435.698746	1.904672749	337268.307	8.41784E-05	0.000121217	1.963E-06	1.74E-06
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	600	Diesel	0.000110643	0.000760687	0.001040471	3.81143E-05	3.50652E-05	9483.308743	1274.751153	1.668230615	463290.6474	9.14406E-05	0.000131675	2.6997E-06	2.39E-06
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	750	Diesel	7.31187E-06	2.62231E-05	6.23978E-05	3.15812E-06	2.90547E-06	406.7041014	31.91642087	0.039407022	19894.56901	6.04287E-06	8.70173E-06	1.15717E-07	1.02E-07
San Francisco	2022	Industrial - Other Material Handling Equipmer	Aggregate	9999	Diesel	3.21563E-06	3.80649E-05	9.01713E-05	7.83017E-07	7.20376E-07	657.4687158	31.91642087	0.039407022	32161.11343	2.65755E-06	3.82687E-06	1.87278E-07	1.65E-07
San Francisco	2022	OFF - ConstMin - Asphalt Pavers	Aggregate	25	Gasoline	0.000766982	0.035690324	0.000596991	0.00039726	0.000300152	4244.95	3584.3	9.02	61630.25	0.000833857	0.000917609	1.3667E-06	1.49E-06
San Francisco	2022	OFF - ConstMin - Asphalt Pavers	Aggregate	50	Gasoline	9.79191E-05	0.007775629	0.000149248	3.44901E-06	2.60592E-06	2368.85	996.45	2.57	31886.4	0.000106457	0.000117149	6.08271E-07	8.3E-07
San Francisco	2022	OFF - ConstMin - Asphalt Pavers	Aggregate	100	Gasoline	4.94147E-05	0.002355329	0.000140159	3.61144E-06	2.72864E-06	2106.05	547.5	1.4	33397.5	5.37233E-05	5.91192E-05	5.00435E-07	7.38E-07
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	25	Gasoline	0.000272433	0.013297114	0.000209513	0.000147277	0.000111276	1580.45	1142.45	9.22	19016.5	0.000296187	0.000325936	5.00959E-07	5.54E-07
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	25	Diesel	3.29692E-05	0.000148751	0.0002517	9.47844E-06	8.72017E-06	1105.95	1668.05	2.05	25860.25	2.77033E-05	3.98928E-05	4.3916E-07	2.78E-07
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	50	Gasoline	7.55372E-06	0.000467456	1.427E-05	3.49172E-07	2.63819E-07	222.65	94.9	0.77	3036.8	8.21235E-06	9.03719E-06	6.15804E-08	7.8E-08
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	100	Gasoline	4.66306E-05	0.00168745	0.000168509	4.4083E-06	3.33071E-06	2500.25	372.3	3.63	32762.4	5.06965E-05	5.57884E-05	6.10855E-07	8.76E-07
San Francisco	2022	OFF - ConstMin - Bore/Drill Rigs	Aggregate	175	Gasoline	1.04315E-05	0.000770887	6.54737E-05	1.56235E-06	1.18044E-06	865.05	102.2	0.89	12877.2	1.1341E-05	1.24801E-05	2.16493E-07	3.03E-07
San Francisco	2022	OFF - ConstMin - Cement and Mortar Mixers	Aggregate	25	Gasoline	0.010660535	0.409025137	0.007718059	0.003807256	0.002876593	51822.7	127914.25	1389.25	886968.25	0.011590057	0.012754151	2.04228E-05	1.82E-05
San Francisco	2022	OFF - ConstMin - Cement and Mortar Mixers	Aggregate	25	Diesel	8.3058E-05	0.000487297	0.000628948	2.46884E-05	2.27133E-05	2839.7	8592.1	28.57	88716.9	6.97918E-05	0.0001005	1.27715E-06	7.14E-07
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	25	Gasoline	0.008369929	0.384706469	0.006814157	0.004323099	0.003266342	46526.55	55560.3	195.53	580528.85	0.009099727	0.010013694	1.61624E-05	1.63E-05
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	25	Diesel	2.73731E-06	1.13048E-05	2.09301E-05	7.8206E-07	7.19496E-07	91.25	120.45	0.2	2168.1	2.3001E-06	3.31215E-06	3.48355E-08	2.3E-08
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	50	Gasoline	0.000127869	0.010530286	0.000219627	8.01239E-06	6.05381E-06	5044.3	1799.45	2.95	62980.75	0.000139019	0.000152982	1.41307E-06	1.77E-06
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	50	Diesel	4.13982E-05	0.000335778	0.000298928	1.20412E-05	1.10779E-05	1438.1	1043.9	1.81	34448.7	3.4786E-05	5.00918E-05	5.57822E-07	3.62E-07
San Francisco	2022	OFF - ConstMin - Concrete/Industrial Saws	Aggregate	100	Gasoline	5.25494E-05	0.002870116	0.000140584	8.66008E-06	6.54317E-06	4880.05	1032.95	1.7	68174.7	5.71314E-05	6.28696E-05	1.20002E-06	1.71E-06
San Francisco	2022	OFF - ConstMin - Cranes	Aggregate	50	Gasoline	3.44611E-05	0.00253578	5.28486E-05	1.05863E-06	7.99853E-07	737.3	368.65	0.89	13640.05	3.74658E-05	4.12289E-05	1.86701E-07	2.58E-07
San Francisco	2022	OFF - ConstMin - Cranes	Aggregate	100	Gasoline	7.02524E-05	0.003024294	0.000200093	4.23451E-06	3.19941E-06	2496.6	737.3	1.81	54560.2	7.63779E-05	8.40493E-05	5.86774E-07	8.75E-07
San Francisco	2022	OFF - ConstMin - Cranes	Aggregate	175	Gasoline	3.11772E-06	0.000156396	1.48503E-05	2.86116E-07	2.16176E-07	164.25	29.2	0.02	3650	3.38956E-06	3.73001E-06	3.96469E-08	5.75E-08
San Francisco	2022	OFF - ConstMin - Crushing/Proc. Equipment	Aggregate	25	Gasoline	0.000122866	0.005796159	9.91631E-05	6.55767E-05	4.95469E-05	693.5	671.6	2.31	7935.1	0.000133579	0.000146995	2.33009E-07	2.43E-07
San Francisco	2022	OFF - ConstMin - Crushing/Proc. Equipment	Aggregate	100	Gasoline	4.414E-05	0.001762845	0.000141048	3.34627E-06	2.52829E-06	1927.2	255.5	1.01	24528	4.79886E-05	5.28086E-05	4.63691E-07	6.75E-07
San Francisco	2022	OFF - ConstMin - Dumpers/Tenders	Aggregate	25	Gasoline	0.000980888	0.039983495	0.000748874	0.00042169	0.00031861	4964	13807.95	92.57	120165.3	0.001066415	0.001173524	1.82237E-06	1.74E-06
San Francisco	2022	OFF - ConstMin - Dumpers/Tenders	Aggregate	25	Diesel	8.49806E-06	3.50961E-05	6.49782E-05	2.44193E-06	2.24657E-06	281.05	810.3	1.22	12964.8	7.14073E-06	1.02827E-05	1.08148E-07	7.07E-08
San Francisco	2022	OFF - ConstMin - Dumpers/Tenders	Aggregate	100	Gasoline	3.98092E-06	0.00014674	1.4087E-05	3.62961E-07	2.74237E-07	215.35	87.6	0.63	5781.6	4.32803E-06	4.76273E-06	5.02953E-08	7.54E-08
San Francisco	2022	OFF - ConstMin - Excavators	Aggregate	25	Diesel	5.95713E-05	0.000246023	0.000455496	1.70197E-05	1.56582E-05	1992.9	2653.55	1.91	61031.65	5.00564E-05	7.20813E-05	7.58114E-07	5.01E-07
San Francisco	2022	OFF - ConstMin - Other Construction Equipme	Aggregate	25	Diesel	0.000192088	0.001139738	0.001458006	5.65037E-05	5.19834E-05	6610.15	13731.3	19.87	186463.9	0.000161407	0.000232426	2.98347E-06	1.66E-06
San Francisco	2022	OFF - ConstMin - Other Construction Equipme	Aggregate	175	Gasoline	4.9074E-05	0.004633012	0.000172466	9.21594E-06	6.96316E-06	5139.2	941.7	2.53	118654.2	5.33529E-05	5.87117E-05	1.27705E-06	1.8E-06
San Francisco	2022	OFF - ConstMin - Pavers	Aggregate	25	Diesel	1.6126E-05	6.65769E-05	0.000123351	4.68129E-06	4.30679E-06	540.2	635.1	0.77	15242.4	1.35503E-05	1.95125E-05	2.05155E-07	1.36E-07
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	25	Gasoline	0.017661088	0.714844689	0.013831149	0.007475655	0.005648273	89866.65	186850.8	987.68	1531817.4	0.019201009	0.02112954	3.44055E-05	3.15E-05
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	25	Diesel	1.90943E-05	7.88575E-05	0.000146	5.45532E-06	5.0189E-06	631.45	1109.6	1.35	21082.4	1.60445E-05	2.31041E-05	2.42997E-07	1.59E-07
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	50	Gasoline	7.35434E-05	0.006026014	0.000127255	4.3486E-06	3.28561E-06	2763.05	1222.75	6.96	45241.75	7.99559E-05	8.79866E-05	7.66924E-07	9.68E-07
San Francisco	2022	OFF - ConstMin - Paving Equipment	Aggregate	100	Gasoline	1.33271E-05	0.000712455	3.77564E-05	1.99922E-06	1.51052E-06	1124.2	310.25	1.8	20476.5	1.44891E-05	1.59444E-05	2.7703E-07	3.94E-07
San Francisco	2022	OFF - ConstMin - Plate Compactors	Aggregate	25	Gasoline	0.007445455	0.266745715	0.005461252	0.002531755	0.001912882	34656.75	105831.75	545.99	649524.8	0.008094646	0.008907664	1.41083E-05	1.21E-05
San Francisco	2022	OFF - ConstMin - Plate Compactors	Aggregate	25	Diesel	5.64158E-05	0.000358068	0.000427489	1.67043E-05	1.5368E-05	1960.05	9935.3	16.54	79482.4	4.74049E-05	6.82631E-05	9.12531E-07	4.93E-07
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	25	Gasoline	0.003806464	0.174361297	0.002999358	0.001917297	0.001448625	20980.2	26615.8	106.87	327616.7	0.004138361	0.004554014	7.09492E-06	7.35E-06
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	25	Diesel	0.000344476	0.001821472	0.002621575	0.000100287	9.22641E-05	11720.15	30645.4	44.08	366073.1	0.000289455	0.000416816	5.00428E-06	2.95E-06
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	50	Gasoline	0.000166626	0.012970454	0.000233964	4.17937E-06	3.15775E-06	3102.5	1116.9	1.81	41325.3	0.000181154	0.000199349	7.37079E-07	1.09E-06
San Francisco	2022	OFF - ConstMin - Rollers	Aggregate	100	Gasoline	0.000328388	0.014912193	0.000848807	1.59268E-05	1.20336E-05	9581.25	2091.45	3.39	156858.75	0.000357021	0.00039288	2.20697E-06	3.36E-06
San Francisco	2022	OFF - ConstMin - Rough Terrain Forklifts	Aggregate	50	Gasoline	2.33067E-05	0.001713815	3.57785E-05	7.17537E-07	5.42139E-07	500.05	149.65	0.34	7033.55	2.53389E-05	2.78839E-05	1.26546E-07	1.75E-07
San Francisco	2022	OFF - ConstMin - Rough Terrain Forklifts	Aggregate	100	Gasoline	0.00030499	0.013120816	0.000869647	1.8427E-05	1.39226E-05	10822.25	2106.05	5.11	179014.25	0.000331583	0.000364887	2.55341E-06	3.79E-06
San Francisco	2022	OFF - ConstMin - Rough Terrain Forklifts	Aggregate	175	Gasoline	1.17816E-05	0.000592123	5.61895E-05	1.08394E-06	8.18976E-07	602.25	62.05	0.17	8811.1	1.28089E-05	1.40954E-05	1.50201E-07	2.11E-07
San Francisco	2022	OFF - ConstMin - Rubber Tired Loaders	Aggregate	25	Diesel	1.59119E-05	6.57143E-05	0.000121666	4.54608E-06	4.18239E-06	532.9	686.2	0.71	17155	1.33704E-05	1.92533E-05	2.02497E-07	1.34E-07
San Francisco	2022	OFF - ConstMin - Rubber Tired Loaders	Aggregate	50	Gasoline	5.55055E-05	0.00435476	8.01366E-05	1.62226E-06	1.22571E-06	1164.35	459.9	0.9	18396	6.03452E-05	6.64062E-05	2.86103E-07	4.08E-07
San Francisco	2022	OFF - ConstMin - Rubber Tired Loaders	Aggregate	100	Gasoline	0.000333689	0.015445114	0.000898886	1.93892E-05	1.46496E-05	11493.85	3058.7	5.95	220226.4	0.000362784	0.000399221	2.68675E-06	4.03E-06
San Francisco	2022	OFF - ConstMin - Signal Boards	Aggregate	25	Gasoline	0.000190169	0.008684865	0.000161109	9.88713E-05	7.47027E-05	1062.15	1766.6	6.67	13804.3	0.000206751	0.000227516	3.91229E-07	3.72E-07
San Francisco	2022	OFF - ConstMin - Signal Boards	Aggregate	25	Diesel	0.000881738	0.005596343	0.006681355	0.000261077	0.000240191	30561.45	108547.35	144.6	651284.1	0.000740905	0.001066904	1.42622E-05	7.69E-06
San Francisco	2022	OFF - ConstMin - Signal Boards	Aggregate	50	Diesel	1.81642E-05	0.00014518	0.000130244	5.18735E-06	4.77236E-06	635.1	390.55	0.72	14450.35	1.5263E-05	2.19787E-05	2.4657E-07	1.6E-07
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	25	Gasoline	0.012515571	0.580824238	0.009508473	0.006399643	0.004835286	68758.7	59575.3	186.61	1127550.7	0.01360684	0.014973497	2.15274E-05	2.41E-05
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	25	Diesel	0.001567196	0.006424858	0.011962652	0.000470477	0.000432839	51673.05	82336.7	98.62	1646734	0.00131688	0.001896307	1.97199E-05	1.3E-05
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	50	Gasoline	0.000392203	0.034086711	0.000652413	2.3024E-05	1.73959E-05	14724.1	7613.9	24.51	243644.8	0.0004264	0.000469227	4.06053E-06	5.16E-06
San Francisco	2022	OFF - ConstMin - Skid Steer Loaders	Aggregate	100	Gasoline	0.000225441	0.013116833	0.000605251	3.44347E-05	2.60173E-05	19498.3	4558.85	14.66	364708	0.000245098	0.000269716	4.77159E-06	6.83E-06

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Francisco
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2.5_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	HC_tpd	TOG_tpd	SOx_tpd	NH3_tpd
San Francisco	2022	OFF - ConstMin - Surfacing Equipment	Aggregate	25	Gasoline	0.008512243	0.354552355	0.007024274	0.003948489	0.002983303	43865.7	114044.25	266.56	887398.95	0.00925445	0.010183958	1.62823E-05	1.54E-05
San Francisco	2022	OFF - ConstMin - Tampers/Rammers	Aggregate	25	Gasoline	0.000921003	0.046820215	0.000855215	0.000660694	0.000499191	6248.8	29097.8	159.68	122851.7	0.001001308	0.001101878	3.50221E-06	2.19E-06
San Francisco	2022	OFF - ConstMin - Tractors/Loaders/Backhoes	Aggregate	25	Diesel	0.000295623	0.00122089	0.0022604	8.44314E-05	7.76768E-05	9862.3	13661.95	14.5	314224.85	0.000248405	0.000357703	3.76214E-06	2.48E-06
San Francisco	2022	OFF - ConstMin - Tractors/Loaders/Backhoes	Aggregate	100	Gasoline	0.000159064	0.012210229	0.000436884	1.35844E-05	1.02637E-05	8121.25	2752.1	3.16	173382.3	0.000172933	0.000190302	1.88238E-06	2.85E-06
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	25	Gasoline	0.007713124	0.353566846	0.006155386	0.003978516	0.00300599	42288.9	41624.6	95.84	616152.85	0.008385653	0.0092279	1.40008E-05	1.48E-05
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	25	Diesel	0.000139301	0.000634179	0.001063304	4.00748E-05	3.68688E-05	4675.65	4894.65	7.91	109343.05	0.000117052	0.000168554	1.86436E-06	1.18E-06
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	50	Gasoline	0.000681926	0.049951184	0.001052709	2.125E-05	1.60555E-05	14738.7	6591.9	16.36	197757	0.000741385	0.000815849	3.74767E-06	5.16E-06
San Francisco	2022	OFF - ConstMin - Trenchers	Aggregate	100	Gasoline	0.000253452	0.0108632	0.000727204	1.55148E-05	1.17223E-05	9106.75	2186.35	5.43	144299.1	0.000275551	0.000303228	2.14988E-06	3.19E-06
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	25	Gasoline	0.001292836	0.059371533	0.000982595	0.000654131	0.000494233	7033.55	7708.8	20.52	145394.1	0.001405562	0.001546736	2.20173E-06	2.46E-06
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	25	Diesel	0.000166573	0.000800499	0.001267261	4.96476E-05	4.56758E-05	5573.55	12136.25	30.38	212134.35	0.000139967	0.000201553	2.28199E-06	1.4E-06
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	50	Gasoline	0.000397901	0.03621649	0.000642099	2.19247E-05	1.65653E-05	14253.25	8862.2	24.53	292452.6	0.000432596	0.000476045	3.86666E-06	4.99E-06
San Francisco	2022	OFF - Industrial - Aerial Lifts	Aggregate	100	Gasoline	0.000313458	0.01922386	0.000843542	4.45138E-05	3.36326E-05	25349.25	8862.2	24.53	593767.4	0.00034079	0.000375018	6.16825E-06	8.88E-06
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	25	Gasoline	3.80503E-05	0.002605771	3.41869E-05	1.90687E-06	1.44075E-06	306.6	423.4	0.47	9738.2	4.1368E-05	4.55229E-05	9.60851E-08	1.07E-07
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	50	Gasoline	0.009949767	1.296053197	0.024755666	0.000295431	0.000223214	240827	147273.85	81.75	6038227.85	0.010817316	0.011903797	5.21025E-05	8.44E-05
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	100	Gasoline	0.021007795	2.202727571	0.112245056	0.001770074	0.001337389	1094737.2	516850.95	286.87	36179566.5	0.022839525	0.025133504	0.000245278	0.000384
San Francisco	2022	OFF - Industrial - Forklifts	Aggregate	175	Gasoline	0.001096097	0.085262166	0.006963744	0.000134929	0.000101947	76438.3	18888.75	10.49	2757757.5	0.001191669	0.001311359	1.86971E-05	2.68E-05
San Francisco	2022	OFF - Industrial - Other General Industrial Equ	Aggregate	25	Gasoline	0.001065262	0.072309967	0.000921655	5.30004E-05	4.00447E-05	8639.55	14862.8	38.32	156971.9	0.001158145	0.001274468	3.04876E-06	3.03E-06
San Francisco	2022	OFF - Industrial - Other General Industrial Equ	Aggregate	25	Diesel	0.000203998	0.000971316	0.00159678	6.029E-05	5.54668E-05	7044.5	13417.4	9.41	241790.6	0.000171415	0.000246838	2.82972E-06	1.77E-06
San Francisco	2022	OFF - Industrial - Other General Industrial Equ	Aggregate	50	Gasoline	0.000312022	0.033153442	0.000743302	1.47609E-05	1.11527E-05	10117.8	5588.15	7.81	167644.5	0.000339228	0.0003733	2.60324E-06	3.54E-06
San Francisco	2022	OFF - Industrial - Other General Industrial Equ	Aggregate	100	Gasoline	9.65474E-05	0.007772186	0.000615224	1.27736E-05	9.65118E-06	7409.5	1832.3	2.57	144751.7	0.000104966	0.000115508	1.77003E-06	2.6E-06
San Francisco	2022	OFF - Industrial - Other General Industrial Equ	Aggregate	175	Gasoline	1.35405E-05	0.001456732	0.000124117	2.72268E-06	2.05713E-06	1522.05	175.2	0.24	30484.8	1.47211E-05	1.61997E-05	3.7728E-07	5.33E-07
San Francisco	2022	OFF - Industrial - Other Material Handling Equ	Aggregate	50	Gasoline	4.1801E-06	0.000357423	9.00329E-06	1.51505E-07	1.14471E-07	105.85	43.8	0.12	1795.8	4.54457E-06	5.00103E-06	2.67196E-08	3.71E-08
San Francisco	2022	OFF - Industrial - Other Material Handling Equ	Aggregate	100	Gasoline	0.000110545	0.005942267	0.000536513	8.8298E-06	6.67141E-06	5168.4	1887.05	4.87	101900.7	0.000120184	0.000132255	1.22354E-06	1.81E-06
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	25	Gasoline	0.00081483	0.058365264	0.000709867	4.04948E-05	3.05961E-05	6887.55	7278.1	26.95	94177.3	0.000885877	0.000974854	2.28477E-06	2.41E-06
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	25	Diesel	4.06262E-05	0.000209568	0.000322627	1.2258E-05	1.12774E-05	1438.1	1992.9	3.05	36868.65	3.41373E-05	4.91577E-05	5.92788E-07	3.62E-07
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	50	Gasoline	0.000867699	0.083141628	0.002023001	4.77116E-05	3.60488E-05	31273.2	11778.55	22.79	412249.25	0.000943356	0.001038106	8.41447E-06	1.1E-05
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	100	Gasoline	0.000506498	0.035510462	0.003448216	7.73974E-05	5.8478E-05	44183.25	9833.1	19.05	668650.8	0.000550661	0.000605968	1.07249E-05	1.55E-05
San Francisco	2022	OFF - Industrial - Sweepers/Scrubbers	Aggregate	175	Gasoline	3.91994E-06	0.000475252	4.09275E-05	9.26439E-07	6.99976E-07	514.65	54.75	0.1	7665	4.26173E-06	4.68977E-06	1.28376E-07	1.8E-07
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	25	Gasoline	0.022751209	0.581972162	0.014545999	0.004466273	0.003374517	82865.95	261975.1	541.94	1614679.7	0.024734952	0.027219305	3.66291E-05	2.9E-05
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	25	Diesel	0.000119474	0.000524256	0.000882573	3.81694E-05	3.51158E-05	3759.5	6851.05	8.43	136875	0.000100392	0.000144564	1.49886E-06	9.46E-07
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	50	Gasoline	0.001134718	0.091325094	0.001644952	3.46956E-05	2.62144E-05	24648.45	10851.45	22.44	379800.75	0.001233657	0.001357564	6.11895E-06	8.63E-06
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	50	Diesel	0.001415979	0.010891177	0.009000785	0.000381568	0.000351043	42332.7	41464	50.92	1534168	0.001189816	0.001713334	1.63371E-05	1.06E-05
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	100	Gasoline	0.003636995	0.174056228	0.009869851	0.000225011	0.000170008	133031.55	35189.65	72.82	2463275.5	0.003954115	0.004351262	3.11797E-05	4.66E-05
San Francisco	2022	OFF - Light Commercial - Air Compressors	Aggregate	175	Gasoline	0.000327323	0.016110145	0.001378219	2.89762E-05	2.18931E-05	16304.55	2365.2	4.88	316936.8	0.000355863	0.000391606	4.01521E-06	5.71E-06
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	25	Gasoline	0.167175764	10.0307382	0.126829595	0.01019643	0.007703969	1210110.05	1635495.65	14234.44	17542991.35	0.181752298	0.200007317	0.000423787	0.000424
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	25	Diesel	0.002869436	0.015080431	0.022946446	0.000977773	0.000899551	98363.85	161768	479.2	2326130.4	0.002411123	0.003472018	4.12344E-05	2.47E-05
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	50	Gasoline	0.00582817	0.409693817	0.013019127	0.000301173	0.000227553	190588.4	84873.45	738.91	2715950.4	0.006336345	0.006972762	5.31152E-05	6.68E-05
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	50	Diesel	0.002671262	0.023445734	0.023107447	0.000827762	0.000761541	116621.15	83468.2	247.19	2754450.6	0.002244602	0.003232227	4.52173E-05	2.93E-05
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	100	Gasoline	0.001301361	0.056507203	0.007953619	0.000150869	0.00011399	85428.25	16392.15	142.7	1360548.45	0.00141483	0.001556934	2.09058E-05	2.99E-05
San Francisco	2022	OFF - Light Commercial - Generator Sets	Aggregate	175	Gasoline	0.000129353	0.012368813	0.001391184	2.50748E-05	1.89454E-05	13994.1	1554.9	13.49	227015.4	0.000140632	0.000154757	3.47461E-06	4.9E-06
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	25	Gasoline	0.017884086	0.731232422	0.009847759	0.001798394	0.001358787	95816.15	170739.7	1485.97	1182110.9	0.01944345	0.021396331	3.90332E-05	3.36E-05
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	25	Diesel	1.56007E-05	9.4994E-05	0.000128795	5.56083E-06	5.11597E-06	540.2	2288.55	15.82	32313.45	1.31089E-05	1.88768E-05	2.47516E-07	1.36E-07
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	50	Gasoline	5.28071E-05	0.003866422	9.5276E-05	3.04936E-06	2.30396E-06	1905.3	755.55	6.62	21910.95	5.74115E-05	6.31778E-05	5.37788E-07	6.67E-07
San Francisco	2022	OFF - Light Commercial - Pressure Washers	Aggregate	50	Diesel	9.1341E-06	9.6456E-05	0.000106799	3.26725E-06	3.00587E-06	551.15	857.75	5.93	32594.5	7.67519E-06	1.10523E-05	2.1727E-07	1.39E-07
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	25	Gasoline	0.055927155	2.094497402	0.041124379	0.022375385	0.016905846	270260.6	724926.5	3284.55	4022365.7	0.060803604	0.066910657	0.000109755	9.47E-05
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	25	Diesel	0.001579093	0.008089558	0.011774304	0.000521157	0.000479465	50526.95	108660.5	269.95	1194174.15	0.001326877	0.001910702	2.16856E-05	1.27E-05
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	50	Gasoline	0.000905508	0.072978189	0.001524349	4.5469E-05	3.43544E-05	29437.25	13037.8	59.05	404171.8	0.000984462	0.001083341	8.01896E-06	1.03E-05
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	50	Diesel	0.001714977	0.014386367	0.013697962	0.000513552	0.000472468	68317.05	43573.7	108.22	1612226.9	0.001441057	0.002075122	2.64651E-05	1.72E-05
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	100	Gasoline	0.001476764	0.07483312	0.004368522	0.000172892	0.00013063	98498.9	16512.6	74.84	1535671.8	0.001605527	0.001766785	2.39576E-05	3.45E-05
San Francisco	2022	OFF - Light Commercial - Pumps	Aggregate	175	Gasoline	5.09213E-05	0.00409158	0.000219019	8.0705E-06	6.09771E-06	4507.75	489.1	2.26	70430.4	5.53613E-05	6.09217E-05	1.11832E-06	1.58E-06
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	25	Gasoline	0.055082595	2.548863683	0.042625667	0.028311386	0.021390825	302906.2	361353.65	1739.46	5673191.35	0.059885405	0.065900235	9.69103E-05	0.000106
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	25	Diesel	0.001398818	0.006658181	0.010382263	0.000454364	0.000418015	44402.25	113478.5	176.71	1726362.4	0.001175396	0.00169257	1.83893E-05	1.12E-05
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	50	Gasoline	0.002150219	0.152316396	0.003664956	9.12317E-05	6.89306E-05	59465.8	24374.7	117.34	1096861.5	0.002337702	0.002572499	1.60897E-05	2.08E-05
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	50	Diesel	0.006028615	0.046807593	0.040479774	0.001679691	0.001545316	194311.4	163483.5	254.55	7520241	0.005065712	0.007294625	7.50829E-05	4.89E-05
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	100	Gasoline	0.001634147	0.068827768	0.005184042	0.000144845	0.000109438	82938.95	24874.75	119.77	1741232.5	0.001776633	0.001955077	2.00711E-05	2.91E-05
San Francisco	2022	OFF - Light Commercial - Welders	Aggregate	175	Gasoline	0.000139381	0.009437891	0.000723315	1.8543E-05	1.40103E-05	10366	1708.2	8.24	222066	0.000151534	0.000166754	2.5695E-06	3.63E-06

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Francisco
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2.5_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	HC_tpd	TOG_tpd	SOx_tpd	NH3_tpd
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	50	Diesel	8.69865E-07	1.31218E-05	9.56798E-06	2.54161E-07	2.33829E-07	58.47049777	66.24886168	0.164648557	3397.926959	7.18997E-07	1.03521E-06	1.66407E-08	1.47E-08
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	75	Diesel	4.91802E-05	0.000712499	0.000632945	2.02558E-05	1.86353E-05	3487.193689	3312.443084	8.232427834	225292.8541	4.06448E-05	5.85284E-05	9.92522E-07	8.77E-07
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	100	Diesel	7.99357E-05	0.001780321	0.000925369	6.38283E-05	5.87222E-05	8585.700366	6525.512876	16.21788283	554685.8342	6.60626E-05	9.51301E-05	2.44467E-06	2.16E-06
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	175	Diesel	4.9504E-05	0.001207495	0.000556071	2.12285E-05	1.95302E-05	6842.103522	3279.318653	8.150103555	442039.4071	4.09124E-05	5.89138E-05	1.94856E-06	1.72E-06
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	300	Diesel	5.8621E-05	0.000458604	0.000512407	2.06703E-05	1.90166E-05	7047.701322	1656.221542	4.116213917	455322.2125	4.84471E-05	6.97639E-05	2.00692E-06	1.77E-06
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	600	Diesel	9.62871E-05	0.000762335	0.000886845	3.39107E-05	3.11979E-05	12871.90979	1623.097111	4.033889638	831599.7201	7.95761E-05	0.00011459	3.6657E-06	3.24E-06
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	750	Diesel	7.52831E-06	3.92098E-05	0.000127939	3.79096E-06	3.48768E-06	669.3881852	66.24886168	0.164648557	43246.34311	6.22175E-06	8.95931E-06	1.90568E-07	1.68E-07
San Francisco	2022	Portable Equipment - Non-Rental Compressor	Aggregate	9999	Diesel	2.31483E-05	0.000158865	0.000248043	3.42007E-06	3.14647E-06	2390.67209	33.12443084	0.082324278	154451.2254	1.91308E-05	2.75484E-05	6.80693E-07	6.01E-07
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	50	Diesel	2.61395E-05	0.000312042	0.000167255	2.46467E-06	2.26749E-06	985.215745	1105.116766	0.823242783	57254.36362	2.16029E-05	3.11082E-05	2.80108E-07	2.48E-07
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	75	Diesel	0.000195945	0.002478123	0.001834187	5.14639E-05	4.73467E-05	11006.74337	10609.12095	7.90313072	711099.1962	0.000161938	0.000233191	3.13172E-06	2.77E-06
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	100	Diesel	0.000234776	0.004528383	0.002133205	0.000173048	0.000159204	19858.22105	13592.93622	10.12588624	1282955.78	0.00019403	0.000279403	5.65315E-06	5E-06
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	175	Diesel	0.000497148	0.008680126	0.003456678	0.00016354	0.000150457	44085.46343	19892.10179	14.8183701	2848175.573	0.000410866	0.000591647	1.25507E-05	1.11E-05
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	300	Diesel	0.000621099	0.003275088	0.004607879	0.000201768	0.000185626	45730.27146	11603.72604	8.644049225	2954439.672	0.000513305	0.000739159	1.30163E-05	1.15E-05
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	600	Diesel	0.001216458	0.006956997	0.00763722	0.000336153	0.00030926	99661.54156	15471.63472	11.52539897	6438711.224	0.001005337	0.001447685	2.83703E-05	2.51E-05
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	750	Diesel	0.000411033	0.002465397	0.001864786	0.000103925	9.56109E-05	37546.99704	3536.373651	2.634376907	2425752.878	0.000339697	0.000489164	1.06895E-05	9.45E-06
San Francisco	2022	Portable Equipment - Non-Rental Generator	Aggregate	9999	Diesel	0.0023011	0.013229399	0.028522952	0.000752382	0.000692191	204463.1082	7072.747303	5.268753813	13209497.76	0.001901735	0.002738499	5.82085E-05	5.14E-05
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	50	Diesel	3.23939E-07	5.01754E-06	3.46262E-06	3.89216E-08	3.58079E-08	23.00318263	25.80267614	0.082324278	1336.796117	2.67718E-07	3.85514E-07	6.54716E-09	5.79E-09
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	75	Diesel	2.1216E-05	0.000431452	0.000356955	1.06156E-05	9.76635E-06	2234.277704	2090.016767	6.668266545	144347.2447	1.75339E-05	2.52488E-05	6.36173E-07	5.62E-07
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	100	Diesel	3.81545E-05	0.001197942	0.000647036	4.18215E-05	3.84758E-05	6168.990134	4334.849591	13.83047876	398552.3944	3.15327E-05	4.5407E-05	1.75702E-06	1.55E-06
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	175	Diesel	0.000152913	0.003904712	0.001842465	7.33375E-05	6.74705E-05	22708.19049	10553.29454	33.67062984	1467080.267	0.000126375	0.000181979	6.46733E-06	5.71E-06
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	300	Diesel	0.000117287	0.000879857	0.001251429	4.80358E-05	4.4193E-05	13371.73202	3586.571983	11.44307469	863891.1228	9.69314E-05	0.000139581	3.80762E-06	3.36E-06
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	600	Diesel	9.58208E-05	0.000770549	0.001075911	4.07206E-05	3.74629E-05	12944.65764	1883.595358	6.009672318	836299.6509	7.91907E-05	0.000114035	3.68645E-06	3.26E-06
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	750	Diesel	3.96177E-05	0.000297127	0.000546154	1.97639E-05	1.81827E-05	5125.720252	464.4481705	1.48183701	331151.1342	3.27419E-05	4.71484E-05	1.45969E-06	1.29E-06
San Francisco	2022	Portable Equipment - Non-Rental Other Portat	Aggregate	9999	Diesel	0.000723065	0.005488118	0.010421417	0.000183526	0.000168844	88335.70108	1548.160568	4.9394567	5706996.512	0.000597574	0.000860507	2.5155E-05	2.22E-05
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	50	Diesel	4.55787E-07	8.22932E-06	6.89982E-06	1.73595E-07	1.59708E-07	43.33843434	51.71567388	0.164648557	2518.549354	3.76683E-07	5.42424E-07	1.23388E-08	1.09E-08
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	75	Diesel	2.79707E-05	0.000560362	0.000452508	1.09394E-05	1.00643E-05	2886.426512	2715.072879	8.644049225	186479.8245	2.31163E-05	3.32875E-05	8.21848E-07	7.26E-07
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	100	Diesel	3.0381E-05	0.000784331	0.000488539	3.01252E-05	2.77151E-05	4006.990368	2896.077737	9.220319174	258874.7219	2.51083E-05	3.61559E-05	1.14111E-06	1.01E-06
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	175	Diesel	5.20234E-05	0.001329109	0.000672352	2.75066E-05	2.5306E-05	7702.528679	3516.665824	11.19610185	497627.8421	4.29945E-05	6.19121E-05	2.19369E-06	1.94E-06
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	300	Diesel	5.27757E-05	0.000513916	0.000502493	1.78591E-05	1.64304E-05	8753.834887	2223.773977	7.079887937	565548.2954	4.36163E-05	6.28074E-05	2.49326E-06	2.2E-06
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	600	Diesel	7.00731E-05	0.000653427	0.000751186	2.9594E-05	2.72265E-05	11417.14395	1629.043727	5.186429535	737613.4438	5.79117E-05	8.33928E-05	3.25179E-06	2.87E-06
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	750	Diesel	1.68972E-05	0.00011144	0.000274847	1.04782E-05	9.63998E-06	1945.020164	181.0048586	0.576269948	125659.5369	1.39646E-05	2.01091E-05	5.53851E-07	4.89E-07
San Francisco	2022	Portable Equipment - Non-Rental Pump	Aggregate	9999	Diesel	2.14883E-05	0.000186329	0.000457517	1.03433E-05	9.5158E-06	3260.915469	181.0048586	0.576269948	210673.9742	1.77589E-05	2.55729E-05	9.28726E-07	8.2E-07
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	75	Diesel	7.85433E-06	0.000159261	0.000121487	1.28469E-06	1.18191E-06	817.2841182	781.3010266	1.48183701	52801.27462	6.49119E-06	9.34731E-06	2.32706E-07	2.06E-07
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	100	Diesel	7.20765E-06	0.000228577	9.33513E-05	6.64482E-06	6.11324E-06	1123.591624	824.7066392	1.564161288	72590.50872	5.95673E-06	8.5777E-06	3.2001E-07	2.83E-07
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	175	Diesel	0.000103916	0.00312638	0.00125321	3.87281E-05	3.56298E-05	18410.47342	8854.744968	16.79415278	1189422.921	8.58814E-05	0.000123669	5.24383E-06	4.63E-06
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	300	Diesel	0.000102864	0.001187931	0.000970933	3.24555E-05	2.9859E-05	20608.92593	4774.617385	9.055670617	1331455.651	8.50115E-05	0.000122417	5.87035E-06	5.18E-06
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	600	Diesel	0.000574297	0.006632796	0.002984988	0.000144786	0.000133204	115459.1336	13629.36235	25.8498234	7459326.917	0.000474625	0.00068346	3.2888E-05	2.9E-05
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	750	Diesel	7.05835E-06	8.80694E-05	3.30369E-05	2.12518E-06	1.95517E-06	1535.018297	130.2168378	0.246972835	99171.04816	5.83335E-06	8.40003E-06	4.37257E-07	3.86E-07
San Francisco	2022	Portable Equipment - Rental Compressor	Aggregate	9999	Diesel	8.26635E-06	5.88931E-05	0.000190544	4.3645E-06	4.01534E-06	1051.191668	86.81122518	0.164648557	67913.05339	6.83169E-06	9.83764E-06	2.99352E-07	2.64E-07
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	50	Diesel	6.87846E-06	9.13698E-05	8.12245E-05	3.1651E-06	2.91189E-06	346.1076615	473.4500694	0.329297113	20113.53757	5.68468E-06	8.18594E-06	9.84593E-08	8.71E-08
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	75	Diesel	0.000362936	0.005082201	0.003847966	0.000104603	9.62345E-05	23518.49458	22252.15326	15.47696433	1519430.591	0.000299947	0.000431924	6.69304E-06	5.92E-06
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	100	Diesel	0.000466831	0.011086871	0.00492253	0.00037482	0.000344834	50554.60724	33023.14234	22.96847366	3266119.628	0.000385811	0.000555567	1.43949E-05	1.27E-05
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	175	Diesel	0.000751555	0.015511457	0.005399956	0.000165871	0.000152602	81205.15317	36455.65535	25.35587773	5246321.931	0.00062112	0.000894412	2.31223E-05	2.04E-05
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	300	Diesel	0.000608406	0.00392136	0.002983964	0.000123537	0.000113654	57904.96732	15623.85229	10.86680474	3740995.345	0.000502815	0.000724054	1.6486E-05	1.46E-05
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	600	Diesel	0.002702678	0.017505429	0.013335211	0.0005947	0.000547124	276650.3165	41308.51856	28.73117314	17873208.36	0.002233619	0.003216411	7.87697E-05	6.96E-05
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	750	Diesel	0.000658322	0.005271717	0.005157297	0.000224829	0.000206843	85846.58664	8048.65118	5.598050927	5546185.342	0.000544068	0.000783457	2.44473E-05	2.16E-05
San Francisco	2022	Portable Equipment - Rental Generator	Aggregate	9999	Diesel	0.006279705	0.035096159	0.08351227	0.002316676	0.002131342	549870.3383	25803.02878	17.94669268	3552479.87	0.005189838	0.007473367	0.00015654	0.000138
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	75	Diesel	6.05829E-05	0.000809474	0.000587458	9.88478E-06	9.094E-06	3671.096684	3582.886039	2.881349742	237174.0498	5.00685E-05	7.20987E-05	1.04465E-06	9.24E-07
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	100	Diesel	3.6453E-05	0.000762292	0.000348422	2.90309E-05	2.67085E-05	3288.553962	2456.836141	1.97578268	212459.5804	3.01264E-05	4.33821E-05	9.36231E-07	8.27E-07
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	175	Diesel	0.000108228	0.001825705	0.000849768	3.81378E-05	3.50868E-05	9318.937737	4094.726902	3.292971133	602057.2034	8.94447E-05	0.0001288	2.65292E-06	2.34E-06
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	300	Diesel	9.40755E-05	0.00054865	0.000658042	2.52021E-05	2.31859E-05	8089.218856	2047.363451	1.646485567	522610.261	7.77484E-05	0.000111958	2.30284E-06	2.03E-06
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	600	Diesel	0.000145193	0.000882586	0.000869655	5.38365E-05	3.29696E-05	13840.49421	2354.467968	1.893458402	894175.8677	0.000119994	0.000172792	3.94051E-06	3.48E-06
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	750	Diesel	5.42514E-05	0.000373727	5.57958E-05	5.56241E-06	5.11742E-06	5631.42291	511.8408627	0.411621392	363822.4468	4.48359E-05	6.45637E-05	1.60343E-06	1.42E-06
San Francisco	2022	Portable Equipment - Rental Other Portable Ec	Aggregate	9999	Diesel	0.001367397	0.008691962	0.016560386	0.000302621	0.000278411	134366.079	2866.308831	2.305079793	8680824.794	0.00113008	0.001627315	3.82562E-05	3.38E-05
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	75	Diesel	0.000116918	0.002099547	0.00167102	5.17011E-05	4.7565E-05	10461.73238	9263.749304	9.549616287	675888.3384	9.66263E-05	0.000139142	2.97837E-06	2.63E-06
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	100	Diesel	7.63194E-05	0.00186978	0.000691516	5.7243E-05	5.26636E-05	8339.414735	6229.072808	6.42129371	538774.3598	6.30739E-05	9.08264E-05	2.37458E-06	2.1E-06
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	175	Diesel	0.000151828	0.003439977	0.001201781	4.23972E-05	3.90054E-05	18260.64136	7586.691241	7.820806442	1179742.904	0.000125478	0.000180688	5.19995E-06	4.59E-06
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	300	Diesel	0.000139449	0.001143964	0.000925298	3.31455E-05	3.04938E-05	18178.66892	4711.73456	4.857132422	1174447.011	0.000115247	0.000165956	5.17689E-06	4.57E-06
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	600	Diesel	0.000176116	0.001387337	0.000682715	3.65104E-05	3.35896E-05	22616.70794	3753.415666	3.869241082	1461169.966	0.00014555	0.000209592	6.44069E-06	5.69E-06
San Francisco	2022	Portable Equipment - Rental Pump	Aggregate	750	Diesel	9.50198E-06	9.31589E-05	1.43253E-05	1.15483E-06	1.06245E-06	1549.791404	159.7198156	0.164648557	100125.4762	7.85288E-06	1.13081E-05	4.41406E-07	3.9E-07

SF Gateway - Variant
Air Quality Construction-Related Emission Estimates Summary

Tier 4 Interim Emissions for Off-Road Equipment >25 HP

2022 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} [1] Fug Dust	$PM_{2.5}$ [1] Fug Dust
Building 1 Off-Road Construction Equipment	0.08	1.47	2.51	0.02	0.01	-	-
Building 1 On-Road Construction Equipment	0.02	0.28	0.23	0.00	0.00	0.04	0.01
Building 2 Off-Road Construction Equipment	0.04	0.74	1.32	0.01	0.01	-	-
Building 2 On-Road Construction Equipment	0.01	0.17	0.03	0.00	0.00	0.03	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	0.19	0.02
Building 2 Fugitive Dust[2]	-	-	-	-	-	0.15	0.02
Architectural Coatings[3]	-	-	-	-	-	-	-
Paving Off-Gassing[3]	-	-	-	-	-	-	-
Total Emissions (tons)	0.16	2.65	4.10	0.03	0.03	0.41	0.06
2022 Average Daily Emissions (lbs/day)	2.02	34.24	52.88	0.36	0.35	5.23	0.81
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site fugitive

2023 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} [1] Fug Dust	$PM_{2.5}$ [1] Fug Dust
Building 1 Off-Road Construction Equipment	0.12	2.35	3.79	0.03	0.03	-	-
Building 1 On-Road Construction Equipment	0.02	0.18	0.37	0.00	0.00	0.05	0.01
Building 2 Off-Road Construction Equipment	0.12	2.29	3.70	0.03	0.03	-	-
Building 2 On-Road Construction Equipment	0.02	0.23	0.09	0.00	0.00	0.05	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	-	-
Building 2 Fugitive Dust[2]	-	-	-	-	-	0.04	0.00
Architectural Coatings[3]	0.69	-	-	-	-	-	-
Paving Off-Gassing[3]	-	-	-	-	-	-	-
Total Emissions (tons)	0.97	5.05	7.95	0.07	0.07	0.14	0.03
2023 Average Daily Emissions (lbs/day)	7.47	38.85	61.13	0.53	0.52	1.06	0.23
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site fugitive

2024 Construction-Related Unmitigated Emissions Summary (tons)							
Project Component/Source	ROG	NOx	CO	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} [1] Fug Dust	$PM_{2.5}$ [1] Fug Dust
Building 1 Off-Road Construction Equipment	0.13	2.42	5.73	0.02	0.02	-	-
Building 1 On-Road Construction Equipment	0.02	0.12	0.26	0.00	0.00	0.03	0.01
Building 2 Off-Road Construction Equipment	0.17	3.20	7.02	0.03	0.03	-	-
Building 2 On-Road Construction Equipment	0.02	0.18	0.11	0.00	0.00	0.05	0.01
Building 1 Fugitive Dust[2]	-	-	-	-	-	-	-
Building 2 Fugitive Dust[2]	-	-	-	-	-	-	-
Architectural Coatings[3]	1.39	-	-	-	-	-	-
Paving Off-Gassing[3]	0.02	-	-	-	-	-	-
Total Emissions (tons)	1.75	5.92	13.12	0.05	0.05	0.09	0.02
2024 Average Daily Emissions (lbs/day)	13.71	46.44	102.89	0.41	0.40	0.67	0.18
BAAQMD Thresholds[4]	54	54	N/A	82	54	N/A	N/A
Exceeds Thresholds?	No	No		No	No		

Notes:
1. On-road fugitive dust includes break wear, tire wear, and re-entrained roadway dust.
2. All Building 1 ground disturbance occurs in 2022. Building 2 ground disturbance occurs in 2022 and 2023. All demolition activities to occur in 2022.
3. Arch coatings to occur in 2023 and 2024. All paving to occur in 2024.
4. BAAQMD thresholds from the May 2017 BAAQMD CEQA Guidelines. PM fugitive dust is addressed through BMPs for the purposes of thresholds, but that the off-site fugitive

	2022	2023	2024
Weeks	31	52	51
Number of Construction Work Days	155	260	255

Off-Road Construction Emissions - Building 1 (Variant)
Tier 4 Interim Equipment for Engines >25 HP
Construction Exhaust Emissions

Project Phase/Equipment [1]		Number	Usage Factor (hrs/day)	Total Hours/Day (Number * Usage Factor)	Total Days [1]	Horsepower	LookUp Value	Total Runtime Hours	Load Factor [2]	Emissions Factors (g/bhp-hr) ROG	CO	NOx	PM_{10}	$PM_{2.5}$	Emissions (tons/phase) ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep															*0.02*	*0.54*	*0.31*	*0.00*	*0.00*
Air Compressors	Air Compressors	2	4	8	20	78	C	160	0.48	0.110	3.700	2.140	0.008	0.008	0.00	0.02	0.01	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Crushing/Processing Equipment	Crushing/Proc. Equipment	1	6	6	30	85	C	180	0.78	0.110	3.700	2.140	0.008	0.008	0.00	0.05	0.03	0.00	0.00
Excavators	Excavators	2	8	16	40	158	D	640	0.38	0.060	3.700	2.150	0.008	0.008	0.00	0.16	0.09	0.00	0.00
Forklifts, Rough Terrain	Rough Terrain Forklifts	1	6	6	30	100	C	180	0.40	0.110	3.700	2.140	0.008	0.008	0.00	0.03	0.02	0.00	0.00
Generator Sets	Generator Sets	1	8	8	40	84	C	320	0.74	0.110	3.700	2.140	0.008	0.008	0.00	0.08	0.05	0.00	0.00
Rubber Tired Loaders (demo)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.080	2.600	1.290	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	2	9	18	40	6	NA	720	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.01	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	40	64	B	240	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.03	0.02	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Grading & Ground Improvements															*0.04*	*1.25*	*0.69*	*0.01*	*0.01*
Bore/Drill Rigs (auger cast)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.080	2.600	1.290	0.008	0.008	0.00	0.13	0.06	0.00	0.00
Bore/Drill Rigs (stone columns)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.080	2.600	1.290	0.008	0.008	0.00	0.13	0.06	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	2	5	10	40	16	NA	400	0.38	0.217	0.896	1.660	0.062	0.057	0.00	0.00	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	60	84	C	480	0.74	0.110	3.700	2.140	0.008	0.008	0.00	0.12	0.07	0.00	0.00
Graders	Graders	3	8	24	40	187	E	960	0.41	0.080	2.600	1.290	0.008	0.008	0.01	0.21	0.10	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	8	16	60	97	C	960	0.37	0.110	3.700	2.140	0.008	0.008	0.00	0.14	0.08	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	60	402	F	360	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.16	0.08	0.00	0.00
Building Construction															*0.10*	*3.17*	*2.03*	*0.03*	*0.03*
Aerial Lifts (jlg)	Aerial Lifts	12	6	72	80	63	B	5760	0.31	0.120	3.700	2.740	0.112	0.112	0.01	0.46	0.34	0.01	0.01
Air Compressors	Air Compressors	4	4	16	80	78	C	1280	0.48	0.110	3.700	2.140	0.008	0.008	0.01	0.20	0.11	0.00	0.00
Cranes (Precast)	Cranes	4	8	32	80	231	E	2560	0.29	0.080	2.600	1.290	0.008	0.008	0.02	0.49	0.24	0.00	0.00
Cranes (Steel)	Cranes	2	6	12	60	231	E	720	0.29	0.080	2.600	1.290	0.008	0.008	0.00	0.14	0.07	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.110	3.700	2.140	0.008	0.008	0.00	0.14	0.08	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.110	3.700	2.140	0.008	0.008	0.00	0.14	0.08	0.00	0.00
Forklifts (Steel)	Forklifts	4	8	32	80	89	C	2560	0.20	0.110	3.700	2.140	0.008	0.008	0.01	0.19	0.11	0.00	0.00
Generator Sets	Generator Sets	4	6	24	80	84	C	1920	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.49	0.28	0.00	0.00
Plate Compactors (building phase)	Plate Compactors	4	8	32	120	8	NA	3840	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.02	0.03	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	1	6	6	40	65	B	240	0.37	0.120	3.700	2.740	0.112	0.112	0.00	0.02	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (building phase)	Tractors/Loaders/Backhoes	2	8	16	80	97	C	1280	0.37	0.110	3.700	2.140	0.008	0.008	0.01	0.19	0.11	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Welders	Welders	6	8	48	60	46	A	2880	0.45	0.120	4.100	4.550	0.128	0.128	0.01	0.27	0.30	0.01	0.01
Rebuilding Envelope + Interior Buildout															*0.09*	*2.89*	*1.69*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	4	6	24	100	63	B	2400	0.31	0.120	3.700	2.740	0.112	0.112	0.01	0.19	0.14	0.01	0.01
Cranes (MEP)	Cranes	2	8	16	100	231	E	1600	0.29	0.080	2.600	1.290	0.008	0.008	0.01	0.31	0.15	0.00	0.00
Cranes (Cladding)	Cranes	2	8	16	120	231	E	1920	0.29	0.080	2.600	1.290	0.008	0.008	0.01	0.37	0.18	0.00	0.00
Forklifts (MEP)	Forklifts	10	8	80	120	89	C	9600	0.20	0.110	3.700	2.140	0.008	0.008	0.02	0.70	0.41	0.00	0.00
Generator Sets	Generator Sets	2	8	16	120	84	C	1920	0.74	0.110	3.700	2.140	0.008	0.008	0.01	0.49	0.28	0.00	0.00
Pressure Washers	Pressure Washers	2	4	8	60	13	NA	480	0.30	0.160	0.973	1.320	0.057	0.052	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	2	4	8	40	80	C	320	0.38	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	4	8	20	263	E	160	0.30	0.080	2.600	1.290	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Tractors/Loaders/Backhoes (arch)	Tractors/Loaders/Backhoes	2	6	12	40	97	C	480	0.37	0.110	3.700	2.140	0.008	0.008	0.00	0.07	0.04	0.00	0.00
Tractors/Loaders/Backhoes (mep)	Tractors/Loaders/Backhoes	4	8	32	120	97	C	3840	0.37	0.110	3.700	2.140	0.008	0.008	0.02	0.56	0.33	0.00	0.00
Trenchers	Trenchers	1	6	6	40	78	C	240	0.50	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Welders	Welders	2	8	16	60	46	A	960	0.45	0.120	4.100	4.550	0.128	0.128	0.00	0.09	0.10	0.00	0.00
Sitework															*0.08*	*4.10*	*1.46*	*0.01*	*0.01*
AC Rollers	Rollers	2	4	8	50	80	C	400	0.38	0.110	3.700	2.140	0.008	0.008	0.00	0.05	0.03	0.00	0.00
Air Compressors Truck Mounted	Air Compressors	2	4	8	60	78	C	480	0.48	0.110	3.700	2.140	0.008	0.008	0.00	0.07	0.04	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.110	3.700	2.140	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Crawler Tractors	Crawler Tractors	2	4	8	40	212	E	320	0.43	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Excavators (paving)	Excavators	2	6	12	30	158	D	360	0.38	0.060	3.700	2.150	0.008	0.008	0.00	0.09	0.05	0.00	0.00
Excavators (utilities)	Excavators	2	6	12	60	158	D	720	0.38	0.060	3.700	2.150	0.008	0.008	0.00	0.18	0.10	0.00	0.00
Graders	Graders	2	6	12	40	187	E	480	0.41	0.080	2.600	1.290	0.008	0.008	0.00	0.11	0.05	0.00	0.00
Oil Distributer	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.07	0.03	0.00	0.00
Pavers	Pavers	2	8	16	10	130	D	160	0.42	0.060	3.700	2.150	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Paving Equipment	Paving Equipment	2	8	16	10	132	D	160	0.36	0.060	3.700	2.150	0.008	0.008	0.00	0.03	0.02	0.00	0.00
Plate Compactors (site phase)	Plate Compactors	2	4	8	60	8	NA	480	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders (utilities)	Rubber Tired Loaders	4	6	24	60	247	E	1440	0.36	0.080	2.600	1.290	0.008	0.008	0.01	0.37	0.18	0.00	0.00
Rubber Tired Loaders (paving)	Rubber Tired Loaders	2	6	12	40	203	E	480	0.36	0.080	2.600	1.290	0.008	0.008	0.00	0.10	0.05	0.00	0.00
Scrapers	Scrapers	2	4	8	20	367	F	160	0.48	0.080	2.600	1.290	0.008	0.008	0.00	0.08	0.04	0.00	0.00
Signal Boards	Signal Boards	8	9	72	30	6	NA	2160	0.82	0.448	2.845	3.397	0.133	0.122	0.01	0.03	0.04	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	6	12	60	263	E	720	0.30	0.080	2.600	1.290	0.008	0.008	0.01	0.16	0.08	0.00	0.00
Tack Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.080	2.600	1.290	0.008	0.008	0.00	1.00	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	6	12	60	97	C	720	0.37	0.110	3.700	2.140	0.008	0.008	0.00	0.11	0.06	0.00	0.00
Trenchers	Trenchers	1	6	6	60	78	C	360	0.50	0.110	3.700	2.140	0.008	0.008	0.00	0.06	0.03	0.00	0.00
Water Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.080	2.600	1.290	0.008	0.008	0.00	0.07	0.03	0.00	0.00
Startup & Commissioning															*0.00*	*0.09*	*0.05*	*0.00*	*0.00*
Aerial Lifts (jlg)	Aerial Lifts	1	6	6	30	63	B	180	0.31	0.120	3.700	2.740	0.112	0.112	0.00	0.01	0.01	0.00	0.00
Forklift (demobilization)	Forklifts	1	8	8	30	89	C	240	0.20	0.110	3.700	2.140	0.008	0.008	0.00	0.02	0.01	0.00	0.00
Rubber Tired Loaders (landscaping)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.080	2.600	1.290	0.008	0.008	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	1	6	6	30	6	NA	180	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	20	64	B	120	0.46	0.120	3.700	2.740	0.112	0.112	0.00	0.01	0.01	0.00	0.00
														Total Off-Road Emissions (tons)	0.33	12.04	6.24	0.07	0.06

On-Road Construction Emissions - Building 1

Project Component/On-Road Vehicles[3]	Total Trips	Trip Distance (One-way)	Total VMT	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)												Emissions (tons/phase)											
				ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW
Total Trips for Building 1																*0.0420*	*0.0181*	*0.6649*	*0.1914*	*0.4911*	*0.0811*	*0.0086*	*0.0001*	*0.1262*	*0.0082*	*0.0001*	*0.0346*
Concrete Trucks	13,778	1.9	26,177	0.0141	0.0000	0.0743	0.0000	1.2252	3.2761	0.0154	0.0000	0.2183	0.0148	0.0000	0.0622	0.0004	0.0000	0.0021	0.0000	0.0354	0.0498	0.0004	0.0000	0.0063	0.0004	0.0000	0.0018
Haul Trucks	24,485	13.7	334,213	0.0959	0.0937	0.7679	1.6128	1.1648	0.7079	0.0200	0.0002	0.1890	0.0191	0.0002	0.0543	0.0353	0.0025	0.2829	0.0435	0.4291	0.0191	0.0074	0.0000	0.0696	0.0071	0.0000	0.0200
Workers	35,366	10.8	381,953	0.0149	0.3995	0.9021	3.7944	0.0633	0.3132	0.0018	0.0022	0.1195	0.0017	0.0021	0.0304	0.0063	0.0156	0.3798	0.1479	0.0266	0.0122	0.0008	0.0001	0.0503	0.0007	0.0001	0.0126
														Total On-Road Emissions (tons)		0.0420	0.0181	0.6649	0.1914	0.4911	0.0811	0.0086	0.0001	0.1262	0.0082	0.0001	0.0346

Constants	
lb	grams
1	453.59237
ton	lbs
1	2000

Trip Length Assumptions - CalEEMod	miles	
Workers	10.8	
Vendor	7.3	
Haul Trucks	20	
Concrete Trucks	1.9	Based on RFI of project-specific concrete source, distance to Central Concrete Supply

Sources:

1 Equipment types, quantities, daily usage, and horsepower from SF Gateway_Equipment List Emissions Calculation - DPR Estimates 200428
2 Load factors from CalEEMod default tables (Appendix D)
3 Truck and worker trips based on Building 1 Totals rows 6 and 5 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Months of Construction	31
Days of Construction Per Month	21

					Percentage		
Weeks By Year	2022	2023	2024	Total	2022	2023	2024
Demolition & Site Prep	8	0	0	8	100%	0%	0%
Grading & Ground Improvements	16	0	0	16	100%	0%	0%
Building Construction	14	47	0	61	23%	77%	0%
Rebuilding Envelope + Interior Build Out	0	28	32	60	0%	47%	53%
Sitework	0	0	25	25	0%	0%	100%
Startup & Commissioning	0	0	7	7	0%	0%	100%

Notes: Total weeks taken from the Equip Assumptions tab (Row 4).

	tons				
2022	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.015	0.537	0.313	0.003	0.003
Grading & Ground Improvements	0.040	1.250	0.691	0.005	0.005
Building Construction	0.023	0.728	0.465	0.007	0.007
Rebuilding Envelope + Interior Buildout	0.000	0.000	0.000	0.000	0.000
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2022 Total Off-Road Equipment Emissions	0.079	2.515	1.469	0.015	0.015

	tons				
2023	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.078	2.446	1.563	0.024	0.024
Rebuilding Envelope + Interior Buildout	0.041	1.347	0.789	0.007	0.007
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2023 Total Off-Road Equipment Emissions	0.119	3.793	2.352	0.031	0.031

	tons				
2024	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.000	0.000	0.000	0.000	0.000
Rebuilding Envelope + Interior Buildout	0.047	1.540	0.902	0.008	0.008
Sitework	0.082	4.103	1.464	0.010	0.010
Startup & Commissioning	0.003	0.087	0.053	0.001	0.001
2024 Total Off-Road Equipment Emissions	0.132	5.729	2.419	0.019	0.019

					Percentage		
Trips By Year	2022	2023	2024	Total	2022	2023	2024
Concrete Trucks	2733	3756	400	6889	40%	55%	6%
Haul Trucks	6480	2999	2763	12242	53%	24%	23%
Workers	1929	9619	6135	17683	11%	54%	35%

	tons						
2022	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.001	0.034	0.000	0.002498889	0.000	0.000711751
Haul Trucks	0.020	0.173	0.237	0.004	0.036856887	0.004	0.010584079
Workers	0.002	0.058	0.004	0.000	0.005488563	0.000	0.001396143
2022 Total On-Road Equipment Emissions	0.023	0.231	0.275	0.004	0.045	0.004	0.013

	tons						
2023	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.001	0.046	0.000	0.003434572	0.000	0.000978259
Haul Trucks	0.009	0.080	0.110	0.002	0.017057028	0.002	0.004898214
Workers	0.012	0.287	0.021	0.000	0.027368837	0.000	0.006961896
2023 Total On-Road Equipment Emissions	0.021	0.368	0.177	0.003	0.048	0.002	0.013

	tons						
2024	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.005	0.000	0.000365769	0.000	0.000104181
Haul Trucks	0.009	0.074	0.101	0.002	0.015714761	0.002	0.00451276
Workers	0.008	0.183	0.013	0.000	0.01745585	0.000	0.004440299
2024 Total On-Road Equipment Emissions	0.016	0.257	0.120	0.002	0.034	0.002	0.009

Off-Road Construction Emissions - Building 2 (Variant)
Tier 4 Interim Equipment for Engines >25 HP
Construction Exhaust Emissions

Project Phase/Equipment [1]		Number	Usage Factor (hrs/day)	Total Hours/Day (Number * Usage Factor)	Total Days [1]	Horsepower	LookUp Value	Total Runtime Hours	Load Factor [2]	Emissions Factors (g/bhp-hr) ROG	CO	NOx	PM_{10}	$PM_{2.5}$	Emissions (tons/phase) ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep															*0.02*	*0.54*	*0.31*	*0.00*	*0.00*
Air Compressors	Air Compressors	2	4	8	20	78	C	160	0.48	0.11	3.70	2.14	0.01	0.01	0.00	0.02	0.01	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Crushing/Processing Equipment	Crushing/Proc. Equipment	1	6	6	30	85	C	180	0.78	0.11	3.70	2.14	0.01	0.01	0.00	0.05	0.03	0.00	0.00
Excavators	Excavators	2	8	16	40	158	D	640	0.38	0.06	3.70	2.15	0.01	0.01	0.00	0.16	0.09	0.00	0.00
Forklifts, Rough Terrain	Rough Terrain Forklifts	1	6	6	30	100	C	180	0.40	0.11	3.70	2.14	0.01	0.01	0.00	0.03	0.02	0.00	0.00
Generator Sets	Generator Sets	1	8	8	40	84	C	320	0.74	0.11	3.70	2.14	0.01	0.01	0.00	0.08	0.05	0.00	0.00
Rubber Tired Loaders (demo)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.08	2.60	1.29	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	2	9	18	40	6	NA	720	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.01	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	40	64	B	240	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.03	0.02	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Grading & Ground Improvements															*0.04*	*1.25*	*0.69*	*0.01*	*0.01*
Bore/Drill Rigs (auger cast)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.08	2.60	1.29	0.01	0.01	0.00	0.13	0.06	0.00	0.00
Bore/Drill Rigs (stone columns)	Bore/Drill Rigs	1	8	8	50	221	E	400	0.50	0.08	2.60	1.29	0.01	0.01	0.00	0.13	0.06	0.00	0.00
Dumpers/Tenders	Dumpers/Tenders	2	5	10	40	16	NA	400	0.38	0.217	0.896	1.660	0.062	0.057	0.00	0.00	0.00	0.00	0.00
Generator Sets	Generator Sets	1	8	8	60	84	C	480	0.74	0.11	3.70	2.14	0.01	0.01	0.00	0.12	0.07	0.00	0.00
Graders	Graders	3	8	24	40	187	E	960	0.41	0.08	2.60	1.29	0.01	0.01	0.01	0.21	0.10	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	8	16	60	97	C	960	0.37	0.11	3.70	2.14	0.01	0.01	0.00	0.14	0.08	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	60	402	F	360	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.16	0.08	0.00	0.00
Building Construction															*0.10*	*3.17*	*2.03*	*0.03*	*0.03*
Aerial Lifts (jlg)	Aerial Lifts	12	6	72	80	63	B	5760	0.31	0.12	3.70	2.74	0.11	0.11	0.01	0.46	0.34	0.01	0.01
Air Compressors	Air Compressors	4	4	16	80	78	C	1280	0.48	0.11	3.70	2.14	0.01	0.01	0.01	0.20	0.11	0.00	0.00
Cranes (Precast)	Cranes	4	8	32	80	231	E	2560	0.29	0.08	2.60	1.29	0.01	0.01	0.02	0.49	0.24	0.00	0.00
Cranes (Steel)	Cranes	2	6	12	60	231	E	720	0.29	0.08	2.60	1.29	0.01	0.01	0.00	0.14	0.07	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.11	3.70	2.14	0.01	0.01	0.00	0.14	0.08	0.00	0.00
Forklifts (Precast)	Forklifts	4	6	24	80	89	C	1920	0.20	0.11	3.70	2.14	0.01	0.01	0.00	0.14	0.08	0.00	0.00
Forklifts (Steel)	Forklifts	4	8	32	80	89	C	2560	0.20	0.11	3.70	2.14	0.01	0.01	0.01	0.19	0.11	0.00	0.00
Generator Sets	Generator Sets	4	6	24	80	84	C	1920	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.49	0.28	0.00	0.00
Plate Compactors (building phase)	Plate Compactors	4	8	32	120	8	NA	3840	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.02	0.03	0.00	0.00
Concrete Pumps	Pumps	2	6	12	100	84	C	1200	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.30	0.18	0.00	0.00
Signal Boards	Signal Boards	2	8	16	60	6	NA	960	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.01	0.02	0.00	0.00
Skid Steer Loaders	Skid Steer Loaders	1	6	6	40	65	B	240	0.37	0.12	3.70	2.74	0.11	0.11	0.00	0.02	0.02	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	60	64	B	360	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.04	0.03	0.00	0.00
Tractors/Loaders/Backhoes (building phase)	Tractors/Loaders/Backhoes	2	8	16	80	97	C	1280	0.37	0.11	3.70	2.14	0.01	0.01	0.01	0.19	0.11	0.00	0.00
Water Truck	Off-Highway Trucks	1	6	6	30	402	F	180	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Welders	Welders	6	8	48	60	46	A	2880	0.45	0.12	4.10	4.55	0.13	0.13	0.01	0.27	0.30	0.01	0.01
Rebuilding Envelope + Interior Buildout															*0.09*	*2.89*	*1.69*	*0.01*	*0.01*
Aerial Lifts (jlg)	Aerial Lifts	4	6	24	100	63	B	2400	0.31	0.12	3.70	2.74	0.11	0.11	0.01	0.19	0.14	0.01	0.01
Cranes (MEP)	Cranes	2	8	16	100	231	E	1600	0.29	0.08	2.60	1.29	0.01	0.01	0.01	0.31	0.15	0.00	0.00
Cranes (Cladding)	Cranes	2	8	16	120	231	E	1920	0.29	0.08	2.60	1.29	0.01	0.01	0.01	0.37	0.18	0.00	0.00
Forklifts (MEP)	Forklifts	10	8	80	120	89	C	9600	0.20	0.11	3.70	2.14	0.01	0.01	0.02	0.70	0.41	0.00	0.00
Generator Sets	Generator Sets	2	8	16	120	84	C	1920	0.74	0.11	3.70	2.14	0.01	0.01	0.01	0.49	0.28	0.00	0.00
Pressure Washers	Pressure Washers	2	4	8	60	13		480	0.30	0.160	0.973	1.320	0.057	0.052	0.00	0.00	0.00	0.00	0.00
Rollers	Rollers	2	4	8	40	80	C	320	0.38	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	4	8	20	263	E	160	0.30	0.08	2.60	1.29	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Tractors/Loaders/Backhoes (arch)	Tractors/Loaders/Backhoes	2	6	12	40	97	C	480	0.37	0.11	3.70	2.14	0.01	0.01	0.00	0.07	0.04	0.00	0.00
Tractors/Loaders/Backhoes (mep)	Tractors/Loaders/Backhoes	4	8	32	120	97	C	3840	0.37	0.11	3.70	2.14	0.01	0.01	0.02	0.56	0.33	0.00	0.00
Trenchers	Trenchers	1	6	6	40	78	C	240	0.50	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Welders	Welders	2	8	16	60	46	A	960	0.45	0.12	4.10	4.55	0.13	0.13	0.00	0.09	0.10	0.00	0.00
Sitework															*0.08*	*4.10*	*1.46*	*0.01*	*0.01*
AC Rollers	Rollers	2	4	8	50	80	C	400	0.38	0.11	3.70	2.14	0.01	0.01	0.00	0.05	0.03	0.00	0.00
Air Compressors Truck Mounted	Air Compressors	2	4	8	60	78	C	480	0.48	0.11	3.70	2.14	0.01	0.01	0.00	0.07	0.04	0.00	0.00
Concrete/Industrial Saws	Concrete/Industrial Saws	2	4	8	20	81	C	160	0.73	0.11	3.70	2.14	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Crawler Tractors	Crawler Tractors	2	4	8	40	212	E	320	0.43	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Excavators (paving)	Excavators	2	6	12	30	158	D	360	0.38	0.06	3.70	2.15	0.01	0.01	0.00	0.09	0.05	0.00	0.00
Excavators (utilities)	Excavators	2	6	12	60	158	D	720	0.38	0.06	3.70	2.15	0.01	0.01	0.00	0.18	0.10	0.00	0.00
Graders	Graders	2	6	12	40	187	E	480	0.41	0.08	2.60	1.29	0.01	0.01	0.00	0.11	0.05	0.00	0.00
Oil Dirtributer	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.07	0.03	0.00	0.00
Pavers	Pavers	2	8	16	10	130	D	160	0.42	0.06	3.70	2.15	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Paving Equipment	Paving Equipment	2	8	16	10	132	D	160	0.36	0.06	3.70	2.15	0.01	0.01	0.00	0.03	0.02	0.00	0.00
Plate Compactors (site phase)	Plate Compactors	2	4	8	60	8	NA	480	0.43	0.235	1.492	1.781	0.070	0.064	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders (utilities)	Rubber Tired Loaders	4	6	24	60	247	E	1440	0.36	0.08	2.60	1.29	0.01	0.01	0.01	0.37	0.18	0.00	0.00
Rubber Tired Loaders (paving)	Rubber Tired Loaders	2	6	12	40	203	E	480	0.36	0.08	2.60	1.29	0.01	0.01	0.00	0.10	0.05	0.00	0.00
Scrapers	Scrapers	2	4	8	20	367	E	160	0.48	0.08	2.60	1.29	0.01	0.01	0.00	0.08	0.04	0.00	0.00
Signal Boards	Signal Boards	8	9	72	30	6	NA	2160	0.82	0.448	2.845	3.397	0.133	0.122	0.01	0.03	0.04	0.00	0.00
Surfacing Equipment	Surfacing Equipment	2	6	12	60	263	E	720	0.30	0.08	2.60	1.29	0.01	0.01	0.01	0.16	0.08	0.00	0.00
Tack Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.08	2.60	1.29	0.01	0.01	0.00	1.00	0.03	0.00	0.00
Tractors/Loaders/Backhoes (utilities)	Tractors/Loaders/Backhoes	2	6	12	60	97	C	720	0.37	0.11	3.70	2.14	0.01	0.01	0.00	0.11	0.06	0.00	0.00
Trenchers	Trenchers	1	6	6	60	78	C	360	0.50	0.11	3.70	2.14	0.01	0.01	0.00	0.06	0.03	0.00	0.00
Water Truck	Off-Highway Trucks	2	4	8	20	402	F	160	0.38	0.08	2.60	1.29	0.01	0.01	0.00	0.07	0.03	0.00	0.00
Startup & Commissioning															0.00	0.09	0.05	0.00	0.00
Aerial Lifts (jlg)	Aerial Lifts	1	6	6	30	63	B	180	0.31	0.12	3.70	2.74	0.11	0.11	0.00	0.01	0.01	0.00	0.00
Forklift (demobilization)	Forklifts	1	8	8	30	89	C	240	0.20	0.11	3.70	2.14	0.01	0.01	0.00	0.02	0.01	0.00	0.00
Rubber Tired Loaders (landscaping)	Rubber Tired Loaders	1	6	6	30	203	E	180	0.36	0.08	2.60	1.29	0.01	0.01	0.00	0.04	0.02	0.00	0.00
Signal Boards	Signal Boards	1	6	6	30	6	NA	180	0.82	0.448	2.845	3.397	0.133	0.122	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers	Sweepers/Scrubbers	1	6	6	20	64	B	120	0.46	0.12	3.70	2.74	0.11	0.11	0.00	0.01	0.01	0.00	0.00
														Total Off-Road Emissions (tons)	0.33	12.04	6.24	0.07	0.06

On-Road Construction Emissions - Building 2

Project Component/On-Road Vehicles[3]	Total Trips	Trip Distance (One-way)	Total VMT	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)												Emissions (tons/phase)											
				ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW	ROG RunEx	ROG StartEx	CO RunEx	CO StartEX	NOx RunEx	NOx StartEx	PM_{10} RunEx	PM_{10} StartEx	PM_{10} BW, TW	$PM_{2.5}$ RunEx	$PM_{2.5}$ StartEx	$PM_{2.5}$ BW, TW
Total Trips for Building 2																*0.0420*	*0.0181*	*0.0420*	*0.1914*	*0.4911*	*0.0811*	*0.0086*	*0.0001*	*0.1262*	*0.0082*	*0.0001*	*0.0346*
Concrete Trucks	13,778	1.9	26,177	0.0141	0.0000	0.0743	0.0000	1.2252	3.2761	0.0154	0.0000	0.2183	0.0148	0.0000	0.0622	0.0004	0.0000	0.0004	0.0000	0.0354	0.0498	0.0004	0.0000	0.0063	0.0004	0.0000	0.0018
Haul Trucks	24,485	13.7	334,213	0.0959	0.0937	0.7679	1.6128	1.1648	0.7079	0.0200	0.0002	0.1890	0.0191	0.0002	0.0543	0.0353	0.0025	0.0353	0.0435	0.4291	0.0191	0.0074	0.0000	0.0696	0.0071	0.0000	0.0200
Workers	35,366	10.8	381,953	0.0149	0.3995	0.9021	3.7944	0.0633	0.3132	0.0018	0.0022	0.1195	0.0017	0.0021	0.0304	0.0063	0.0156	0.0063	0.1479	0.0266	0.0122	0.0008	0.0001	0.0503	0.0007	0.0001	0.0128
															Total On-Road Emissions (tons)	0.0420	0.0181	0.0420	0.1914	0.4911	0.0811	0.0086	0.0001	0.1262	0.0082	0.0001	0.0346

Constants	
lb	grams
1	453.59237
ton	lbs
1	2000

Trip Length Assumptions - CalEEMod	miles	
Workers	10.8	
Vendor	7.3	
Haul Trucks	20	
Concrete Trucks	1.9	Based on RFI of project-specific concrete source, distance to Central Concrete Supply

Sources:

1 Equipment types, quantities, daily usage, and horsepower from SF Gateway_Equipment List Emissions Calculation - DPR Estimates 200428
2 Load factors from CalEEMod default tables (Appendix D)
3 Truck and worker trips based on Building 2 Totals rows 8 and 7 for truck and worker trips, respectively, from the SF-Gateway-Truck and Manpower Count-PS_200421 spreadsheet

Months of Construction	31
Days of Construction Per Month	21

					Percentage		
Weeks By Year	2022	2023	2024	Total	2022	2023	2024
Demolition & Site Prep	8	0	0	8	100%	0%	0%
Grading & Ground Improvements	10	6	0	16	63%	38%	0%
Building Construction	0	51	10	61	0%	84%	16%
Rebuilding Envelope + Interior Build Out	0	12	48	60	0%	20%	80%
Sitework	0	0	25	25	0%	0%	100%
Startup & Commissioning	0	0	7	7	0%	0%	100%

Notes: Total weeks taken from the Equip Assumptions tab (Row 4).

	tons				
2022	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.015	0.537	0.313	0.003	0.003
Grading & Ground Improvements	0.025	0.781	0.432	0.003	0.003
Building Construction	0.000	0.000	0.000	0.000	0.000
Rebuilding Envelope + Interior Buildout	0.000	0.000	0.000	0.000	0.000
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2022 Total Off-Road Equipment Emissions	0.041	1.318	0.744	0.006	0.006

	tons				
2023	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.015	0.469	0.259	0.002	0.002
Building Construction	0.084	2.654	1.696	0.026	0.026
Rebuilding Envelope + Interior Buildout	0.017	0.577	0.338	0.003	0.003
Sitework	0.000	0.000	0.000	0.000	0.000
Startup & Commissioning	0.000	0.000	0.000	0.000	0.000
2023 Total Off-Road Equipment Emissions	0.117	3.700	2.293	0.031	0.031

	tons				
2024	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Demolition & Site Prep	0.000	0.000	0.000	0.000	0.000
Grading & Ground Improvements	0.000	0.000	0.000	0.000	0.000
Building Construction	0.017	0.520	0.332	0.005	0.005
Rebuilding Envelope + Interior Buildout	0.070	2.309	1.353	0.012	0.012
Sitework	0.082	4.103	1.464	0.010	0.010
Startup & Commissioning	0.003	0.087	0.053	0.001	0.001
2024 Total Off-Road Equipment Emissions	0.172	7.020	3.203	0.028	0.028

					Percentage		
Trips By Year	2022	2023	2024	Total	2022	2023	2024
Concrete Trucks	0	5759	1130	6888.75	0%	84%	16%
Haul Trucks	4475	3854	3913	12242.25	37%	31%	32%
Workers	686	7015	9982	17683	4%	40%	56%

	tons						
2022	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.000	0.000	0	0.000	0
Haul Trucks	0.014	0.029	0.164	0.003	0.025451884	0.003	0.007308939
Workers	0.001	0.006	0.002	0.000	0.001951868	0.000	0.000496503
2022 Total On-Road Equipment Emissions	0.015	0.035	0.165	0.003	0.027	0.003	0.008

	tons						
2023	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.071	0.000	0.005265932	0.000	0.00149988
Haul Trucks	0.012	0.025	0.141	0.002	0.021921324	0.002	0.006295079
Workers	0.009	0.061	0.015	0.000	0.019959704	0.000	0.005077212
2023 Total On-Road Equipment Emissions	0.021	0.086	0.228	0.003	0.047	0.003	0.013

	tons						
2024	ROG	CO	NO_x	PM_{10} Ex	PM_{10} TW-BW	$PM_{2.5}$ Ex	$PM_{2.5}$ TW-BW
Concrete Trucks	0.000	0.000	0.014	0.000	0.001033298	0.000	0.000294311
Haul Trucks	0.012	0.025	0.143	0.002	0.022255469	0.002	0.006391034
Workers	0.012	0.087	0.022	0.000	0.028401677	0.000	0.007224623
2024 Total On-Road Equipment Emissions	0.025	0.112	0.179	0.003	0.052	0.003	0.014

SF Gateway

Operational Emissions Summary - Without Emissions Reduction Measures

Table X-X. Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.587	0.002	0.001	0.001
Energy	0.000	0.000	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.963	34.784	1.812	1.087
Stationary Sources	1.464	4.012	0.211	0.211
Mobile	9.939	110.169	44.924	12.992
TRUs	17.078	16.919	0.445	0.409
Total Proposed Daily Operational Emissions	***53.030***	***165.886***	***47.392***	***14.700***
Existing Site Operational Emissions[2]				
Area	7.880	0.000	0.000	0.000
Energy	0.152	1.380	0.105	0.105
Mobile	1.296	16.097	6.246	1.843
Total Existing Daily Operational Emissions	***9.328***	***17.477***	***6.351***	***1.948***
Net New Daily Operational Emissions	**43.702**	**148.409**	**41.041**	**12.752**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Table X-X. Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.938	0.000	0.000	0.000
Energy	0.000	0.000	0.000	0.000
Manufacturing & Maker Space	0.391	4.591	0.239	0.144
Stationary Sources	0.037	0.100	0.005	0.005
Mobile	1.814	20.106	8.199	2.371
TRUs	3.107	3.078	0.081	0.074
Total Proposed Annual Operational Emissions	***9.287***	***27.876***	***8.524***	***2.594***
Existing Site Operational Emissions[2]				
Area	1.438	0.000	0.000	0.000
Energy	0.028	0.252	0.019	0.019
Mobile	0.237	2.938	1.140	0.336
Total Existing Annual Operational Emissions	***1.702***	***3.190***	***1.159***	***0.355***
Net New Annual Operational Emissions	**7.585**	**24.686**	**7.365**	**2.239**
BAAQMD Thresholds of Significance	10	10	15	10
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.59	0.22	0.00	0.00	0.00	0.00	0.00	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.96	8.74	34.78	1.81	0.00	1.09	0.00	0.39	1.15	4.59	0.24	0.00	0.14	0.00
Stationary Sources	1.46	3.70	4.01	0.21	0.00	0.21	0.00	0.04	0.09	0.10	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	7.22	252.49	96.90	1.54	42.79	1.46	11.94	1.32	46.08	17.68	0.28	7.81	0.27	2.07
Mobile (activity within buildings)	2.72	35.82	13.27	0.05	0.54	0.05	0.14	0.50	6.54	2.42	0.01	0.10	0.01	0.03
TRUs in-transit	14.48	1.57	14.30	0.37	0.00	0.34	0.00	2.63	0.29	2.60	0.07	0.00	0.06	0.00
TRUs on-site	2.60	0.28	2.61	0.07	1.00	0.07	1.00	0.47	0.05	0.48	0.01	1.00	0.01	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

	Pollutant (lb/day)			Pollutant (lb/year)			Pollutant (lb/hr)		
Land Use Emissions Source	NOX	PM2.5 Exhaust	PM2.5 Total	NOX	PM2.5 Exhaust	PM2.5 Total	NOX	PM2.5 Exhaust	PM2.5 Total
Operational Area & Vehicle Source TACs									
Total Area Sources									
2020 Annual per Service Person Exposure (Chronic)	N/A	0.1110	0.1110	N/A	40.5390	40.5390	N/A	0.1111	0.1111
2020 Annual per Service Person Exposure (Cancer)	N/A	0.1110	0.1110	N/A	40.5390	40.5390	N/A	0.1111	0.1111

	Pollutant (lb/day)			Pollutant (lb/year)			Pollutant (lb/hr)		
Mobile Emissions Source	NOX	PM2.5 Exhaust	PM2.5 Total	NOX	PM2.5 Exhaust	PM2.5 Total	NOX	PM2.5 Exhaust	PM2.5 Total
On-site Vehicle Source TACs (Active Phase Exposure) - Cancer									
Diesel Haul	0.1021	0.0242	0.0242	113.0751	2.7475	40.0151	0.0255	0.0061	0.0061
Haul Dust	0.1021	0.0242	0.0242	113.0751	2.7475	40.0151	0.0255	0.0061	0.0061
Soil Dust	0.1480	0.0222	0.0222	41.7018	0.2508	5.7222	0.0167	0.0025	0.0025
Soil Haul	0.1480	0.0222	0.0222	41.7018	0.2508	5.7222	0.0167	0.0025	0.0025
On-site Vehicle Source TACs (Active Phase Exposure) - Chronic									
Diesel Haul	0.1021	0.0242	0.0242	113.0751	2.7475	40.0151	0.0255	0.0061	0.0061
Haul Dust	0.1021	0.0242	0.0242	113.0751	2.7475	40.0151	0.0255	0.0061	0.0061
Soil Dust	0.1480	0.0222	0.0222	41.7018	0.2508	5.7222	0.0167	0.0025	0.0025
Soil Haul	0.1480	0.0222	0.0222	41.7018	0.2508	5.7222	0.0167	0.0025	0.0025
On-site Vehicle Source TACs (Idle Phase Exposure) - Cancer									
Diesel Haul	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Haul Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Soil Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Soil Haul	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle Source TACs (Idle Phase Exposure) - Chronic									
Diesel Haul	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Haul Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Soil Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Soil Haul	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-site Trips									
Diesel Trucks (Not Idling)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Haul Dust	0.1021	0.0242	0.0242	113.0751	2.7475	40.0151	0.0255	0.0061	0.0061
Haul Dust (idle only)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Soils	0.1480	0.0222	0.0222	41.7018	0.2508	5.7222	0.0167	0.0025	0.0025
Grade Load Trucks (on-site only)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Crusher Trailer Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water Trailer Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vibrator Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vibrator Tractor Trailer Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**Note that emissions in white above represent total emissions for all sources over the project life.
CEQA Possible new reductions from allowed conditions were not considered.

Operational Equip Year		
Total Acres Disturbed	20	
Max Acres Disturbed / Day	20	
Active Acres	20	
Operational Trip Days		
Material Hauling & Material Delivery TACs	70	
Vehicle & Idle TACs	70	
Vehicle & Idle	70	
Annual Diesel Emissions by Fuel*	Total	43%
Diesel	2.7475	
Haul Dust	2.7475	
Soil Dust	0.2508	
Soil Haul	0.2508	
Diesel Fuel Delivered to Site*	Total	43%
Diesel	2.7475	
Haul Dust	2.7475	
Soil Dust	0.2508	
Soil Haul	0.2508	
Annual	Total	100%
Annual	5.9966	

	Vehicle Emissions Factors		
	Exhaust	Brake and Tire Wear	Resuspended Dust PM2.5
Diesel	0.0242	0.0000	0.0000
Haul Dust	0.0242	0.0000	0.0000
Soil Dust	0.0222	0.0000	0.0000
Soil Haul	0.0222	0.0000	0.0000

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 52 hours per year
2. Percent of emissions modeled to be released through exhaust vents or openings along the ramps on each floor is based on the approximate percentage of the total ramp length that is underground. Emissions released through "ramp/portal/exhaust" emissions are modelled as evenly throughout the first three floors as a result for 100% of the true fan trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table 9: Mobile Emissions added to HRA Example

	Vehicle Emissions: Pollutant (lb/day)			Title 24 Emissions (CO2e in lb/day)
Mobile Emissions Source	NOX[1]	PM2.5 Exhaust[2]	PM2.5 Total[3]	PM2.5 Exhaust[4]
On-Site Mobile in Area*				
Diesel Trucks	0.1480	0.0222	0.0222	0.0222
Haul Trucks	0.1480	0.0222	0.0222	0.0222
Grade Load Trucks - Idling	0.0000	0.0000	0.0000	0.0000
Grade Load Trucks	0.0000	0.0000	0.0000	0.0000
Water Trailer Trucks - Idling	0.0000	0.0000	0.0000	0.0000
Water Trailer Trucks	0.0000	0.0000	0.0000	0.0000
Off-Site Vehicle Source Trips*				
Diesel Trucks	0.0000	0.0000	0.0000	0.0000
Off-Site Vehicle Source Trips*				
Asphalt Delivery Trucks	0.0000	0.0000	0.0000	0.0000
Material and Fill Delivery	0.0000	0.0000	0.0000	0.0000
Worker Commute Trips	0.0000	0.0000	0.0000	0.0000
Vendor Trips				
Asphalt Delivery Trucks	0.0000	0.0000	0.0000	0.0000
Material and Fill Delivery	0.0000	0.0000	0.0000	0.0000
Worker Commute Trips	0.0000	0.0000	0.0000	0.0000
Diesel Diesel Fuel Direct Service Backup Gens	0.0000	0.0000	0.0000	0.0000
Haul Trucks				
Asphalt Delivery Trucks	0.0000	0.0000	0.0000	0.0000
Material and Fill Delivery	0.0000	0.0000	0.0000	0.0000
Worker Commute Trips	0.0000	0.0000	0.0000	0.0000
Diesel Diesel Fuel Direct Service Backup Gens	0.0000	0.0000	0.0000	0.0000

Notes:
1. Pollutant is an Ozone precursor and is given to provide context.
2. PM2.5 Exhaust emissions are from the exhaust of mobile vehicles.
3. PM2.5 Total emissions is sum of PM2.5 Exhaust, Brake & Tire Wear, and PM2.5 Resuspended Dust emissions.
4. 100% of Title 24 emissions are assumed for its exhaust as input to the HRA modeling.
5. Emissions from Diesel Fuel Direct Service Backup Generators are assumed for its exhaust input to the HRA modeling is calculated based on the percentage of the emergency emissions for each land use and the emergency time used as input within the HRA modeling process.

Table 10: Total Miles over Trip Miles into Modeling Formula per Vehicle Category for Vision Trips

Land Use Type	Avera Pick-ups	Dump	Truck 3	Tractor Trailer Trucks
Worker and Miscellaneous trips	0.1875	0.1875	0.1875	0.1875
Haul and Asphalt Delivery trips	0.1875	0.1875	0.1875	0.1875
Water Truck and Fill Delivery trips	0.1875	0.1875	0.1875	0.1875
Vendor Trips	0.1875	0.1875	0.1875	0.1875

Table 11: % of Total Miles over Trip Miles into Modeling Formula per Vehicle Category for Vision Trips

Land Use Type	Avera Pick-ups[1]	Dump	Truck 3	Tractor Trailer Trucks
Worker and Miscellaneous trips	0.1875	0.1875	0.1875	0.1875
Haul and Asphalt Delivery trips	0.1875	0.1875	0.1875	0.1875
Water Truck and Fill Delivery trips	0.1875	0.1875	0.1875	0.1875
Vendor Trips	0.1875	0.1875	0.1875	0.1875

Table 12: Total Daily Work Vehicle Trips by Land Use and Vehicle Type

	Avera Pick-ups[1]
Vehicle Trips on each Land Use	Average Pick-up
Worker and Miscellaneous trips	0.0
Haul and Asphalt Delivery trips	0.0
Water Truck and Fill Delivery trips	0.0
Vendor Trips	0.0
Total Vehicle Trips	0.0

Table 13: Weighted Average Trip Distance for Vision Trips

	Avera Miles Trip[1]
Vehicle Trips on each Land Use	Average Pick-up
Worker and Miscellaneous trips	0.0
Haul and Asphalt Delivery trips	0.0
Water Truck and Fill Delivery trips	0.0
Vendor Trips	0.0
Total Vehicle Trips	0.0

Table 14: Weighted Average one-way trip distance for entire HRA Modeling Domain

0.0

Table 15: Total Miles over Trip Miles into Modeling Formula per Vehicle Category for Vision Trips (Idling)

Land Use Type	Avera Pick-ups	Dump	Truck 3	Tractor Trailer Trucks
Worker and Miscellaneous trips	0.0	0.0	0.0	0.0
Haul and Asphalt Delivery trips	0.0	0.0	0.0	0.0
Water Truck and Fill Delivery trips	0.0	0.0	0.0	0.0
Vendor Trips	0.0	0.0	0.0	0.0

Table 16: % of Total Miles over Trip Miles into Modeling Formula per Vehicle Category for Vision Trips (Idling)

Land Use Type	Avera Pick-ups[1]	Dump	Truck 3	Tractor Trailer Trucks
Worker and Miscellaneous trips	0.0%	0.0%	0.0%	0.0%
Haul and Asphalt Delivery trips	0.0%	0.0%	0.0%	0.0%
Water Truck and Fill Delivery trips	0.0%	0.0%	0.0%	0.0%
Vendor Trips	0.0%	0.0%	0.0%	0.0%

1. Example for Nevada(2023), modify per trip distance and emission factors as needed for your location. Refer to the OFFROAD2021 model input files (emissions and historical growth) and CEMP Report Pt 3 for guidance. Pages A-91 to A-95 Table A-9 and the Annual Pt 3 Report on Pages A-91 to Table A-3

Vision Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

	Vision Emissions (lbs/day)			Individual Vehicle Idle & Activities (lbs/day)			Individual Vehicle Idle & Activities (lbs/day)		
Vehicle Category	NOX	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Wet Tot	NOX	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Wet Tot	NOX	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Wet Tot
Annual Project Construction Activities									
Material and Miscellaneous	0.07188	0.00365	0.02837	0.07056	0.00361	0.01988	0.00131	0.00004	0.00039
Asphalt Haul and Fill Delivery	0.09767	0.00435	0.03439	0.09454	0.00405	0.04998	0.00313	0.00027	0.00053
Wholesale and Vendors	0.09900	0.00435	0.03439	0.09508	0.00416	0.03293	0.00364	0.00005	0.00048
Diesel Diesel Fuel Direct Service Backup Gens	0.14760	0.00329	0.03051	0.14762	0.00329	0.03030	0.00048	0.00001	0.00017
Haul									
Material and Miscellaneous	0.03777	0.00422	0.04858	0.03439	0.00381	0.04360	0.00338	0.00041	0.00498
Asphalt Haul and Fill Delivery	0.11151	0.01258	0.14454	0.10257	0.01173	0.13482	0.00894	0.00085	0.00972
Wholesale and Vendors	0.11151	0.01258	0.14454	0.10257	0.01173	0.13482	0.00272	0.00123	0.00272
Diesel Diesel Fuel Direct Service Backup Gens	0.03864	0.00920	0.03087	0.03785	0.00274	0.03086	0.00350	0.00039	0.00321
Material Haul Trucks									
Material and Miscellaneous	0.06486	0.01995	0.09648	0.06405	0.00441	0.03091	0.00252	0.00152	0.07045
Asphalt Haul and Fill Delivery	0.06992	0.04456	0.18099	0.06860	0.04451	0.18053	0.00252	0.00005	0.00056
Wholesale and Vendors	0.71451	0.24536	0.96861	0.07780	0.06869	0.21866	0.00170	0.19277	0.71965
Diesel Diesel Fuel Direct Service Backup Gens	0.01769	0.00534	0.04847	0.00391	0.00120	0.00348	0.00378	0.00413	0.04501
Crusher Trailer Trucks									
Material and Miscellaneous	0.06399	0.00516	0.02798	0.06864	0.00387	0.00383	0.00315	0.00457	0.04675
Asphalt Haul and Fill Delivery	0.13968	0.01436	0.06437	0.13456	0.01356	0.14953	0.00437	0.27760	0.48618
Wholesale and Vendors	0.14976	0.44168	0.53756	0.04825	0.00425	0.08477	0.00054	0.19695	0.66709
Diesel Diesel Fuel Direct Service Backup Gens	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.97884	1.30248	3.12613	0.74396	0.07485	0.61998	0.04025	0.49057	1.92911

Construction Activity	
	1
	414.7000
Acres/day	20.0000
	4000.0000
Days	200
	200
Acres/day	20.0000
	4000.0000
Project Total	8000.0000

Vehicle Category	Exhaust	PM Exhaust
Diesel Trucks	0.1480	0.0222
Haul	0.1480	0.0222
Water Truck	0.0000	0.0000
Total	0.2960	0.0444

Tariffs to 50% of Diesel Diesel + Gasoline (assumed costs to coordinate next Includes tax) tax , audience: shows contribution to total emissions.
Gasoline includes hybrid and natural gas vehicles.

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)							Emissions (tons/year)						
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_x**	**PM_{10}**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10}**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$**	**$PM_{2.5}$ BW, TW, roadway dust**
Manufacturing & Maker Space (Bakery)[1]	35000														
TACs		2.96	2.41	9.68	1.81	0	1.1	0	0.391172	0.318732	1.278338	0.23922	0	0.143532	0
Manufacturing & Maker Space (Apparel)[1]	35000														
TACs		1.43	8.74	34.78	0.72	0.00	0.69	0.00	0.188288	1.15365	4.591448	0.094823	0	0.091366	0
Maximum TACs		**2.96**	**8.74**	**34.78**	**1.81**	**0.00**	**1.09**	**0.00**	**0.39**	**1.15**	**4.59**	**0.24**	**0.00**	**0.14**	**0**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	4.13E-03

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	1.33E-04	4.20E-01
Formaldehyde (124)	1.56E-03	4.94E+00
Glycols (131)	2.33E-02	7.39E+01
Isopropyl alcohol (157)	9.33E-03	2.96E+01
Toluene (293)	1.13E-04	3.57E-01
Ethyl Benzene	2.94E-05	9.32E-02
O-Xylene	1.32E-04	4.18E-01
M-Xylene	1.91E-04	6.04E-01
Chlorobenzene	2.24E-05	7.10E-02
Naphthalene	2.94E-05	9.32E-02

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	**g/s**
182.73192	3.63E-03

***Conditional formatting indicates worst-case scenario in orange.**

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.0366	0.0924	0.1003	0.0053	0.0000	0.0053	0.0000
Total	-	-	-	-	-	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.0366	0.0924	0.1003	0.0053	0.0000	0.0053	0.0000

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962161	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*2.1361*	*86.0393*	*5.3021*	*0.1730*	*12.3697*	*0.1592*	*3.1440*	*0.3898*	*15.7022*	*0.9676*	*0.0316*	*2.2575*	*0.0291*	*0.5738*
Visitor	*5.0796*	*166.4478*	*91.5982*	*1.3719*	*30.4188*	*1.3045*	*8.1943*	*0.9270*	*30.3767*	*16.7167*	*0.2504*	*5.5514*	*0.2381*	*1.4955*
Sub-Total	7.2157	252.4871	96.9003	1.5449	42.7885	1.4637	11.3382	1.3169	46.0789	17.6843	0.2819	7.8089	0.2671	2.0692
On-Site Vehicle Activity Within Buildings	2.7231	35.8245	13.2688	0.0539	0.5362	0.0505	0.1390	0.4970	6.5380	2.4216	0.0098	0.0979	0.0092	0.0254
Gross Mobile Source Emissions from Proposed Project	**9.9388**	**288.3115**	**110.1691**	**1.5988**	**43.3248**	**1.5142**	**11.4773**	**1.8138**	**52.6169**	**20.1059**	**0.2918**	**7.9068**	**0.2763**	**2.0946**
Existing Land Use Mobile Emissions	1.2959	36.8423	16.0966	0.2369	6.0090	0.2250	1.6177	0.2365	6.7237	2.9376	0.0432	1.0966	0.0411	0.2952
Net Mobile Emissions (Proposed - Existing)	**8.6428**	**251.4692**	**94.0726**	**1.3619**	**37.3158**	**1.2892**	**9.8596**	**1.5773**	**45.8931**	**17.1682**	**0.2485**	**6.8101**	**0.2353**	**1.7994**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1581	47054	2.1361	86.0393	5.3021	0.1730	12.3697	0.1592	3.1440	0.3898	15.7022	0.9676	0.0316	2.2575	0.0291	0.5738

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.0100	0.3141	0.7247	3.1176	0.0426	0.2545	0.0016	0.0020	0.1192	0.0015	0.0019	0.0303

Operational Days Per Year:

Autos/Pickups (on-site worker)	365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	26	106	132	9.11	1202

Notes:

1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.

2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[3]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**Starts/Day[1]**	**VMT/Day[2]**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups (visiting worker)	962	31676	1.36717	57.21710	3.51191	0.11601	8.32709	0.10678	2.11646	0.24951	10.44212	0.64092	0.02117	1.51969	0.01949	0.38625
Maker and Manufacturing	45	1800	0.07100	3.18495	0.19414	0.00655	0.47319	0.00603	0.12027	0.01296	0.58125	0.03543	0.00120	0.08636	0.00110	0.02195
Parcel and Last Mile Delivery	607	24280	0.95767	42.96139	2.61877	0.08834	6.38280	0.08131	1.62229	0.17478	7.84045	0.47793	0.01612	1.16486	0.01484	0.29607
Wholesale and Storage	121	4840	0.19090	8.56397	0.52203	0.01761	1.27235	0.01621	0.32339	0.03484	1.56292	0.09527	0.00321	0.23220	0.00296	0.05902
General Retail /Café/Quick Service Restaurants[3]	189	756	0.14760	2.50680	0.17696	0.00351	0.19874	0.00323	0.05051	0.02694	0.45749	0.03230	0.00064	0.03627	0.00059	0.00922
												0.00000				
Vans	448	26880	1.69203	49.17995	8.13501	0.20553	8.13299	0.19354	2.16744	0.30880	8.97534	1.48464	0.03751	1.48427	0.03532	0.39556
Maker and Manufacturing	10	600	0.03777	1.09777	0.18159	0.00459	0.18154	0.00432	0.04838	0.00689	0.20034	0.03314	0.00084	0.03313	0.00079	0.00883
Parcel and Last Mile Delivery	401	24060	1.51452	44.02045	7.28156	0.18397	7.27975	0.17324	1.94005	0.27640	8.03373	1.32889	0.03357	1.32855	0.03162	0.35406
Wholesale and Storage	30	1800	0.11331	3.29330	0.54476	0.01376	0.54462	0.01296	0.14514	0.02068	0.60103	0.09942	0.00251	0.09939	0.00237	0.02649
General Retail /Café/Quick Service Restaurants[3]	7	420	0.02644	0.76844	0.12711	0.00321	0.12708	0.00302	0.03387	0.00482	0.14024	0.02320	0.00059	0.02319	0.00055	0.00618
										0.00000		0.00000				
Single Unit Trucks	281	22480	1.65699	20.90944	43.27469	0.53274	8.32813	0.50919	2.31072	0.30240	3.81597	7.89763	0.09722	1.51988	0.09293	0.42175
Maker and Manufacturing	11	880	0.06486	0.81852	1.69403	0.02085	0.32601	0.01993	0.09046	0.01184	0.14938	0.30916	0.00381	0.05950	0.00364	0.01651
Parcel and Last Mile Delivery	146	11680	0.86092	10.86398	22.48436	0.27680	4.32707	0.26456	1.20059	0.15712	1.98268	4.10340	0.05052	0.78969	0.04828	0.21911
Wholesale and Storage	121	9680	0.71351	9.00371	18.63430	0.22940	3.58613	0.21926	0.99501	0.13021	1.64318	3.40076	0.04187	0.65447	0.04001	0.18159
General Retail /Café/Quick Service Restaurants[3]	3	240	0.01769	0.22323	0.46201	0.00569	0.08891	0.00544	0.02467	0.00323	0.04074	0.08432	0.00104	0.01623	0.00099	0.00450
												0.00000				
Tractor Trailer Trucks	91	11830	0.36336	39.14134	36.67659	0.51758	5.63063	0.49498	1.59966	0.06631	7.14330	6.69348	0.09446	1.02759	0.09033	0.29194
Maker and Manufacturing	1	130	0.00399	0.43012	0.40304	0.00569	0.06188	0.00544	0.01758	0.00073	0.07850	0.07355	0.00104	0.01129	0.00099	0.00321
Parcel and Last Mile Delivery	60	7800	0.23958	25.80748	24.18236	0.34126	3.71251	0.32636	1.05472	0.04372	4.70986	4.41328	0.06228	0.67753	0.05956	0.19249
Wholesale and Storage	30	3900	0.11979	12.90374	12.09118	0.17063	1.85625	0.16318	0.52736	0.02186	2.35493	2.20664	0.03114	0.33877	0.02978	0.09624
General Retail /Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Total	1782	92866	5.07956	166.44783	91.59819	1.37186	30.41884	1.30448	8.19428	0.92702	30.37673	16.71667	0.25036	5.55144	0.23807	1.49546

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
Operational Days Per Year:		**Vehicle Category**	**ROG RunEx**	**ROG StrEx**	**CO RunEx**	**CO StrEx**	**NOx RunEx**	**NOx StrEx**	**PM_{10} RunEx**	**PM10 StrEx**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ RunEx**	**PM2.5 StrEx**	**$PM_{2.5}$ BW, TW, roadway dust**
Autos/Pickups (visiting worker)	365	Autos/Pickups (visiting worker)	0.0100	0.3141	0.7247	3.1176	0.0426	0.2545	0.0016	0.0020	0.1192	0.0015	0.0019	0.0303
Vans	365	Vans	0.0244	0.2473	0.7829	2.8191	0.1312	0.3644	0.0034	0.0011	0.1372	0.0032	0.0010	0.0366
Single Unit Trucks	365	Single Unit Trucks	0.0326	0.0651	0.4049	1.3639	0.8556	1.4098	0.0107	0.0001	0.1680	0.0103	0.0001	0.0466
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.0139	0.0000	1.5008	0.0000	1.3810	3.2792	0.0198	0.0000	0.2159	0.0190	0.0000	0.0613

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

	Net Visitor VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
General Retail /Café/Quick Service Restaurants[2]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**31676**	**26880**	**22480**	**11830**	**92,866**

Table II.

	Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]				
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	88	29	22	2	141
Parcel and Last Mile Delivery	1,214	802	292	129	2429
Wholesale and Storage	242	69	242	69	661
General Retail /Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[1]	**1924**	**896**	**562**	**182**	3568

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III.

	Total Daily Auto/Pickup Vehicle Trips by Land Use[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	176
Parcel and Last Mile Delivery	3354
Wholesale and Storage	1,044
General Retail	156
Quick Service Restaurant	354
Total Vehicle Trips[1]	**5086**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV.

	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	28
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V.

	Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]			
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	30	30	40	65

Notes:
1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.8409	19.9470	1.5858	0.0240	0.3870	0.0221	0.0983	0.3360	3.6403	0.2858	0.0044	0.0706	0.0040	0.0179
Vans	0.2702	3.4775	0.4073	0.0046	0.0800	0.0043	0.0213	0.0493	0.6346	0.0743	0.0008	0.0146	0.0008	0.0039
Single Unit Trucks	0.5350	10.6926	9.1166	0.0240	0.0474	0.0229	0.0132	0.0976	1.9514	1.6638	0.0044	0.0087	0.0042	0.0024
Tractor Trailer Trucks	0.0771	1.7073	2.1790	0.0033	0.0219	0.0012	0.0062	0.0141	0.3116	0.3977	0.0002	0.0040	0.0002	0.0011
Total	2.72	35.82	13.27	0.05	0.54	0.05	0.14	0.50	6.54	2.42	0.01	0.10	0.01	0.03

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.8409	19.9470	1.5858	0.0240	0.3870	0.0221	0.0983	0.3360	3.6403	0.2858	0.0044	0.0706	0.0040	0.0179
Vans	0.2702	3.4775	0.4073	0.0046	0.0800	0.0043	0.0213	0.0493	0.6346	0.0743	0.0008	0.0146	0.0008	0.0039
Single Unit Trucks - Idling	0.4454	9.5597	7.7294	0.0161	0.0000	0.0154	0.0000	0.0813	1.7446	1.4088	0.0029	0.0000	0.0028	0.0000
Single Unit Trucks	0.0896	1.1329	1.3972	0.0078	0.0474	0.0075	0.0132	0.0163	0.2068	0.2550	0.0014	0.0087	0.0014	0.0024
Tractor Trailer Trucks - Idling	0.0694	1.2757	0.8492	0.0005	0.0000	0.0005	0.0000	0.0127	0.2328	0.1550	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks	0.0076	0.4316	1.3298	0.0028	0.0219	0.0008	0.0062	0.0014	0.0788	0.2427	0.0001	0.0040	0.0001	0.0011
Total	2.72	35.82	13.27	0.05	0.54	0.05	0.14	0.50	6.54	2.42	0.01	0.10	0.01	0.03

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2543	184.15		1.7729	17.7529	1.4428	0.0132	0.0484	0.0122	0.0123	0.3235	2.2399	0.2633	0.0024	0.0088	0.0022	0.0022
Autos/Pickups - 10mph			1287.80	0.0680	2.1941	0.1230	0.0108	0.3385	0.0099	0.0860	0.0124	0.4004	0.0225	0.0020	0.0618	0.0018	0.0157
Vans - 5mph	448	67.54		0.2530	2.9691	0.3731	0.0023	0.0304	0.0021	0.0054	0.0462	0.5419	0.0681	0.0004	0.0037	0.0004	0.0010
Vans - 10mph			196.71	0.0171	0.5084	0.0343	0.0023	0.0595	0.0021	0.0159	0.0031	0.0928	0.0063	0.0004	0.0109	0.0004	0.0029
Single Unit Trucks - idling				0.4454	9.5597	7.7294	0.0161	0.0000	0.0154	0.0000	0.0813	1.7446	1.4088	0.0029	0.0000	0.0028	0.0000
Sinele Unit Trucks - 5mph	281	37.93		0.0564	0.9255	1.0633	0.0027	0.0141	0.0025	0.0039	0.0103	0.1689	0.1941	0.0005	0.0026	0.0005	0.0007
Sinele Unit Trucks - 10mph		90.08		0.0132	0.2074	0.3339	0.0052	0.0334	0.0049	0.0093	0.0061	0.0378	0.0609	0.0009	0.0061	0.0009	0.0017
Tractor Trailer Trucks - idling				0.0694	1.2757	0.8492	0.0005	0.0000	0.0005	0.0000	0.0127	0.2328	0.1550	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	91	12.86		0.0021	0.1307	0.8457	0.0002	0.0061	0.0002	0.0017	0.0004	0.0220	0.1543	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.14	0.0055	0.3109	0.4841	0.0006	0.0158	0.0006	0.0045	0.0010	0.0567	0.0883	0.0001	0.0029	0.0001	0.0008
Total	3363	302.48	1607.74	2.72	35.82	13.27	0.05	0.54	0.05	0.14	0.50	6.54	2.42	0.01	0.10	0.01	0.03

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STRTEX)										
	Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:														
Autos/Pickups	365	Autos/Pickups	5	0.02965	0.31408	0.67617	3.11761	0.04002	0.25466	0.00473	0.00202	0.11924	0.00435	0.00186	0.03931
Vans	365	Autos/Pickups	10	0.02395	0.31408	0.77281	3.11761	0.04333	0.25466	0.00379	0.00202	0.11924	0.00349	0.00186	0.03931
Sinele Unit Trucks	365	Vans	5	0.05879	0.24732	1.24020	2.81914	0.08057	0.36436	0.00808	0.00113	0.13724	0.00744	0.00104	0.03657
Tractor Trailer Trucks	365	Vans	10	0.03950	0.24732	1.17241	2.81914	0.07906	0.36436	0.00517	0.00113	0.13724	0.00494	0.00104	0.03657
		Single Unit Trucks	5	0.19205	0.06511	0.96330	1.36395	2.27137	1.40982	0.03093	0.00012	0.16804	0.02954	0.00011	0.04662
		Sinele Unit Trucks	10	0.16701	0.06511	1.04428	1.36395	1.68123	1.40982	0.02602	0.00012	0.16804	0.02484	0.00011	0.04662
		Tractor Trailer Trucks	5	0.07542	0.00000	4.25530	0.00000	6.62536	3.27918	0.00800	0.00000	0.21589	0.00762	0.00000	0.06164
		Tractor Trailer Trucks	10	0.07542	0.00000	4.25530	0.00000	6.62536	3.27918	0.00800	0.00000	0.21589	0.00762	0.00000	0.06164

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	562	0.1	202.04	4336.21	3501.47	7.32	7.00
Tractor Trailer Trucks	182	0.1	31.50	578.65	385.18	0.22	0.21
Total			233.53	4914.86	3886.65	7.54	7.21

Emissions for truck idling using EMFAC 2011 idling emission rates provided in g/hr-vehicle (https://www.arb.ca.gov/msei/emfac2011_idling_emission_rates.xlsx)

Emissions for TRU emissions usine OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Categeory	Model Year	Fuel	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2_5 IDLEX
T6TS	Aaereaated	GAS	1.017757837	15.17523512	0.08759075	0	0
T6 instate small	Aggregated	DSL	0.224352565	7.490448227	10.9135279	0.022884558	0.021896582
T7 Single	Aggregated	DSL	0.437070083	65.99417267	31.69725479	0.037190034	0.034194864
T7 tractor	Aaereaated	DSL	3.031945026	55.70336178	37.07914401	0.021442872	0.020212877

[1]Source: EMFAC 2017

Vehicle Category	Idle--hour factor
T6TS	0.098
T6 instate small	0.098
T7 Single	0.79
T7 tractor	1.46

	Emission Factors (g/vehicle/idle-hr)				
	ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
	10.38529405	154.840338	0.893783161	0	0
	2.298499846	76.43314517	111.3625266	0.233515896	0.223414102
	0.284510083	5.483580034	13.81459228	0.028967795	0.027214661
Weighted Average:	4.3196642	92.58811088	74.76444547	0.15427392	0.14951165
	2.076074675	38.15298752	25.39667388	0.014686898	0.013844436

Single Unit Trucks		% Population
T6TS	GAS	26.76%
T6 instate sma	DSL	66.03%
T7 Single	DSL	7.21%
		100.00%

[2]Source: For T6TS and T instate small, Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf); for T7 Single and T7 Tractor, idle-hour factors updated to EMFAC2021 documentation Table 4.4.2-5, as updated data was provided for EMFAC2021 for these vehicle categories.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Total Internal Buildme VMT Estimate

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph					
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.53	5.23	15.03	3.45	**63.25**
2nd	47.76	11.55	11.62	4.78	**85.71**
3rd	66.33	30.61	11.28	4.63	**84.86**
4th/Roof	50.52	9.15	0.96	0.83	**50.97**
Total	**164.18**	**87.84**	**37.88**	**13.88**	**809.48**

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph					
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	56.25	7.45	21.39	4.91	**287.15**
2nd	163.29	94.66	34.87	14.33	**870.55**
3rd	139.66	91.83	33.83	13.98	**885.64**
4th/Roof	949.28	2.78	0.00	0.00	**1007.74**
Total	**1387.80**	**196.71**	**90.08**	**33.14**	**6.051**

Total Daily Internal Building Vehicle Activity

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph						
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	80.66	63816.00	4422.49	24198.00	5553.20	**101785.69**
2nd	196.20	76965.67	56779.46	18765.64	7967.09	**154637.18**
3rd	196.20	74565.73	49260.96	18145.92	7457.60	**149428.19**
4th/Roof	15.00	91367.14	227.92	0.00	0.00	**8145.25**
Total	**287.86**	**286884.78**	**108899.88**	**61048.49**	**20928.80**	**488796.38**

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph						
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.50	90525.00	11985.00	34425.00	7965.00	**144900.00**
2nd	374.68	216567.01	152358.39	50115.12	20901.60	**488111.88**
3rd	374.68	213037.28	147790.23	51436.08	20370.36	**448896.97**
4th/Roof	441.00	1527569.68	4470.12	0.00	0.00	**1602189.99**
Total	**1886.70**	**2047807.96**	**816879.87**	**144876.20**	**69887.96**	**2867895.58**

Total Daily Vehicle Activity (Trips) per Floor					
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	716	94	275	50	**1135**
2nd	699	402	149	61	**1311**
3rd	591	390	144	59	**1184**
4th/Roof	3176	9	0	0	**3185**
Total	**5082**	**895**	**568**	**169**	**6795**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both buildme A and B have identical layouts (just rotated), so the numbers below are applicable to each buildme.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	174.4	178	170.4	171.7	178.7	170.7

[1] Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

Total Daily Vehicle Trips by Land Use and Vehicle Type					
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3102	-	-	-	-
Visiting Workers Maker and Manufacturing	98	20	22	2	142
Visiting Workers Parcel and Last Mile Delivery	1,213	402	292	120	2,026
Visiting Workers Wholesale and Storage	242	60	242	60	604
Visiting Workers General Retail / Café/Quick Service Restaurants	379	14	6	0	399
Total Vehicle Trips	**5086**	**896**	**562**	**182**	**4758**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

% Vehicle Activity Per Floor				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
1st/Ground	14%	10%	48%	34%
2nd	12%	45%	26%	33%
3rd	12%	44%	26%	32%
4th/Roof	62%	1%	0%	0%
Total	100%	100%	100%	100%

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

Vehicle Type	L1	L2	L3	L4
Total Daily Autos/Pickups Per Level	355	305	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

Use (SQ FT/Floor)	L1	L2	L3	L4	Project Total
PDR Uses					
Manufacturing & Maker Space	35,000	-	-	-	35000
Parcel Delivery/Last Mile	-	381,000	349,600	8,800	739400
Wholesale and Storage	372,400	-	-	-	372400
Retail	8,400	-	-	-	8400
Logistics Yard	-	72,400	73,400	-	145800
Vehicle Circulation	13,800	112,800	95,400	17,600	239600
Parking	117,800	-	-	487,600	599400
Total					2160000

Step 2 - Estimated % Use per Floor

Use (% of Total Use Per Floor)	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Parcel Delivery/Last Mile	0.0%	50.17%	48.67%	1.2%	Utilize Level 2 and 3 Loaistics Yard and Parkine and small area of L4 parkine (assume autos/pickups and vans only)
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Retail					
Retail Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitize Ground Level Loaistics and Parkine

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Van	MT	HT	*Source: Dec 10 2021 Traffic Demand Memo - Table 11 and asse A-79 for worker trip data*
PDR	4576	882	556	182	
On-site Worker	3030	0	0	0	
Visiting Worker	1546	882	556	182	
Manufacturing & Maker Space	98	20	22	2	
Parcel Delivery/Last Mile	1214	802	292	120	
Wholesale and Storage	242	60	242	60	
Retail/QSR	510	14	6	0	
On-site Worker	132	0	0	0	
Visiting Worker/Consumer	378	14	6	0	

Step 4 - Usine Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Buildme)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & van)	206	506	491	1527
PDR Auto/Pickup	166	305	295	1522
PDR Van	40	201	195	5
PDR MT	130	74	72	0
PDR HT	31	30	30	0
Retail Auto (incl pickup & van)	196	0	0	66
Retail Auto/Pickup	189	0	0	66
Retail Van	7	0	0	0
Retail MT	5	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	402	506	491	1593
Total Daily Auto /Pickup Per Level	355	305	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Existing Land Use - Mobile Source Emissions

Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	Emissions (lbs/day)							Emissions (tons/year)						
				ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.205	6.194	0.395	0.012	0.794	0.011	0.202	0.037	1.130	0.072	0.002	0.145	0.002	0.037
Autos/Pickups (visiting worker)	gasoline	200	4000	0.227	7.765	0.488	0.015	1.052	0.014	0.267	0.041	1.417	0.089	0.003	0.192	0.003	0.049
Vans	gasoline	154	4610	0.332	8.912	1.457	0.035	1.395	0.033	0.372	0.061	1.626	0.266	0.006	0.255	0.006	0.068
Single Unit Trucks	diesel	132	5293	0.400	5.122	10.395	0.125	1.961	0.120	0.544	0.073	0.935	1.897	0.023	0.358	0.022	0.099
Tractor Trailer Trucks	diesel	14	888	0.027	2.939	2.803	0.039	0.423	0.037	0.120	0.005	0.536	0.512	0.007	0.077	0.007	0.022
Buses	diesel	18	720	0.105	5.910	0.559	0.011	0.385	0.010	0.113	0.019	1.079	0.102	0.002	0.070	0.002	0.021
Total		717	18532	1.296	36.842	16.097	0.237	6.009	0.225	1.618	0.237	6.724	2.938	0.043	1.097	0.041	0.295

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:

Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.0100	0.3141	0.7247	3.1176	0.0426	0.2545	0.0016	0.0020	0.1192	0.0015	0.0019	0.0303
Autos/Pickups (visiting worker)	0.0100	0.3141	0.7247	3.1176	0.0426	0.2545	0.0016	0.0020	0.1192	0.0015	0.0019	0.0303
Vans	0.0244	0.2473	0.7829	2.8191	0.1312	0.3644	0.0034	0.0011	0.1372	0.0032	0.0010	0.0366
Single Unit Trucks	0.0326	0.0651	0.4049	1.3639	0.8556	1.4098	0.0107	0.0001	0.1680	0.0103	0.0001	0.0466
Tractor Trailer Trucks	0.0139	0.0000	1.5008	0.0000	1.3810	3.2792	0.0198	0.0000	0.2159	0.0190	0.0000	0.0613
Buses	0.0658	0.0201	3.7017	0.8724	0.3509	0.0579	0.0067	0.0000	0.2424	0.0064	0.0000	0.0710

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
metric ton	grams
1	1000000

Mobile Trip Data (per Adavant December 10, 2021, Trip Generation Memorandum)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	3354	0	802	292	120	4568
Wholesale and Storage	1044	0	60	242	60	1406
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5086	0	896	562	182	6726
% of Total Trips	76%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		40	840	300	1180	75	1105	15
SD2	6		48	1308	504	1860	126	1734	21
SD3	2		44	1016	384	1444	96	1348	48
SD4	7		42	1176	434	1652	108	1544	15
East Bay	28		337	8134	3029	11500	755	10745	27
North Bay	28		166	3496	1332	4994	332	4662	12
South Bay	22		518	13217	4967	18702	1239	17463	56
Out of Region	65		129	3229	1162	4520	290	4230	4
			1324	32416	12112	45852	3021	42831	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-9105	4840	-2465	4000	-6465	200	24280	30920
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-6015	1800	-3615	4610	-8225	154	24060	26460
SU Trucks	40	-7.5	880	-2190	9680	8370	5293	3077	132	11680	22240
Tractor Trailers	65	7.5	130	900	3900	4930	888	4042	14	7800	11830
Total Non-Commuter VMT	N/A	N/A	3410	-16410	20220	7220	16127	-8291	518	67820	91450

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	88	2140	802	0	26	106	0	0	3162
Non-work	134	2428	604	0	132	266	0	0	3564
Total	222	4568	1406	0	158	372	0	0	6726

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	Emissions (lb/day)					Emissions (tons/year)				
						ROG	CO	NO_X	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$	ROG	CO	NO_X	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	4.7	0.160	0.017	0.168	0.005	0.005	0.021	0.002	0.022	0.001	0.001
Parcel and last Mile Delivery	17.2	0.56	7,475	47	159.0	5.421	0.590	5.693	0.180	0.166	0.989	0.108	1.039	0.033	0.030
Wholesale and Storage	17.2	0.56	4,356	47	92.7	3.159	0.344	3.317	0.105	0.097	0.577	0.063	0.605	0.019	0.018
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	0.7	0.027	0.003	0.025	0.000	0.000	0.004	0.000	0.003	0.000	0.000
Parcel and last Mile Delivery	33.8	0.38	4,992	47	106.2	4.223	0.459	3.775	0.060	0.055	0.771	0.084	0.689	0.011	0.010
Wholesale and Storage	33.8	0.38	1,755	47	37.3	1.485	0.161	1.327	0.021	0.019	0.271	0.029	0.242	0.004	0.004
Total Off-Site Emissions						**14.476**	**1.575**	**14.305**	**0.372**	**0.343**	**2.632**	**0.286**	**2.601**	**0.068**	**0.062**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	38	5	7.6	0.259	0.028	0.272	0.009	0.008	0.047	0.005	0.050	0.002	0.001
10mph	17.2	0.56	90	10	9.0	0.307	0.033	0.322	0.010	0.009	0.056	0.006	0.059	0.002	0.002
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	2.6	0.102	0.011	0.091	0.001	0.001	0.019	0.002	0.017	0.000	0.000
10mph	33.8	0.38	33	10	3.3	0.132	0.014	0.118	0.002	0.002	0.024	0.003	0.021	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	37.7	1.284	0.140	1.348	0.043	0.039	0.234	0.025	0.246	0.008	0.007
Tractor Trailer Truck	33.8	0.38	NA	NA	13.0	0.518	0.056	0.463	0.007	0.007	0.095	0.010	0.085	0.001	0.001
Total On-Site Emissions						**2.602**	**0.283**	**2.615**	**0.072**	**0.066**	**0.475**	**0.052**	**0.477**	**0.013**	**0.012**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	11	25%	2.75	0.25	0.6875
Parcel and last Mile Delivery	146	64%	93.44	0.25	23.36
Wholesale and Storage	121	45%	54.45	0.25	13.6125
Total	278	-	150.64	0.25	37.66

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	25%	0.25	0.25	0.0625
Parcel and last Mile Delivery	60	64%	38.4	0.25	9.6
Wholesale and Storage	30	45%	13.5	0.25	3.375
Total	91	-	52.15	0.25	13.0375

Table III.

		Total TRU VMT	
Land Use	% Refrigeration Req'd[1]	TRU VMT on Single-Unit Trucks	TRU VMT on Tractor Trailer Trucks
Maker and Manufacturing	25%	220	32.5
Parcel and last Mile Delivery	64%	7475.2	4992
Wholesale and Storage	45%	4356	1755
Total		12051.2	6779.5

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
Total Visitor VMT by Vehicle Type	**30920**	**26460**	**22240**	**11830**	**91,450**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total_Activity_hp	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

	Emission Rates					
	g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDA	Plug-in Hybrid	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybrid	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybrid	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03
	Total:		7,865,720	100.00%	1,025,014	100.00%																			
				Weighted Average Emission Factors*:			0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336
Vans																									
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
MDV	Plug-in Hybrid	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03
	Total:		1,436,619	100.00%	251,880	100.00%																			
				Weighted Average Emission Factors*:			0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954

Single Unit Trucks

T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02
		Total:	144,107	100.00%	47,006	100.00%																			
				Weighted Average Emission Factors*:			0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777

Tractor Trailer Trucks

T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.0014	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02
		Total:	13,619		2,531	100.00%																			
				Weighted Average Emission Factors*:			0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural Gas	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural Gas	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
		Total:	100.00%					
			Weighted Average Emission Factors*:	0.55153	11.18427	8.72778	0.01634	0.01562
Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural Gas	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
		Total:	100.00%					
			Weighted Average Emission Factors*:	3.03195	55.70336	37.07914	0.02144	0.02021

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.64	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38012	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.16	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
					Weighted Average Emission Factors*:			0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.005	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31339	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0221	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
					Weighted Average Emission Factors*:			0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.607	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1545	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281078	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.356	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69476	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			3,645	100%							
					Weighted Average Emission Factors*:			0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
								*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.						
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
					Weighted Average Emission Factors*:			0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
								*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.						

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.21	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.47	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
			Total:			70,774	100%							
					Weighted Average Emission Factors*:			0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.761	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.952	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0871	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
					Weighted Average Emission Factors*:			0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.607	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99993	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.356	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69476	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			4,287	100%							
					Weighted Average Emission Factors*:			0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
					Weighted Average Emission Factors*:			0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Ye	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consump	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Franc	2025	LDA	Aggregate	Aggregate	Gasoline	126519	4522617	4522617	0	586607		0.039099504	0	0.251814039	0.001504246	0	0.001929271	0.002000001	0.002329316	0.001636005	0	0.002098258	0.003800002	0.009245474	0.00987364	0	0.318920933	0.091494696	0.235610625	1.385036446	0.014407592	0	0.349178278	0.091494696	0.235610625	1.385036446	0.039297666	0.746685618	0	3.198476435	0.002824107	0	0.006579646
San Franc	2025	LDA	Aeinreads	Aeinreads	Diesel	522.922	13133.8	13133.8	0	2181.78		0.176920046	0	0	0.018752118	0	0	0.002000001	0.003316766	0.019600306	0	0	0.003800002	0.009476475	0.036491746	0	0	0	0	0	0.041543427	0	0	0	0	0	0.0031	0.471041794	0	0	0.002426018	0	0
San Franc	2025	LDA	Aeinreads	Aeinreads	Electricity	10080.4	464806	0	464806	49586.4		0	0	0	0	0	0	0.002000001	0.001532171	0	0	0	0.003800002	0.00433763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	Aggregate	Aeinreads	Plug-in Hy	3902.38	172918	83076.9	89840.7	18136.3		0.003848369	0	0.116967433	0.000731552	0	0.001952217	0.002000001	0.001492273	0.000795629	0	0.002123214	0.003800002	0.004264643	0.003187252	0	0.175544867	0.040981342	0.036860583	0.413516449	0.002732379	0	0.192199534	0.040981342	0.036860583	0.413516449	0.019153856	0.246312279	0	1.369749453	0.001517471	0	0.006123235
San Franc	2025	LDF1	Aeinreads	Aeinreads	Gasoline	12873.8	389928	389928	0	57785.1		0.085478255	0	0.337317694	0.001894276	0	0.002365931	0.002000001	0.004163487	0.002060197	0	0.002573166	0.003800002	0.011895678	0.021321813	0	0.444774718	0.136491328	0.371983028	2.090419443	0.031112739	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148911458	0	4.363438201	0.00338548	0	0.008824164
San Franc	2025	LDF1	Aeinreads	Aeinreads	Diesel	7.45932	69.5602	69.5602	0	20.6959		1.514418449	0	0	0.277392351	0	0	0.002000001	0.004787907	0.289934802	0	0	0.003800002	0.013679733	0.349198191	0	0	0	0	0	0.397589824	0	0	0	0	0	0.0031	1.604483182	0	0	0.004377097	0	0
San Franc	2025	LDF1	Aggregate	Aggregate	Electricity	39.7582	1685.29	0	1685.29	189.527		0	0	0	0	0	0	0.002000001	0.001534653	0	0	0	0.003800002	0.004384721	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDF1	Aeinreads	Aeinreads	Plug-in Hy	21.6866	968.111	420.519	547.591	89.6741		0.00347934	0	0.116967433	0.000468675	0	0.001373883	0.002000001	0.001492477	0.000509727	0	0.001494223	0.003800002	0.00426422	0.00169296	0	0.175544867	0.024130781	0.020405943	0.268650215	0.002470364	0	0.192199534	0.024130781	0.020405943	0.268650215	0.01824359	0.222774746	0	1.369749453	0.001372106	0	0.000670971
San Franc	2025	LDF2	Aeinreads	Aeinreads	Gasoline	65146.3	2247694	2247694	0	306132		0.053789627	0	0.298685343	0.001589104	0	0.003959004	0.002000001	0.004010051	0.001728393	0	0.002130595	0.003800002	0.011457289	0.011066457	0	0.345876424	0.077542195	0.188838959	1.157658403	0.016148148	0	0.378691148	0.077542195	0.188838959	1.157658403	0.01742044	0.808624799	0	3.403243452	0.001486618	0	0.003834063
San Franc	2025	LDF2	Aggregate	Aggregate	Diesel	323.61	10956.2	10956.2	0	1519.06		0.046067349	0	0	0.005705353	0	0	0.002000001	0.004085646	0.005963323	0	0	0.003800002	0.011673273	0.022818559	0	0	0	0	0	0.025977412	0	0	0	0	0	0.0031	0.237163918	0	0	0.003243055	0	0
San Franc	2025	LDF2	Aeinreads	Aeinreads	Electricity	471.006	16624.5	0	16624.5	2393.17		0	0	0	0	0	0	0.002000001	0.00152658	0	0	0	0.003800002	0.004361657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDF2	Aeinreads	Aeinreads	Plug-in Hy	573.856	24320.1	11125.6	13194.5	2372.89		0.003664333	0	0.116967433	0.00058843	0	0.001635961	0.002000001	0.001492525	0.000639971	0	0.001779257	0.003800002	0.004264657	0.001782974	0	0.175544867	0.026394882	0.023454188	0.294961451	0.002801711	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187697	0.234582046	0	1.369749453	0.00144499	0	0.000735091
San Franc	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.79	192265	192265	0	73401.8		0.122685523	0.035806036	0.605179514	0.001349256	0	0.000230311	0.002000001	0.027300008	0.001467439	0	0.000250485	0.003800002	0.078000022	0.030989209	0.41052157	0.147891953	0.038246673	0.199488999	2.044600648	0.045219381	0.599032111	0.161923073	0.038246673	0.199488999	2.044600648	0.044945055	0.999695839	3.763000677	1.242429344	0.00840866	0.001170284	0.000257423
San Franc	2025	LHD1	Aggregate	Aeinreads	Diesel	1645.33	74071.9	74071.9	0	20696.2		0.831542744	1.595461413	0	0.023310594	0.026842141	0	0.002000001	0.027300008	0.024364596	0.028055823	0	0.012000003	0.078000022	0.125540286	0.109759705	0	0	0	0	0.146846728	0.134954127	0	0	0	0	0.197938322	0.29875818	0.909745076	0	0.005958635	0.001193684	0
San Franc	2025	LHD1	Aeinreads	Aeinreads	Electricity	43.1664	2971.83	0	2971.83	603.671		0	0	0	0	0	0	0.002000001	0.001365004	0	0	0	0.003800002	0.019000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LHD2	Aggregate	Aggregate	Gasoline	613.122	23102.5	23102.5	0	9134.6		0.128039603	0.035002514	0.602406053	0.001362585	0	0.000187914	0.002000001	0.031850009	0.001737176	0	0.000204373	0.003800002	0.091000026	0.021705982	0.401462704	0.142249981	0.037405291	0.190932946	2.01563418	0.044081621	0.809873891	0.766304622	0.210582123	0.009488786	0.001351859	0.000251199
San Franc	2025	LHD2	Aeinreads	Aeinreads	Diesel	997.915	41685.4	41685.4	0	12552.5		0.779228061	1.770292562	0	0.024159389	0.026839604	0	0.002000001	0.031850009	0.025251717	0.028053172	0	0.012000003	0.091000026	0.12517659	0.109759705	0	0	0	0	0.142505225	0.134954127	0	0	0	0	0.200558839	0.299730909	0.909745076	0	0.007192983	0.001956377	0
San Franc	2025	MDV	Aeinreads	Aeinreads	Electricity	11.0908	725.571	0	725.571	147.075		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.003800002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	Aggregate	Aggregate	Gasoline	27332.4	1051529	1051529	0	129176		0.063592069	0	0.322583185	0.00145799	0	0.001861306	0.002000001	0.003990839	0.001585692	0	0.002024126	0.003800002	0.011402398	0.013225212	0	0.186403973	0.074243599	0.199741652	1.20717336	0.019306343	0	0.423063332	0.074243599	0.199741652	1.20717336	0.037871122	0.826961861	0	3.411746556	0.004130955	0	0.00098725
San Franc	2025	MDV	Aggregate	Aeinreads	Diesel	499.07	18274.1	18274.1	0	2334.77		0.051159132	0	0	0.005623961	0	0	0.002000001	0.004134729	0.005878252	0	0	0.003800002	0.011813511	0.017898853	0	0	0	0	0	0.020376654	0	0	0	0	0	0.0031	0.341640847	0	0	0.004171945	0	0
San Franc	2025	MDV	Aeinreads	Aeinreads	Electricity	501.213	17720.3	0	17720.3	2547.37		0	0	0	0	0	0	0.002000001	0.001526394	0	0	0	0.003800002	0.004361126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	Aggregate	Aeinreads	Plug-in Hy	310.944	14184.1	6466.55	7717.59	1285.75		0.00395179	0	0.116967433	0.000615677	0	0.001720158	0.002000001	0.001493011	0.000669605	0	0.001878328	0.003800002	0.004265744	0.00177687	0	0.175544867	0.028135505	0.024062001	0.301913285	0.002592805	0	0.192199534	0.028135305	0.024062001	0.301913285	0.019147816	0.233774772	0	1.369749453	0.001440038	0	0.00089649
San Franc	2025	T6 instate small	Aggregate	Aggregate	Diesel	2377.53	91004.7	91004.7	0	30599.3		0.928923102	10.9135279	1.642590688	0.012271913	0.021894582	0	0.003000001	0.011610638	0.012826795	0.022884558	0	0.012000003	0.046017538	0.028845002	0.224762965	0	0	0	0	0.033837839	0.255875527	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.010863471	0.020109638	0
San Franc	2025	T6 instate small	Aeinreads	Aeinreads	Electricity	18.6087	818.093	0	818.093	239.015		0	0	0	0	0	0	0.003000001	0.000857978	0	0	0	0.012000003	0.023022794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T6 instate small	Aggregate	Aggregate	Natural G	9.61267	394.858	394.858	0	124.965		0.099140052	5.227383301	0	0.001402962	0.016966693	0	0.003000001	0.011615427	0.001525849	0.018452827	0	0.012000003	0.046161219	0.0107419	0.186572035	0	0	0	0	0.767278563	13.12657393	0	0	0	0	1.06	3.185032455	33.23233081	0	0	0	0
San Franc	2025	T6TS	Aggregate	Aggregate	Gasoline	619.839	29859	29859	0	12401.7		0.394172144	0.08759075	0.423939506	0.00110628	0	0.000416125	0.003000001	0.011576104	0.001203181	0	0.000453574	0.012000003	0.04501744	0.035953055	1.017757837	0.246771062	0.03335227	0.255006237	2.505971323	0.087483358	1.485108847	0.270183251	0.03335227	0.255006237	2.505971323	0.044991097	1.143147968	15.17523512	5.169725024	0.017921799	0.005355928	0.000453328
San Franc	2025	T6TS	Aeinreads	Aeinreads	Electricity	3.0393	268.351	0	268.351	60.8104		0	0	0	0	0	0	0.003000001	0.000787852	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Single	Aggregate	Aggregate	Diesel	354.873	20200	20200	0	3342.91		1.31371039	21.58285364	2.215788223	0.016219794	0.016482284	0	0.009000003	0.028142936	0.016953181	0.017228121	0	0.03600001	0.080408388	0.012934103	1.888098178	0	0	0	0	0.014724492	2.149456051	0	0	0	0	0.219870805	0.076952119	27.07430131	0	0.015712422	0.0425474	0
San Franc	2025	T7 Single	Aeinreads	Aeinreads	Electricity	3.19503	237.568	0	237.568	30.0972		0	0	0	0	0	0	0.009000003	0.03413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Single	Aeinreads	Aeinreads	Natural G	21.9816	1324.53	1324.53	0	207.067		0.310765714	11.69729479	0	0.001778665	0.034194864	0	0.009000003	0.028135888	0.00193446	0.037190034	0	0.03600001	0.080388252	0.015186001	0.437076383	0	0	0	0	1.08473423	31.21972024	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0
San Franc	2025	T7 Tractor	Aeinreads	Aeinreads	Diesel	145.207	11375.8	11375.8	0	2109.86		1.555107005	40.11897128	3.925802711	0.022481872	0.015302123	0	0.009000003	0.027446676	0.023498402	0.015994017	0	0.03600001	0.079417645	0.013946176	3.454591077	0	0	0	0	0.01587666	3.932780988	0	0	0	0	0.219983645	0.078284829	50.6647472	0	0.014680828	0.078480774	0
San Franc	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.74296	64.4874	0	64.4874	10.7952		0	0	0	0	0	0	0.009000003	0.01388109	0	0	0	0.03600001	0.039660257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Tractor	Aeinreads	Aeinreads	Natural G	28.2625	2178.71	2178.71	0	410.655		0.513115096	22.43584367	0	0.00124999	0.045974698	0	0.009000003	0.027439035	0.001359478	0.050001679	0	0.03600001	0.078397243	0.014272078	0.94017224	0	0	0	0	1.019434108	67.15515999	0	0	0	0	1.06	8.972506791	83.05506955	0	0	0	0
San Franc	2025	UBUS	Aeinreads	Aeinreads	Gasoline	135.576	6617.69	6617.69	0	542.305		0.029036819	0	0.421961422	0.001178368	0	0.000158696	0.002013193	0.01193871	0.001281583	0	0.000172597	0.008853156	0.001253458	0.004765929	0	0.146136388	0.033543489	0.09110026	0.37451506	0.003954413	0	0.16000095	0.033534589	0.09110026	0.37451506	0.045	0.585073312	0	0.357794444	0.00881305	0	0.000384158
San Franc	2025	UBUS	Aggregate	Aeinreads	Diesel	784.367	63648.6	63648.6	0	3137.47		0.411261165	0	0	0.007492158	0	0	0.008769949	0.038491785	0.00783092	0	0	0.035079796	0.109976529	0.07273827	0	0	0	0	0	0.082806984	0	0	0	0	0	0.22	0.084642061	0	0	0.012518461	0	0
San Franc	2025	UBUS	Aeinreads	Aeinreads	Electricity	0.78603	67.8091	0	67.8091	3.14413		0	0	0	0	0	0	0.008769931	0.032920006	0	0	0	0.034276524	0.093000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	UBUS	Aeinreads	Aeinreads	Natural G	67.334	5710.54	5710.54	0	269.336		0.058820057	0	0	0.000366603	0	0	0.007963942	0.038462965	0.00038318	0	0	0.031855766	0.109894184	0.05997064	0	0	0	0	0	4.244494266	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUI	ROG_RUNI	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06644666	0.008217386	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.242947064	0.060487048	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.002995733	0.000975218	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.150908984	0.010142381	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.129429317	1.006979635	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.002538045	0.00058547	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.092343235	0.008688678	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.160039934	0.012660791	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.002760048	0.000759009	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.163885328	0.003111213	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.202058493	0.050687102	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.183254222	0.002930739	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.299445569	0.050815815	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.109334957	0.007947495	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.137473529	0.013771799	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274454	0.000792405	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.673849856	0.005698018	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.056936086	0.005178359	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.225477885	0.044214919	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.001571889	0.000508124	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.127105592	0.006429829	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.186607791	0.701031401	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.001327133	0.000303997	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879064	0.005473985	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.134436438	0.011048481	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.001445642	0.000394766	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.146244745	0.002310545	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.086348373	0.042054042	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.160656361	0.002170053	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.141968008	0.042692187	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.0931103	0.005011149	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.11779779	0.011431576	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00143735	0.000412087	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.497668002	0.039888068	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.309957451	0.003696949	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.586535243	0.003591998	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.741149077	0.007393932	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.446023995	0.007124619	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.332150843	0.008126013	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107158	0.005215433	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

		PM PROFILE			OG PROFILE			
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylidenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

SF Gateway

Operational Emissions Summary - With Emissions Reduction Measures

Control Scenario incorporates the following actions:

- Manufacturing and Maker Space limited to ensure that sstationary equipment emissions would not exceed a combined total of 10 lb/day of Nox.
- TRUs required to be electric
- Fleet mix restricted to 2016+ model year for single unit and tractor trailer trucks
- Emergency generators meet Tier 4 emissions standards.
- On-site idling of diesel-powered trucks not to exceed 2 minutes per truck

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.002	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	10.00	1.812	1.087
Stationary Sources	1.46	0.42	0.211	0.211
Mobile	8.11	71.15	44.472	12.546
TRUs	0.00	0.00	0.000	0.000
Total Proposed Daily Operational Emissions	***34.1***	***81.6***	***46.496***	***13.846***
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**24.80**	**64.09**	**40.145**	**11.90**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.39	1.32	0.239	0.144
Stationary Sources	0.04	0.01	0.005	0.005
Mobile	1.48	12.98	8.116	2.290
TRUs	0.00	0.00	0.000	0.000
Total Proposed Annual Operational Emissions	***5.85***	***14.32***	***8.36***	***2.44***
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**4.14**	**11.13**	**7.20**	**2.08**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	2.4146	9.6844	1.8123	0.0000	1.0874	0.0000	0.39	0.32	1.28	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	0.4224	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.01	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	5.8173	251.1365	63.5505	1.0960	42.8085	1.0342	11.3442	1.06	45.83	11.60	0.20	7.81	0.19	2.07
Mobile (activity within buildings)	2.2926	28.5720	7.5966	0.0312	0.5363	0.0288	0.1391	0.42	5.21	1.39	0.01	0.10	0.01	0.03
TRUs in-transit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRUs on-site	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	1.00	0.00	1.00

Manufacturing and Maker Space Maximum Emissions Calculations

Demonstrates less intensive use that does not exceed 10 lb/day of Nox.

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	35000										
TACs		2.96	2.41	9.68	1.81	1.1	0.391172	0.318732	1.278338	0.23922	0.143532

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	**4.13E-03**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.4637	3.6957	0.4224	0.2112	0.0000	0.2112	0.0000	0.0366	0.0924	0.0106	0.0053	0.0000	0.0053	0.0000
Total	-	-	-	-	-	1.4637	3.6957	0.4224	0.2112	0.0000	0.2112	0.0000	0.0366	0.0924	0.0106	0.0053	0.0000	0.0053	0.0000

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Data per 180710-SFG AECOM RFI Response_60-81-Revision3
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

Emission Factors	Diesel Emergency Generator Emission Factors for Tier4 final						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	0.294	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	0.294	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
Nox	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for Diesel TRU in-transit operations	Emissions (lb/day)					Emissions (tons/year)				
						ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$	ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	7,475	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wholesale and Storage	17.2	0.56	4,356	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	4,992	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wholesale and Storage	33.8	0.38	1,755	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Off-Site Emissions						**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	38	5	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10mph	17.2	0.56	90	10	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10mph	33.8	0.38	33	10	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tractor Trailer Truck	33.8	0.38	NA	NA	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total On-Site Emissions						**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with Diesel TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	11	0%	0	0.25	0
Parcel and Last Mile Delivery	146	0%	0	0.25	0
Wholesale and Storage	121	0%	0	0.25	0
Total	278	0%	0	0.25	0

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	0%	0	0.25	0
Parcel and Last Mile Delivery	60	0%	0	0.25	0
Wholesale and Storage	30	0%	0	0.25	0
Total	91	0%	0	0.25	0

Table III.

		Total TRU VMT	
Land Use	**% Refrigeration R**	**TRU VMT on Single-Unit Trucks**	**TRU VMT on Tractor Trailer Trucks**
Maker and Manufacturing	25%	220	32.5
Parcel and Last Mile Delivery	64%	7475.2	4992
Wholesale and Storage	45%	4356	1755
Total		12051.2	6779.5

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
Total Visitor VMT by Vehicle Type	**30920**	**26460**	**22240**	**11830**	**91,450**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity hpr	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

	Emission Rates					
	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr
	ROG Exhaust	NOX Exhaust	CO Exhaust	PM10 Exhaust	PM2.5 Exhaust	SOX Exhaust
Truck TRU	1.6052	1.6856	0.1747	0.0534	0.0491	422795.3802
Trailer TRU	1.4042	1.2551	0.1527	0.0200	0.0184	357170.8332

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*2.1361*	*86.0393*	*5.3021*	*0.1730*	*12.3697*	*0.1592*	*3.1440*	*0.3898*	*15.7022*	*0.9676*	*0.0316*	*2.2575*	*0.0291*	*0.5738*
Visitor	*3.6811*	*165.0973*	*58.2483*	*0.9230*	*30.4388*	*0.8750*	*8.2002*	*0.6718*	*30.1303*	*10.6303*	*0.1685*	*5.5551*	*0.1597*	*1.4965*
Sub-Total	5.8173	251.1365	63.5505	1.0960	42.8085	1.0342	11.3442	1.0617	45.8324	11.5980	0.2000	7.8125	0.1887	2.0703
On-Site Vehicle Activity Within Buildings	2.2926	28.5720	7.5966	0.0312	0.5363	0.0288	0.1391	0.4184	5.2144	1.3864	0.0057	0.0979	0.0053	0.0254
Gross Mobile Source Emissions from Proposed Project	**8.1098**	**279.7085**	**71.1471**	**1.1272**	**43.3448**	**1.0630**	**11.4832**	**1.4800**	**51.0468**	**12.9843**	**0.2057**	**7.9104**	**0.1940**	**2.0957**
Existing Land Use Mobile Emissions	1.2959	36.8423	16.0966	0.2369	6.0090	0.2250	1.6177	0.2365	6.7237	2.9376	0.0432	1.0966	0.0411	0.2952
Net Mobile Emissions (Proposed - Existing)	**6.8139**	**242.8661**	**55.0505**	**0.8903**	**37.3359**	**0.8380**	**9.8656**	**1.2435**	**44.3231**	**10.0467**	**0.1625**	**6.8138**	**0.1529**	**1.8005**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1581	47054	2.1361	86.0393	5.3021	0.1730	12.3697	0.1592	3.1440	0.3898	15.7022	0.9676	0.0316	2.2575	0.0291	0.5738

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

Operational Days Per Year:

Autos/Pickups (on-site worker) 365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.0100	0.3141	0.7247	3.1176	0.0426	0.2545	0.0016	0.0020	0.1192	0.0015	0.0019	0.0303

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[1]	26	106	132	9.11	1202

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips[1]	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
1. Based on page A-81 Daily Work Vehicle Trips Travel Demand Memo for Retail and QSR Land Uses
2. Based on Table 3.2 of Appendix F of Travel Demand Memo (page A-92).

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[2]	VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	962	31676	1.36717	57.21710	3.51191	0.11601	8.32709	0.10678	2.11646	0.24951	10.44212	0.64092	0.02117	1.51969	0.01949	0.38625
Maker and Manufacturing	45	1800	0.07100	3.18495	0.19414	0.00655	0.47319	0.00603	0.12027	0.01296	0.58125	0.03543	0.00120	0.08636	0.00110	0.02195
Parcel and Last Mile Delivery	607	24280	0.95767	42.96139	2.61877	0.08834	6.38280	0.08131	1.62229	0.17478	7.84045	0.47793	0.01612	1.16486	0.01484	0.29607
Wholesale and Storage	121	4840	0.19090	8.56397	0.52203	0.01761	1.27235	0.01621	0.32339	0.03484	1.56292	0.09527	0.00321	0.23220	0.00296	0.05902
General Retail / Café/Quick Service Restaurants[3]	189	756	0.14760	2.50680	0.17696	0.00351	0.19874	0.00323	0.05051	0.02694	0.45749	0.03230	0.00064	0.03627	0.00059	0.00922
												0.00000				
Vans	448	26880	1.69203	49.17995	8.13501	0.20553	8.13299	0.19354	2.16744	0.30880	8.97534	1.48464	0.03751	1.48427	0.03532	0.39556
Maker and Manufacturing	10	600	0.03777	1.09777	0.18159	0.00459	0.18154	0.00432	0.04838	0.00689	0.20034	0.03314	0.00084	0.03313	0.00079	0.00883
Parcel and Last Mile Delivery	401	24060	1.51452	44.02045	7.28156	0.18397	7.27975	0.17324	1.94005	0.27640	8.03373	1.32889	0.03357	1.32855	0.03162	0.35406
Wholesale and Storage	30	1800	0.11331	3.29330	0.54476	0.01376	0.54462	0.01296	0.14514	0.02068	0.60103	0.09942	0.00251	0.09939	0.00237	0.02649
General Retail / Café/Quick Service Restaurants[3]	7	420	0.02644	0.76844	0.12711	0.00321	0.12708	0.00302	0.03387	0.00482	0.14024	0.02320	0.00059	0.02319	0.00055	0.00618
										0.00000		0.00000				
Single Unit Trucks	281	22480	0.35140	6.71363	19.57472	0.19700	8.34964	0.18796	2.31718	0.06413	1.22524	3.57239	0.03595	1.52381	0.03430	0.42289
Maker and Manufacturing	11	880	0.01376	0.26281	0.76627	0.00771	0.32685	0.00736	0.09071	0.00251	0.04796	0.13984	0.00141	0.05965	0.00134	0.01655
Parcel and Last Mile Delivery	146	11680	0.18258	3.48822	10.17050	0.10236	4.33825	0.09766	1.20395	0.03332	0.63660	1.85612	0.01868	0.79173	0.01782	0.21972
Wholesale and Storage	121	9680	0.15131	2.89092	8.42897	0.08483	3.59540	0.08093	0.99778	0.02761	0.52759	1.53829	0.01548	0.65616	0.01477	0.18210
General Retail / Café/Quick Service Restaurants[3]	3	240	0.00375	0.07168	0.20898	0.00210	0.08914	0.00201	0.02474	0.00068	0.01308	0.03814	0.00038	0.01627	0.00037	0.00451
												0.00000				
Tractor Trailer Trucks	91	11830	0.27053	51.98657	27.02670	0.40447	5.62906	0.38669	1.59911	0.04937	9.48755	4.93237	0.07382	1.02730	0.07057	0.29184
Maker and Manufacturing	1	130	0.00297	0.57128	0.29700	0.00444	0.06186	0.00425	0.01757	0.00054	0.10426	0.05420	0.00081	0.01129	0.00078	0.00321
Parcel and Last Mile Delivery	60	7800	0.17837	34.27686	17.81980	0.26669	3.71147	0.25496	1.05436	0.03255	6.25553	3.25211	0.04867	0.67734	0.04653	0.19242
Wholesale and Storage	30	3900	0.08918	17.13843	8.90990	0.13334	1.85574	0.12748	0.52718	0.01628	3.12776	1.62606	0.02434	0.33867	0.02326	0.09621
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Total	1782	92866	3.68113	165.09726	58.24834	0.92301	30.43878	0.87496	8.20020	0.67181	30.13025	10.63032	0.16845	5.55508	0.15968	1.49654

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (e/mi for RunEx, BW, TW and e/trip for STREX)											
Operational Days Per Year:		Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	365	Autos/Pickups (visiting worker)	0.0100	0.3141	0.7247	3.1176	0.0426	0.2545	0.0016	0.0020	0.1192	0.0015	0.0019	0.0303
Vans	365	Vans	0.0244	0.2473	0.7829	2.8191	0.1312	0.3644	0.0034	0.0011	0.1372	0.0032	0.0010	0.0366
Single Unit Trucks	365	Single Unit Trucks	0.0067	0.0278	0.1282	0.5846	0.3751	1.5871	0.0040	0.0001	0.1685	0.0038	0.0001	0.0468
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.0104	0.0000	1.9933	0.0000	1.0111	3.2714	0.0155	0.0000	0.2158	0.0148	0.0000	0.0613

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

	Net Visitor VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
General Retail / Café/Quick Service Restaurants[3]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**31676**	**26880**	**22480**	**11830**	**92,866**

Table II.

	Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]				
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	90	20	22	2	134
Parcel and Last Mile Delivery	1,214	802	292	120	2428
Wholesale and Storage	242	60	242	60	604
General Retail / Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[1]	**1924**	**896**	**562**	**182**	3564

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III.

	Total Daily Auto/Pickup Vehicle Trips by Land Use[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	178
Parcel and Last Mile Delivery	3354
Wholesale and Storage	1,044
General Retail	150
Quick Service Restaurant	354
Total Vehicle Trips[1]	**5086**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV.

	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	20
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for POR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V.

	Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]			
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	20	40	65

Notes:
1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.8409	19.9470	1.5658	0.0240	0.3870	0.0221	0.0983	0.3360	3.6403	0.2858	0.0044	0.0706	0.0040	0.0179
Vans	0.2702	3.4775	0.4073	0.0046	0.0800	0.0043	0.0213	0.0493	0.6346	0.0743	0.0008	0.0146	0.0008	0.0039
Single Unit Trucks	0.1499	3.6986	4.0625	0.0019	0.0475	0.0018	0.0132	0.0274	0.6750	0.7414	0.0003	0.0087	0.0003	0.0024
Tractor Trailer Trucks	0.0316	1.4488	1.5610	0.0007	0.0219	0.0006	0.0062	0.0058	0.2644	0.2849	0.0001	0.0040	0.0001	0.0011
Total	2.29	28.57	7.60	0.03	0.54	0.03	0.14	0.42	5.21	1.39	0.01	0.10	0.01	0.03

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.8409	19.9470	1.5658	0.0240	0.3870	0.0221	0.0983	0.3360	3.6403	0.2858	0.0044	0.0706	0.0040	0.0179
Vans	0.2702	3.4775	0.4073	0.0046	0.0800	0.0043	0.0213	0.0493	0.6346	0.0743	0.0008	0.0146	0.0008	0.0039
Single Unit Trucks - Idling	0.1239	3.2400	2.7344	0.0007	0.0000	0.0007	0.0000	0.0226	0.5913	0.4990	0.0001	0.0000	0.0001	0.0000
Single Unit Trucks	0.0260	0.4585	1.3281	0.0012	0.0475	0.0011	0.0132	0.0047	0.0837	0.2424	0.0002	0.0087	0.0002	0.0024
Tractor Trailer Trucks - Idling	0.0260	0.5350	0.3213	0.0002	0.0000	0.0002	0.0000	0.0048	0.0976	0.0586	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks	0.0056	0.9139	1.2396	0.0005	0.0219	0.0004	0.0062	0.0010	0.1668	0.2262	0.0001	0.0040	0.0001	0.0011
Total	2.29	28.57	7.60	0.03	0.54	0.03	0.14	0.42	5.21	1.39	0.01	0.10	0.01	0.03

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2543	184.15		1.7729	17.7529	1.4428	0.0132	0.0484	0.0122	0.0123	0.3235	3.2399	0.2633	0.0024	0.0088	0.0022	0.0022
Autos/Pickups - 10mph			1287.80	0.0680	2.1941	0.1230	0.0108	0.3385	0.0099	0.0860	0.0124	0.4004	0.0225	0.0020	0.0618	0.0018	0.0157
Vans - 5mph	448	67.54		0.2530	2.9691	0.3731	0.0023	0.0204	0.0021	0.0054	0.0462	0.5419	0.0681	0.0004	0.0037	0.0004	0.0010
Vans - 10mph			196.71	0.0171	0.5084	0.0343	0.0023	0.0595	0.0021	0.0159	0.0031	0.0928	0.0063	0.0004	0.0109	0.0004	0.0029
Single Unit Trucks - idling				0.1239	3.2400	2.7344	0.0007	0.0000	0.0007	0.0000	0.0226	0.5913	0.4990	0.0001	0.0000	0.0001	0.0000
Single Unit Trucks - 5mph	281	37.93		0.0200	0.3915	1.0947	0.0004	0.0141	0.0004	0.0039	0.0036	0.0715	0.1998	0.0001	0.0026	0.0001	0.0007
Single Unit Trucks - 10mph			90.08	0.0060	0.0670	0.2334	0.0008	0.0335	0.0007	0.0093	0.0011	0.0122	0.0426	0.0001	0.0061	0.0001	0.0017
Tractor Trailer Trucks - idling				0.0260	0.5350	0.3213	0.0002	0.0000	0.0002	0.0000	0.0048	0.0976	0.0586	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks - 5mph	91	12.86		0.0016	0.2555	0.8194	0.0001	0.0061	0.0001	0.0017	0.0003	0.0466	0.1495	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.14	0.0040	0.6584	0.4202	0.0003	0.0158	0.0003	0.0045	0.0007	0.1202	0.0767	0.0001	0.0029	0.0001	0.0008
Total	3363	302.48	1607.74	2.29	28.57	7.60	0.03	0.54	0.03	0.14	0.42	5.21	1.39	0.01	0.10	0.01	0.03

Notes:

1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
	Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:														
Autos/Pickups 365	Autos/Pickups	5	0.0297	0.3141	0.6762	3.1176	0.0400	0.2545	0.0047	0.0020	0.1192	0.0043	0.0019	0.0303
Vans 365	Autos/Pickups	10	0.0240	0.3141	0.7728	3.1176	0.0433	0.2545	0.0038	0.0020	0.1192	0.0035	0.0019	0.0303
Single Unit Trucks 365	Vans	5	0.0588	0.2473	1.2402	2.8191	0.0886	0.3644	0.0081	0.0011	0.1372	0.0074	0.0010	0.0366
Tractor Trailer Trucks 365	Vans	10	0.0395	0.2473	1.1724	2.8191	0.0791	0.3644	0.0054	0.0011	0.1372	0.0049	0.0010	0.0366
	Single Unit Trucks	5	0.0333	0.0278	0.3515	0.5846	1.3332	1.5871	0.0042	0.0001	0.1685	0.0040	0.0001	0.0468
	Single Unit Trucks	10	0.0302	0.0278	0.3374	0.5846	1.1751	1.5871	0.0038	0.0001	0.1685	0.0036	0.0001	0.0468
	Tractor Trailer Trucks	5	0.0554	0.0000	9.0107	0.0000	5.7514	3.2714	0.0045	0.0000	0.2158	0.0043	0.0000	0.0613
	Tractor Trailer Trucks	10	0.0554	0.0000	9.0107	0.0000	5.7514	3.2714	0.0045	0.0000	0.2158	0.0043	0.0000	0.0613

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	562	0.033	56.21	1469.65	1240.29	0.32	0.33
Tractor Trailer Trucks	182	0.033	11.81	242.65	145.76	0.09	0.10
Total			68.02	1712.31	1386.05	0.41	0.43

Emissions for truck idling using EMFAC 2011 idling emission rates provided in g/hr-vehicle (https://www.arb.ca.gov/msei/emfac2011_idling_emission_rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	Aggregated	GAS	1.01455	15.09226	0.08489	0.00000	0.00000
T6 instate small	Aggregated	DSL	0.17051	7.37266	9.44735	0.00244	0.00255
T7 Single	Aggregated	DSL	1.73220	30.63704	19.89762	0.00971	0.01027
T7 tractor	Aggregated	DSL	2.84183	58.39668	35.07782	0.02154	0.02298

*Source: EMFAC 2017

			Emission Factors (g/vehicle/idle-hr)				
Vehicle Category	idle--hour factor	Trips per Floor	ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	0.098	98.1709915	10.35257	154.00267	0.86625	0.00000	0.00000
T6 instate small	0.098	373.9434332	1.73994	75.23118	96.40152	0.02489	0.02606
T7 Single	0.79	89.88557534	0.21584	9.33248	11.95867	0.00309	0.00323
Single Unit Truck Weighted Average	-	-	3.00064	78.45133	66.20759	0.01706	0.01785
T7 tractor	1.46	-	1.94646	39.99772	24.02590	0.01476	0.01574

*Source: For T6TS and T instate small, Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf); for T7 Single and T7 Tractor, idle-hour factors updated to EMFAC2021 documentation Tabemation 4.4.2-5, as updated data was provided for EMFAC2021 for these vehicle categories.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Total Internal Building VMT Estimate

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.51	5.23	15.05	3.45	**63.25**
2nd	47.76	31.55	11.62	4.78	**95.71**
3rd	46.33	30.61	11.28	4.63	**92.85**
4th/Roof	50.52	0.15	0.00	0.00	**50.67**
Total	**184.15**	**67.54**	**37.93**	**13.06**	**302.48**

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	56.28	7.45	21.39	4.91	**287.14**
2nd	143.29	94.66	34.87	14.33	**978.88**
3rd	139.00	91.83	33.83	13.90	**953.04**
4th/Roof	949.28	2.78	0.00	0.00	**1607.74**
Total	**1287.80**	**196.71**	**90.08**	**33.14**	**0.00**

On-Site Mobile

Total Daily Internal Building Vehicle Activity

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	89.60	63616.00	8422.40	24192.00	8555.20	**154037.10**
2nd	126.20	76865.67	50779.46	18705.04	7687.00	**154439.19**
3rd	126.20	74565.73	49260.68	18145.36	7457.00	**81548.96**
4th/Roof	25.60	81367.34	237.92	0.00	0.00	**496796.33**
Total	**367.60**	**296844.74**	**108699.86**	**61043.40**	**23699.20**	**871806.81**

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.50	90525.00	11985.00	34425.00	7905.00	**144840.00**
2nd	378.60	230597.01	152338.39	56115.12	23061.01	**462111.53**
3rd	378.60	225897.26	147780.23	54436.08	22370.99	**449884.57**
4th/Roof	481.00	1527988.68	4470.25	0.00	0.00	**1532180.93**
Total	**1365.70**	**2074807.95**	**316575.87**	**144976.20**	**53337.00**	**2587016.03**

	Total Daily Vehicle Activity (Trips) per Floor				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	710	94	270	62	**1136**
2nd	609	402	148	61	**1221**
3rd	591	396	144	59	**1164**
4th/Roof	3176	5	9	0	**3185**
Total	**5086**	**896**	**569**	**182**	**6726**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	174.4	178	170.4	171.7	178.7	170.7

[1]Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

	Total Daily Vehicle Trips by Land Use and Vehicle Type				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3182				
Visiting Workers Maker and Manufacturing	90	20	22	2	134
Visiting Workers Parcel and Last Mile Delivery	1,214	802	292	120	2428
Visiting Workers Wholesale and Storage	242	60	242	60	604
ne Workers General Retail / Café /Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[2]	**5086**	**896**	**562**	**182**	6726

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

	% Vehicle Activity Per Floor			
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	14%	10%	48%	34%
2nd	12%	45%	26%	33%
3rd	12%	44%	26%	32%
4th/Roof	62%	1%	0%	0%
Total	100%	100%	100%	100%

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pickup Per Level	355	305	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total
PDR Uses					
Manufacturing & Maker Space	35,000	-	-	-	35000
Parcel Delivery/Last Mile	-	381,000	369,600	8,800	759400
Wholesale and Storage	372,400	-	-	-	372400
Retail	8,400	-	-	-	8400
Logistics Yard	-	72,400	73,400	-	145800
Vehicle Circulation	13,800	112,800	95,400	17,600	239600
Parking	111,800	-	-	487,600	599400
Total					2160000

Step 2 - Estimated % Use per Floor

Sq Ft Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Parcel Delivery/Last Mile	0.0%	50.17%	48.67%	1.2%	Utilize Level 2 and 3 Logistics Yard and Parking and small area of L4 parking (assume autos/pickups and vans only)
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Retail Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitiie Ground Level Logistics and Parking

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickups	Van	MT	HT
PDR	4576	882	556	182
On-site Worker	3030	0	0	0
Visiting Worker	1546	882	556	182
Manufacturing & Maker Space	*90*	*20*	*22*	*2*
Parcel Delivery/Last Mile	*1214*	*802*	*292*	*120*
Wholesale and Storage	*242*	*60*	*242*	*60*
Retail/QSR	510	14	6	0
On-site Worker	132	0	0	0
Visiting Worker/Consumer	378	14	6	0

Source: Dec 10 2021 Traffic Demand Memo - Table 11 and page A-79 for worker trip data

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & van)	206	506	491	1327
PDR Auto/Pickup	*166*	*305*	*295*	*1322*
PDR Van	*40*	*201*	*195*	*5*
PDR MT	132	74	72	0
PDR HT	31	30	30	0
Retail Auto	196	0	0	66
Retail Auto/Pickup	*189*	*0*	*0*	*66*
Retail Van	*7*	*0*	*0*	*0*
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	402	506	491	1393
Total Daily Auto/Pickup Per Level	*355*	*305*	*295*	*1588*
Total Daily Van Per Level	*47*	*201*	*195*	*5*
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Mobile Trip Data (per Adavant December 10, 2021, Trip Generation Memorandum)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	3354	0	802	292	120	4568
Wholesale and Storage	1044	0	60	242	60	1406
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5086	0	896	562	182	6726
% of Total Trips	76%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		40	840	300	1180	75	1105	15
SD2	6		48	1308	504	1860	126	1734	21
SD3	2		44	1016	384	1444	96	1348	48
SD4	7		42	1176	434	1652	108	1544	15
East Bay	28		337	8134	3029	11500	755	10745	27
North Bay	28		166	3496	1332	4994	332	4662	12
South Bay	22		518	13217	4967	18702	1239	17463	56
Out of Region	65		129	3229	1162	4520	290	4230	4
			1324	32416	12112	45852	3021	42831	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-9105	4840	-2465	4000	-6465	200	24280	30920
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-6015	1800	-3615	4610	-8225	154	24060	26460
SU Trucks	40	-7.5	880	-2190	9680	8370	5293	3077	132	11680	22240
Tractor Trailers	65	7.5	130	900	3900	4930	888	4042	14	7800	11830
Total Non-Commuter VMT	N/A	N/A	3410	-16410	20220	7220	16127	-8291		67820	91450

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	88	2140	802	0	26	106	0	0	3162
Non-work	134	2428	604	0	132	266	0	0	3564
Total	222	4568	1406	0	158	372	0	0	6726

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e. Miscellaneous Process Methodology 7.9. Entrained Road Travel, Paved Road Dust. Available: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

SFG Operational Emission Factors in Year 2025

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.
Average Fleet Mix for Autos/Pickups and Vans; Model Year 2016+ for SU and TT Trucks

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Autos / Pickups (Average Fleet Mix in 2025)																																						
LDA	Gasoline	1.27E+05	4.52E+06	57.50%	5.87E+05	0.572291881	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03	9.15E-02	2.36E-01	1.39E+00	1.44E-02	0.00E+00	3.49E-01	9.15E-02	2.36E-01	1.39E+00	3.63E-02	2.82E-03	0.00E+00	6.80E-04
LDA	Diesel	5.23E+02	1.31E+04	0.17%	2.18E+03	0.002128532	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03	0.00E+00	0.00E+00	0.00E+00	4.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	2.43E-03	0.00E+00	0.00E+00
LDA	Electricity	1.01E+04	4.65E+05	5.91%	4.96E+04	0.048376309	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDA	Plug-in Hybr	3.90E+03	1.73E+05	2.20%	1.61E+04	0.015742545	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03	4.10E-02	3.69E-02	4.14E-01	2.73E-03	0.00E+00	1.92E-01	4.10E-02	3.69E-02	4.14E-01	1.92E-02	1.52E-03	0.00E+00	6.32E-04
LDT1	Gasoline	1.29E+04	3.90E+05	4.96%	5.78E+04	0.056374898	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03	1.36E-01	3.72E-01	2.09E+00	3.11E-02	0.00E+00	4.87E-01	1.36E-01	3.72E-01	2.09E+00	3.51E-02	3.39E-03	0.00E+00	8.24E-04
LDT1	Diesel	7.46E+00	6.96E+01	0.00%	2.07E+01	2.01909E-05	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03	0.00E+00	0.00E+00	0.00E+00	3.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	4.38E-03	0.00E+00	0.00E+00
LDT1	Electricity	3.98E+01	1.69E+03	0.02%	1.90E+02	0.000184902	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	Plug-in Hybr	2.17E+01	9.68E+02	0.01%	8.97E+01	8.74857E-05	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03	2.41E-02	2.04E-02	2.69E-01	2.47E-03	0.00E+00	1.92E-01	2.41E-02	2.04E-02	2.69E-01	1.82E-02	1.37E-03	0.00E+00	6.71E-04
LDT2	Gasoline	6.51E+04	2.25E+06	28.58%	3.06E+05	0.298661515	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03	7.35E-02	1.90E-01	1.16E+00	1.61E-02	0.00E+00	3.79E-01	7.35E-02	1.90E-01	1.16E+00	3.74E-02	3.49E-03	0.00E+00	8.34E-04
LDT2	Diesel	3.24E+02	1.10E+04	0.14%	1.52E+03	0.001481988	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03	0.00E+00	0.00E+00	0.00E+00	2.60E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	3.24E-03	0.00E+00	0.00E+00
LDT2	Electricity	4.71E+02	1.66E+04	0.21%	2.39E+03	0.002334765	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	Plug-in Hybr	5.74E+02	2.43E+04	0.31%	2.37E+03	0.002314988	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03	2.64E-02	2.35E-02	2.95E-01	2.60E-03	0.00E+00	1.92E-01	2.64E-02	2.35E-02	2.95E-01	1.92E-02	1.44E-03	0.00E+00	7.35E-04
		Total:	7,865,720	100.00%	1,025,014	100.00%																																
			Weighted Average Emission Factors*:				0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336													
Vans (Average Fleet Mix in 2025)																																						
LHD1	Gasoline	4.93E+03	1.92E+05	0.133831463	7.34E+04	0.291416019	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02	3.82E-02	1.99E-01	2.04E+00	4.52E-02	5.99E-01	1.62E-01	3.82E-02	1.99E-01	2.04E+00	4.49E-02	8.41E-03	1.17E-03	2.57E-04
LHD1	Diesel	1.65E+03	7.41E+04	0.051559856	2.07E+04	0.082167076	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02	0.00E+00	0.00E+00	0.00E+00	1.41E-01	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-01	5.95E-03	1.19E-03	0.00E+00
LHD1	Electricity	4.32E+01	2.97E+03	0.002068626	6.04E+02	0.002396665	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHD2	Gasoline	6.13E+02	2.32E+04	0.016143793	9.13E+03	0.036265738	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02	3.74E-02	1.91E-01	2.02E+00	3.17E-02	5.86E-01	1.56E-01	3.74E-02	1.91E-01	2.02E+00	4.50E-02	9.49E-03	1.35E-03	2.51E-04
LHD2	Diesel	9.98E+02	4.17E+04	0.029016308	1.26E+04	0.049835349	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02	0.00E+00	0.00E+00	0.00E+00	1.43E-01	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-01	7.19E-03	1.96E-03	0.00E+00
LHD2	Electricity	1.11E+01	7.26E+02	0.000505054	1.47E+02	0.000583911	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	Gasoline	2.73E+04	1.05E+06	0.731946692	1.29E+05	0.512847782	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03	7.42E-02	2.00E-01	1.21E+00	1.93E-02	0.00E+00	4.23E-01	7.42E-02	2.00E-01	1.21E+00	3.79E-02	4.13E-03	0.00E+00	9.87E-04
MDV	Diesel	4.99E+02	1.83E+04	0.012720205	2.33E+03	0.009269402	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03	0.00E+00	0.00E+00	0.00E+00	2.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	4.17E-03	0.00E+00	0.00E+00
MDV	Electricity	5.01E+02	1.77E+04	0.012334724	2.55E+03	0.010113428	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	Plug-in Hybr	3.11E+02	1.42E+04	0.009873279	1.29E+03	0.005104629	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03	2.81E-02	2.41E-02	3.02E-01	2.59E-03	0.00E+00	1.92E-01	2.81E-02	2.41E-02	3.02E-01	1.91E-02	1.44E-03	0.00E+00	8.96E-04
		Total:	1,436,619	100.00%	251,880	100.00%																																
			Weighted Average Emission Factors*:				0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954													
Single Unit Trucks (Average Fleet Mix in 2025)																																						
T6TS	Gasoline	6.20E+02	2.99E+04	2.07E-01	1.24E+04	2.64E-01	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02	3.34E-02	2.55E-01	2.51E+00	8.75E-02	1.49E+00	2.70E-01	3.34E-02	2.55E-01	2.51E+00	4.50E-02	1.79E-02	5.36E-03	4.53E-04
T6TS	Electricity	3.04E+00	2.68E+02	1.86E-03	6.08E+01	1.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
T6 instate small	Diesel	2.38E+03	9.10E+04	6.32E-01	3.06E+04	6.51E-01	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02	0.00E+00	0.00E+00	0.00E+00	3.28E-02	2.56E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-01	1.09E-02	2.01E-02	0.00E+00
T6 instate small	Electricity	1.86E+01	8.18E+02	5.68E-03	2.39E+02	5.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
T6 instate small	Natural Gas	9.61E+00	3.95E+02	2.74E-03	1.25E+02	2.66E-03	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02	0.00E+00	0.00E+00	0.00E+00	7.67E-01	1.33E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00
T7 Single	Diesel	3.55E+02	2.02E+04	1.40E-01	3.34E+03	7.11E-02	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02	0.00E+00	0.00E+00	0.00E+00	1.47E-02	2.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-01	1.57E-02	4.25E-02	0.00E+00
T7 Single	Electricity	3.20E+00	2.38E+02	1.65E-03	3.01E+01	6.40E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
T7 Single	Natural Gas	2.20E+01	1.32E+03	9.19E-03	2.07E+02	4.41E-03	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02	0.00E+00	0.00E+00	0.00E+00	1.08E+00	3.12E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00
		Total:	144,107	100.00%	47,006	100.00%																																
			Weighted Average Emission Factors*:				0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777													
Tractor Trailer Trucks (Average Fleet Mix in 2025)																																						
T7 tractor	Diesel	1.45E+02	1.14E+04	8.35E-01	2.11E+03	1.55E-01	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	2.35E-02	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02	0.00E+00	0.00E+00	0.00E+00	1.59E-02	3.93E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-01	1.47E-02	7.85E-02	0.00E+00
T7 tractor	Electricity	7.43E-01	6.45E+01	4.74E-03	1.08E+01	7.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
T7 tractor	Natural Gas	2.83E+01	2.18E+03	1.60E-01	4.11E+02	3.02E-02	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	1.36E-03	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02	0.00E+00	0.00E+00	0.00E+00	1.02E+00	6.72E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00
		Total:	13,619		2,531	18.59%																																
			Weighted Average Emission Factors*:				0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738													

*Calculated

Single Unit Trucks (2016+ Model Year)																																						
T6TS	Electricity	1.4513465	125.560821	0.001361244	29.03854037	0.001120762	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	1.5879566	142.789926	0.00154803	31.7718351	0.001226255	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Gasoline	17.751833	1071.6681	0.011618287	355.1786657	0.013708359	0.007610445	1.028580008	0.16428934	0.1727367	15.30093521	3.297210955	0.068273288	0.08955589	0.36893536	0.001306415	0	0.000449664	0.012000003	0.04501744	0.0012012	0	0.000413449	0.003000001	0.015756104	0.010515	0.040514	0.486123	0.011105	1.500902	0.179876	0.010515	0.040514	0.486123	0.045	0.018206	0.005312	0.000418
T6TS	Gasoline	57.541922	3653.23023	0.039605806	1151.298776	0.044435149	0.009139411	1.028580008	0.16249147	0.1622568	15.30093521	3.236748371	0.092418764	0.08955589	0.3076774	0.001403701	0	0.000484921	0.012000003	0.04501744	0.001290651	0	0.000445867	0.003000001	0.015756104	0.010515	0.040514	0.486123	0.013336	1.500902	0.177908	0.010515	0.040514	0.486123	0.045	0.017517	0.005122	0.000403
T6TS	Gasoline	36.39555	2426.05435	0.026301611	728.2021684	0.028105451	0.011044962	1.028580008	0.158102	0.1622451	15.30093521	3.247786163	0.081240259	0.08955589	0.30388532	0.001462073	0	0.000506075	0.012000003	0.04501744	0.001344322	0	0.000465317	0.003000001	0.015756104	0.007271	0.040175	0.412113	0.016117	1.500902	0.173102	0.007271	0.040175	0.412113	0.045	0.017517	0.005122	0.000403
T6TS	Gasoline	11.238006	785.300202	0.008513684	224.8500238	0.008678238	0.010021723	1.028580008	0.15252683	0.155967	15.30093521	3.20396379	0.078179566	0.08955589	0.34210079	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.007271	0.040175	0.412113	0.014624	1.500902	0.166998	0.007271	0.040175	0.412113	0.045	0.017517	0.005122	0.000402
T6TS	Gasoline	13.127356	959.944412	0.010407056	262.6521398	0.010137236	0.009760219	1.028580008	0.14825365	0.1541512	15.30093521	3.199367289	0.07818634	0.08955589	0.33160526	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004671	0.039858	0.347706	0.014242	1.500902	0.162319	0.004671	0.039858	0.347706	0.045	0.017517	0.005122	0.000402
T6TS	Gasoline	15.846599	1211.04708	0.013129338	317.058754	0.012237095	0.010118206	1.028580008	0.14854934	0.1546272	15.30093521	3.284848681	0.078715382	0.08955589	0.33883436	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004671	0.039858	0.347706	0.014764	1.500902	0.162643	0.004671	0.039858	0.347706	0.045	0.015843	0.004659	0.00037
T6TS	Gasoline	18.34952	1463.44176	0.015865628	367.1371987	0.014169907	0.011190723	1.028580008	0.15681711	0.1594968	15.30093521	3.476903946	0.083933622	0.08955589	0.36214083	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0.016329	1.500902	0.171695	0.004542	0.03954	0.287482	0.045	0.015843	0.004659	0.000374
T6TS	Gasoline	18.486126	1536.51266	0.016657812	369.8704022	0.014275396	0.01281068	1.028580008	0.17470588	0.1708026	15.30093521	3.828282589	0.09461739	0.08955589	0.4114665	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0.018693	1.500902	0.191281	0.004542	0.03954	0.287482	0.045	0.015843	0.004659	0.00038
T6TS	Gasoline	16.79445	1452.94381	0.015751816	336.0233475	0.012969047	0.014691638	1.028580008	0.19435991	0.1828071	15.30093521	4.2312704	0.106633233	0.08955589	0.4678072	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0.021438	1.500902	0.2128	0.004542	0.03954	0.287482	0.045	0.015692	0.004618	0.000384
T6TS	Gasoline	14.280219	1284.0851	0.013921166	285.7186152	0.011027502	0.014002081	1.028580008	0.17715892	0.1698896	15.30093521	4.085580745	0.075573936	0.03583985	0.33582773	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0.020432	1.500902	0.193967	0.004542	0.03954	0.287482	0.045	0.015723	0.004626	0.000381
T6 instate small	Diesel	330.13075	12376.9673	0.134182556	4293.569875	0.165713211	0.005853574	0.17221846	0	0.047982	7.292564252	0	0.377863349	9.96857529	1.73311691	0.002701717	0.002488229	0	0.012000003	0.046114101	0.002584842	0.00238059	0	0.003000001	0.016139935	0	0	0	0.006664	0.196058	0	0	0	0	0.22	0.011621	0.020418	0
T6 instate small	Diesel	249.21792	9813.44594	0.106390623	3189.439169	0.123098545	0.005666127	0.173174988	0	0.0459995	7.333068297	0	0.363590593	10.0239423	1.75059189	0.002744167	0.002502049	0	0.012000003	0.045911372	0.002625456	0.00239381	0	0.003000001	0.01606898	0	0	0	0.00645	0.197147	0	0	0	0	0.22	0.011158	0.019755	0
T6 instate small	Diesel	150.46758	6232.56012	0.067569125	1888.454667	0.072886175	0.005463072	0.174312564	0	0.043863	7.381238747	0	0.347787986	10.0897889	1.77212804	0.002788713	0.002518485	0	0.012000003	0.045684558	0.002668074	0.00240954	0	0.003000001	0.015989595	0	0	0	0.006219	0.198442	0	0	0	0	0.22	0.011132	0.019885	0
T6 instate small	Diesel	243.97919	10042.1103	0.108869645	3140.211032	0.121198552	0.00534387	0.172838972	0	0.04355	7.318839742	0	0.349334027	10.0044926	1.74438884	0.002581325	0.002497194	0	0.012000003	0.045991407	0.002469658	0.00238917	0	0.003000001	0.016096992	0	0	0	0.006084	0.196764	0	0	0	0	0.22	0.011168	0.019716	0
T6 instate small	Diesel	122.45449	5162.26444	0.055965716	1579.127226	0.060947475	0.005160567	0.172724809	0	0.0421189	7.314005511	0	0.339871168	9.99788443	1.74229731	0.002497723	0.002495545	0	0.012000003	0.046022695	0.002389672	0.00238759	0	0.003000001	0.016107943	0	0	0	0.005875	0.196634	0	0	0	0	0.22	0.011171	0.019703	0
T6 instate small	Diesel	37.340405	1423.75006	0.015435318	532.2617423	0.020542999	0.005207166	0.166472794	0	0.0454149	7.049264894	0	0.375710505	9.63599708	1.63887411	0.001775209	0.002405215	0	0.012000003	0.047538325	0.001698415	0.00230117	0	0.003000001	0.016638414	0	0	0	0.005928	0.189517	0	0	0	0	0.22	0.010264	0.017175	0
T6 instate small	Diesel	22.931135	943.476353	0.010228521	315.5612827	0.012179299	0.00489029	0.168741582	0	0.0416408	7.145336395	0	0.341784997	9.76732208	1.67404442	0.001955721	0.002437995	0	0.012000003	0.046961665	0.001871117	0.00233253	0	0.003000001	0.016436583	0	0	0	0.005567	0.192099	0	0	0	0	0.22	0.010203	0.017409	0
T6 instate small	Diesel	137.67069	6247.85429	0.067734934	1767.977224	0.068236268	0.00451246	0.172971226	0	0.0368112	7.324439998	0	0.291383815	10.0121479	1.7468219	0.002245261	0.002499105	0	0.012000003	0.046012372	0.002148132	0.002391	0	0.003000001	0.01610433	0	0	0	0.005137	0.196915	0	0	0	0	0.22	0.010102	0.017845	0
T6 instate small	Diesel	78.74668	3635.07491	0.039408979	1017.865544	0.039285204	0.004284489	0.172585859	0	0.0351173	7.308121693	0	0.273015617	9.98984154	1.7397625	0.002123232	0.002493537	0	0.012000003	0.046112384	0.002031381	0.00238567	0	0.003000001	0.016139334	0	0	0	0.004878	0.196476	0	0	0	0	0.22	0.010016	0.017635	0
T6 instate small	Diesel	85.64919	4069.309	0.044116646	1095.7585	0.042291535	0.004013493	0.173194439	0	0.0327243	7.33389193	0	0.207489419	4.01198571	1.33624048	0.002076609	0.00250233	0	0.012000003	0.046001813	0.001986776	0.00239408	0	0.003000001	0.016100634	0	0	0	0.004569	0.197169	0	0	0	0	0.22	0.010024	0.017733	0
T6 instate small	Diesel	15.033461	297.399027	0.003224195	192.5518484	0.007431668	0.003746583	0.173127012	0	0.0305689	7.331036766	0	0.165335768	4.02425021	1.33623888	0.001977523	0.002501356	0	0.012000003	0.046016153	0.001891976	0.00239315	0	0.003000001	0.016105654	0	0	0	0.004265	0.197092	0	0	0	0	0.22	0.010024	0.017723	0
T6 instate small	Electricity	6.9026888	318.639351	0.003454468	89.22292506	0.003443619	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023056192	0	0	0	0.003000001	0.008069667	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	9.6606809	458.992033	0.004976076	123.5945517	0.004770215	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023000906	0	0	0	0.003000001	0.008050317	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	2.0453363	40.4618087	0.000438659	26.19711344	0.001011095	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023008076	0	0	0	0.003000001	0.008052827	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Natural Gas	1.7551861	73.9926692	0.000802178	22.63422185	0.000873583	0.01104468	0.168907164	0	3.164078	38.86904004	0	0.0551576	5.13888139	0	0.001756181	0.021178567	0	0.012000003	0.046022695	0.001614743	0.01947291	0	0.003000001	0.016107943	0	0	0	0.788906	12.0648	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.535214	20.4071428	0.00022124	7.629106863	0.00029445	0.012453684	0.162793334	0	3.8084311	37.462121	0	0.059559189	4.95287242	0	0.002014254	0.020411979	0	0.012000003	0.047538325	0.001852032	0.01876806	0	0.003000001	0.016638414	0	0	0	0.889549	11.6281	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.3286805	13.5231999	0.000146609	4.52305803	0.00017457	0.011917592	0.165011977	0	3.5632704	37.97267667	0	0.057884491	5.02037306	0	0.001916063	0.020690165	0	0.012000003	0.046961665	0.001761749	0.01902384	0	0.003000001	0.016436583	0	0	0	0.851257	11.78657	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.9732856	89.5528351	0.00097087	25.3410796	0.000978056	0.011035083	0.169148135	0	3.1596892	38.92449235	0	0.05512762	5.14621275	0	0.001754423	0.021208781	0	0.012000003	0.046012372	0.001613127	0.01950069	0	0.003000001	0.01610433	0	0	0	0.78822	12.08201	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.1287057	52.1028898	0.000564864	14.58944799	0.00056309	0.011128059	0.168771285	0	3.2022082	38.83777149	0	0.055418068	5.13474737	0	0.001771452	0.021161529	0	0.012000003	0.046112384	0.001628785	0.01945725	0	0.003000001	0.016139334	0	0	0	0.794861	12.05509	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.2276419	58.3269297	0.00063234	15.70591689	0.00060618	0.011025266	0.169366414	0	3.1552001	38.97472304	0	0.055096955	5.15285375	0	0.001752625	0.02123615	0	0.012000003	0.046001813	0.001611474	0.01952586	0	0.003000001	0.016100634	0	0	0	0.787519	12.0976	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.2154802	4.26273162	4.62136E-05	2.759917747	0.000106521	0.011038598	0.169300478	0	3.1612967	38.95954976	0	0.055138601	5.15084769	0	0.001755067	0.021227883	0	0.012000003	0.046016153	0.001613719	0.01951825	0	0.003000001	0.016105654	0	0	0	0.788471	12.09289	0	0	0	0	1.06	0	0	0
T7 Single	Diesel	22.347799	1263.20564	0.013694806	210.51627	0.008125017	0.008996484	1.862836709	0	0.0779369	27.52493933	0	1.150390912	22.0130237	3.72417628	0.019941147	0.007927905	0	0.03600001	0.080354522	0.019078502	0.00758495	0	0.009000003	0.028124083	0	0	0	0.010242	2.120698	0	0	0	0	0.22	0.015991	0.043212	0
T7 Single	Diesel	20.35621	1260.59332	0.013666485	191.7554946	0.007400932	0.008922725	1.862836709	0	0.0451272	27.52493933	0	1.1138009	22.0130237	3.72417628	0.015604284	0.007927905	0	0.03600001	0.080354522	0.014929249	0.00758495	0	0.009000003	0.028124083	0	0	0	0.010158	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	24.736569	1629.44435	0.017665313	233.0184778	0.008993505	0.008758698	1.862836709	0	0.0442976	27.52493933	0	1.074431846	22.0130237	3.72417628	0.01494539	0.007927905	0	0.03600001	0.080354522	0.014298859	0.00758495	0	0.009000003	0.028124083	0	0	0	0.009971	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	53.350917	3582.00631	0.038833646	502.5656373	0.019396858	0.008596202	1.862836709	0	0.0434758	27.52493933	0	1.031890617	22.0130237	3.72417628	0.01429265	0.007927905	0	0.03600001	0.080354522	0.013674356	0.00758495	0	0.009000003	0.028124083	0	0	0	0.009786	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	16.738956	1048.0593	0.011362337	157.680963	0.006085803	0.008436171	1.862836709	0	0.0426664	27.52493933	0	0.985616544	22.0130237	3.72417628	0.013649809	0.007927905	0	0.03600001	0.080354522	0.013059324	0.00758495	0	0.009000003	0.028124083	0	0	0	0.009604	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	11.39399	701.660041	0.007606915	107.3313887	0.004142527	0.008279536	1.862836709	0	0.0418742	27.52493933	0	0.93477361	22.0130237	3.72417628	0.013020609	0.007927905	0	0.03600001	0.080354522	0.012457343	0.00758495	0	0.009000003	0.028124083	0	0	0	0.009426	2.120698	0	0	0	0	0.22	0.014557	0.036839	0
T7 Single	Diesel	13.152643	878.165501	0.009520466	123.8979005	0.004781923	0.008127229	1.862836709	0	0.0411039	27.52493933	0	0.878035083	22.0130237	3.72417628	0.012408796	0.007927905	0	0.03600001	0.080354522	0.011871997	0.00758495	0	0.009000003	0.028124083	0	0	0	0.009252	2.120698	0	0	0	0	0.22	0.014557	0.036839	0
T7 Single	Diesel	12.655033	881.478075	0.009556378	119.2104116	0.004601006	0.007980183	1.862836709	0	0.0403602	27.52493933	0	0.779915709	22.0130237	3.72417628	0.011561693	0.007927905	0	0.03600001	0.080354522	0.01106154	0.00758495	0	0.009000003	0.028124083	0	0	0	0.009085	2.120698	0	0	0	0	0.22	0.014557	0.036839	0
T7 Single	Diesel	11.626534	848.450547	0.009198317	109.5219476	0.004227073	0.007839328	1.862836709	0	0.0396478	27.52493933	0	0.705409905	22.0130237	3.72417628	0.011074191	0.007927905	0	0.03600001	0.080354522	0.010595126	0.00758495	0	0.009000003	0.028124083	0	0	0	0.008924	2.120698	0	0	0	0	0.22	0.014388	0.036411	0
T7 Single	Diesel	15.631953	1292.32499	0.014010498	147.2529968	0.005683328	0.007705598	1.862836709	0	0.0389715	27.52493933	0	0.519345848	9.00190849	2.85495971	0.010619983	0.007927905	0	0.03600001	0.080354522	0.010160567	0.00758495	0	0.009000003	0.028124083	0	0	0	0.008772	2.120698	0	0	0	0	0.22	0.014432	0.036524	0
T7 Single	Diesel	2.4522559	84.6848635	0.000918095	23.10025017	0.00089157	0.007579924	1.862836709	0	0.0383359	27.52493933	0	0.346095592	9.03573993	2.85721985	0.010198753	0.007927905	0	0.03600001	0.088782956	0.009757559	0.00758495	0	0.009000003	0.031074035	0	0	0	0.008629	2.120698	0	0	0	0	0.22	0.014429	0.036518	0
T7 Single	Electricity	1.0327469	75.3650801	0.000817056	9.728475492	0.000375477	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.040177261	0	0	0	0.009000003	0.014062041	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	1.8183217	150.324315	0.001629713	17.12859077	0.000661089	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.040177261	0	0	0	0.009000003	0.014062041	0	0	0	0	0	0	0	0	0	0	0	0	0

T7 Single	Electricity	0.3439648	11.8782916	0.000128776	3.240148199	0.000125056	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Natural Gas	1.3223254	74.7442225	0.000810325	12.45630514	0.000480759	0.015036674	0.529766074	0	10.517992	37.73676384	0	0.630674988	12.2227199	0	0.001204742	0.023559502	0	0.03600001	0.080354522	0.001107716	0.02166209	0	0.009000003	0.028124083	0	0	0	1.074048	37.84043	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	1.6428098	101.733824	0.001102928	15.47526819	0.000597278	0.015191813	0.529766074	0	7.0465433	37.73676384	0	0.451204472	12.2227199	0	0.001730339	0.023559502	0	0.03600001	0.080354522	0.001590983	0.02166209	0	0.009000003	0.028124083	0	0	0	1.085129	37.84043	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	6.4111522	422.314666	0.004578445	60.39305413	0.00233091	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	1.3920785	93.464823	0.001013281	13.11337958	0.00050612	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	1.0298031	64.4780189	0.000699026	9.700745088	0.000374407	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7009736	43.1670702	0.000467988	6.603171506	0.000254854	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.8091683	54.0259237	0.000585712	7.622365614	0.00029419	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7785547	54.2297177	0.000587921	7.333984982	0.00028306	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.71528	52.1978197	0.000565893	6.737937639	0.000260055	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.9616988	79.5055727	0.000861945	9.059202573	0.000349646	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.1508661	5.20992679	5.64824E-05	1.421158484	5.48506E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
		Total:	92,240	100.00%	25,910	100.00%																																
			Weighted Average Emission Factors*:				0.00674		0.02775	0.12816		0.58459	0.37513		1.58713	0.00397		0.00009	0.01584	0.05098	0.00379		0.00008	0.00396	0.01784													

Tractor Trailer Trucks (2016+ Model Year)

T7 Tractor	Diesel	10.328636	775.162071	0.081071415	150.0750881	0.089689612	0.010144569	3.456342696	0	0.0829015	51.07029647	0	1.3398114	40.8433834	4.37918473	0.028632315	0.014709587	0	0.03600001	0.078374803	0.027393694	0.01407326	0	0.009000003	0.027431181	0	0	0	0.011549	3.934783	0	0	0	0	0.22	0.01533	0.080176	0
T7 Tractor	Diesel	13.201504	1024.59028	0.107158216	191.8178543	0.114636408	0.010187129	3.456342696	0	0.047267	51.07029647	0	1.31383046	40.8433834	4.37918473	0.022553715	0.014709587	0	0.03600001	0.078374803	0.021578051	0.01407326	0	0.009000003	0.027431181	0	0	0	0.011597	3.934783	0	0	0	0	0.22	0.015938	0.077869	0
T7 Tractor	Diesel	8.7871358	705.463009	0.073781841	127.6770827	0.076303857	0.009971413	3.456342696	0	0.0462661	51.07029647	0	1.283513495	40.8433834	4.37918473	0.021636812	0.014709587	0	0.03600001	0.078374803	0.020700813	0.01407326	0	0.009000003	0.027431181	0	0	0	0.011352	3.934783	0	0	0	0	0.22	0.015571	0.077869	0
T7 Tractor	Diesel	11.345991	942.463088	0.098568828	164.8572428	0.098523895	0.009733459	3.456342696	0	0.0451621	51.07029647	0	1.248192438	40.8433834	4.37918473	0.020625392	0.014709587	0	0.03600001	0.078374803	0.019733147	0.01407326	0	0.009000003	0.027431181	0	0	0	0.011081	3.934783	0	0	0	0	0.22	0.015571	0.077869	0
T7 Tractor	Diesel	9.7050109	834.223419	0.08724843	141.0138085	0.084274306	0.009473269	3.456342696	0	0.0439548	51.07029647	0	1.206934517	40.8433834	4.37918473	0.019519454	0.014709587	0	0.03600001	0.078374803	0.018675051	0.01407326	0	0.009000003	0.027431181	0	0	0	0.010785	3.934783	0	0	0	0	0.22	0.015571	0.077869	0
T7 Tractor	Diesel	8.510154	757.066913	0.079178908	123.652537	0.073898661	0.009190842	3.456342696	0	0.0426444	51.07029647	0	1.15838333	40.8433834	4.37918473	0.018318998	0.014709587	0	0.03600001	0.078374803	0.017526526	0.01407326	0	0.009000003	0.027431181	0	0	0	0.010463	3.934783	0	0	0	0	0.22	0.013377	0.068352	0
T7 Tractor	Diesel	7.6004194	699.793305	0.073188867	110.4340938	0.065998902	0.008886178	3.456342696	0	0.0412308	51.07029647	0	1.100449739	40.8433834	4.37918473	0.017024024	0.014709587	0	0.03600001	0.078374803	0.016287572	0.01407326	0	0.009000003	0.027431181	0	0	0	0.010116	3.934783	0	0	0	0	0.22	0.013377	0.068352	0
T7 Tractor	Diesel	6.4864244	618.128293	0.064647817	94.24774596	0.05632543	0.008559277	3.456342696	0	0.039714	51.07029647	0	1.020581645	40.8433834	4.37918473	0.015472071	0.014709587	0	0.03600001	0.078374803	0.014802757	0.01407326	0	0.009000003	0.027431181	0	0	0	0.009744	3.934783	0	0	0	0	0.22	0.013377	0.068352	0
T7 Tractor	Diesel	5.7531155	567.421391	0.059344564	83.5927679	0.049957678	0.00821014	3.456342696	0	0.038094	51.07029647	0	0.930480845	40.8433834	4.37918473	0.014023138	0.014709587	0	0.03600001	0.078374803	0.013416503	0.01407326	0	0.009000003	0.027431181	0	0	0	0.009347	3.934783	0	0	0	0	0.22	0.012741	0.066056	0
T7 Tractor	Diesel	3.9701858	405.242968	0.042382906	57.68679965	0.034475453	0.007838765	3.456342696	0	0.0363709	51.07029647	0	0.702801704	16.8094587	3.36162669	0.012496747	0.014709587	0	0.03600001	0.078374803	0.011956143	0.01407326	0	0.009000003	0.027431181	0	0	0	0.008924	3.934783	0	0	0	0	0.22	0.012756	0.066131	0
T7 Tractor	Diesel	1.6439165	69.9154502	0.007312206	23.88610615	0.014275091	0.007445154	3.456342696	0	0.0345446	51.07029647	0	0.488658817	16.9030959	3.36559113	0.010881608	0.014709587	0	0.03600001	0.086604652	0.010410874	0.01407326	0	0.009000003	0.030311628	0	0	0	0.008476	3.934783	0	0	0	0	0.22	0.012753	0.06612	0
T7 Tractor	Electricity	0.2825412	27.8666228	0.00291447	4.105323082	0.002453471	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.039187401	0	0	0	0.009000003	0.01371559	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.2861754	29.210368	0.003055007	4.158129258	0.002485029	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.039187401	0	0	0	0.009000003	0.01371559	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.1742402	7.41040192	0.000775027	2.531710036	0.00151303	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Natural Gas	21.2208	1592.61669	0.166566057	308.3382169	0.184272657	0.014188062	0.98293806	0	10.328729	70.01751009	0	0.597521041	22.6782672	0	0.001156586	0.043712749	0	0.03600001	0.078374803	0.001063438	0.04019226	0	0.009000003	0.027431181	0	0	0	1.013433	70.20986	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.7232646	133.74538	0.013987949	25.03903488	0.014964118	0.01444223	0.98293806	0	6.7499484	70.01751009	0	0.435726027	22.6782672	0	0.001661173	0.043712749	0	0.03600001	0.078374803	0.001527387	0.04019226	0	0.009000003	0.027431181	0	0	0	1.031588	70.20986	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.1150092	9.23335093	0.000965683	1.671083098	0.000998692	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.3152903	26.1898212	0.002739099	4.581167965	0.002737851	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.8245008	70.8724487	0.007412295	11.97999682	0.007159624	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.7229903	64.3175254	0.006726739	10.50504922	0.006278149	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.6457027	59.4517775	0.006217848	9.382060565	0.005607016	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.5510619	52.5138287	0.005492233	8.006930021	0.004785194	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.4887628	48.2059631	0.005041688	7.101723612	0.004244214	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.3372919	34.4279012	0.00360069	4.900851083	0.002928903	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.1396609	5.93975072	0.000621217	2.029272727	0.001212757	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
		Total:	9,561	100.00%	1,673	100.00%																																
			Weighted Average Emission Factors*:				0.01037		0.00000	1.99330		0.00000	1.01111		3.27145	0.01551		0.00000	0.03600	0.07818	0.01483		0.00000	0.00900	0.02736													

Buses

UBUS	Gasoline	136	6618	8.70%	542	13.72%	4.77E-03	0.00E+00	1.46E-01	5.85E-01	0.00E+00	6.36E+00	2.60E-02	0.00E+00	4.22E-01	1.28E-03	0.00E+00	1.73E-04	8.05E-03	9.13E-02	1.18E-03	0.00E+00	1.59E-04	2.01E-03	3.19E-02		13.72%	79.38%	6.81%	0.08%	0.00%	100.00%
UBUS	Diesel	784	63649	83.70%	3,137	79.38%	7.27E-02	0.00E+00	0.00E+00	8.46E-02	0.00E+00	0.00E+00	4.11E-01	0.00E+00	0.00E+00	7.83E-03	0.00E+00	0.00E+00	3.51E-02	1.10E-01	7.49E-03	0.00E+00	0.00E+00	8.77E-03	3.85E-02							
UBUS	Electricity	1	68	0.09%	3	0.08%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-02	5.50E-02	0.00E+00	0.00E+00	0.00E+00	8.57E-03	1.93E-02							
UBUS	Natural Gas	67	5711	7.51%	269	6.81%	6.00E-02	0.00E+00	0.00E+00	4.77E+01	0.00E+00	0.00E+00	5.88E-02	0.00E+00	0.00E+00	3.83E-04	0.00E+00	0.00E+00	3.19E-02	1.10E-01	3.67E-04	0.00E+00	0.00E+00	7.96E-03	3.85E-02							
		Total:	76,045		3,952	100.00%																										
			Weighted Average Emission Factors*:				0.06580		0.02005	3.70166		0.87238	0.35090		0.05790	0.00669		0.00002	0.03249	0.10829	0.00640		0.00002	0.00812	0.03790							

*Calculated

Idling Emission Factors
Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.
Model Year 2016+

Vehicle Category	Fuel	Population	% Trips	ROG_IdleX	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Electricity	1.45134648	0.006512635	0	0	0	0	0
T6TS	Electricity	1.587956572	0.007125646	0	0	0	0	0
T6TS	Gasoline	17.75183255	0.079657896	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	57.54192202	0.258208185	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	36.3955502	0.163317954	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	11.23800599	0.050428366	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	13.12735605	0.058906457	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	15.84659906	0.071108532	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	18.34952013	0.082339903	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	18.48612566	0.082952894	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	16.7944496	0.075361827	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	14.28021867	0.064079704	1.028580008	15.30093521	0.035839852	0	0
		Total:	100.00%					
		T6TS Weighted Average Emission Factors*:		1.01455	15.09226	0.08489	0.00000	0.00000
T6 instate small	Diesel	330.1307535	0.221947548	0.17221846	7.292564252	9.968575291	0.00238059	0.002488229
T6 instate small	Diesel	249.2179204	0.164871709	0.173174988	7.333068297	10.02394232	0.002393812	0.002502049
T6 instate small	Diesel	150.4675843	0.099619905	0.174312564	7.381238747	10.08978895	0.002409536	0.002518485
T6 instate small	Diesel	243.9791877	0.162326959	0.172838972	7.318839742	10.00449259	0.002389167	0.002497194
T6 instate small	Diesel	122.4544921	0.081629839	0.172724809	7.314005511	9.997884433	0.002387589	0.002495545
T6 instate small	Diesel	37.34040483	0.027514211	0.166472794	7.049264894	9.635997081	0.002301167	0.002405215
T6 instate small	Diesel	22.93113528	0.016312312	0.168741582	7.145336395	9.767322079	0.002332528	0.002437995
T6 instate small	Diesel	137.6706941	0.091392063	0.172971226	7.324439998	10.01214786	0.002390995	0.002499105
T6 instate small	Diesel	78.74667987	0.052616533	0.172585859	7.308121693	9.989841545	0.002385668	0.002493537
T6 instate small	Diesel	85.64918991	0.056643055	0.173194439	7.33389193	4.011985706	0.002394081	0.00250233
T6 instate small	Diesel	15.0334608	0.009953585	0.173127012	7.331036766	4.024250206	0.002393149	0.002501356
T6 instate small	Electricity	6.902688828	0.004612202	0	0	0	0	0
T6 instate small	Electricity	9.660680923	0.006388974	0	0	0	0	0
T6 instate small	Electricity	2.045336262	0.001354208	0	0	0	0	0
T6 instate small	Natural Gas	1.75518609	0.001170031	0.168907164	38.86904004	5.138881389	0.01947291	0.021178567
T6 instate small	Natural Gas	0.535214005	0.000394371	0.162793334	37.462121	4.952872419	0.018768061	0.020411979
T6 instate small	Natural Gas	0.328680549	0.00023381	0.165011977	37.97267667	5.020373058	0.019023843	0.020690165
T6 instate small	Natural Gas	1.973285611	0.001309957	0.169148135	38.92449235	5.146212747	0.019500691	0.021208781
T6 instate small	Natural Gas	1.12870565	0.000754172	0.168771285	38.83777149	5.134747369	0.019457245	0.021161529
T6 instate small	Natural Gas	1.227641911	0.000811886	0.169366414	38.97472304	5.152853752	0.019525856	0.02123615
T6 instate small	Natural Gas	0.215480223	0.000142668	0.169300478	38.95954976	5.150847691	0.019518254	0.021227883
		Total:	100.00%					
		T6 instate small Single Weighted Average Emission Factors*:		0.17051	7.37266	9.44735	0.00244	0.00255
T7 Single	Diesel	22.34779936	0.099966625	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	20.35620962	0.091057806	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	24.73656877	0.110652117	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	53.35091691	0.238650394	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	16.73895573	0.074877033	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	11.39399031	0.050967826	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	13.15264337	0.058834669	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	12.65503307	0.056608748	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	11.62653372	0.052008044	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	15.63195295	0.069925166	1.862836709	27.52493933	9.001990849	0.007584948	0.007927905
T7 Single	Diesel	2.452255856	0.01096948	1.862836709	27.52493933	9.035739929	0.007584948	0.007927905
T7 Single	Electricity	1.032746867	0.004619704	0	0	0	0	0
T7 Single	Electricity	1.818321737	0.008133753	0	0	0	0	0
T7 Single	Electricity	0.343964777	0.00153863	0	0	0	0	0
T7 Single	Natural Gas	1.322325387	0.005915053	0.529766074	37.73676384	12.2227199	0.021662093	0.023559502
T7 Single	Natural Gas	1.642809786	0.00734865	0.529766074	37.73676384	12.2227199	0.021662093	0.023559502
T7 Single	Natural Gas	6.411152243	0.028678495	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	1.392078511	0.006227074	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	1.029803088	0.004606536	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.700973621	0.003135609	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.809168324	0.003619588	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.778554669	0.003482646	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.715280004	0.003199605	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.961698787	0.00430189	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.150866081	0.000674857	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
		Total:	100.00%					
		T7 Single Weighted Average Emission Factors*:		0.159938746	1.73220	30.63704	19.89762	0.00971	0.01027
		T6TS Weighted Average Emission Factors*:		0.17468148	1.01455	15.09226	0.08489	0.00000	0.00000
		T6 instate small Single Weighted Average Emission Factors*:		0.665379774	0.17051	7.37266	9.44735	0.00244	0.00255
		T7 Single Weighted Average Emission Factors*:		0.159938746	1.73220	30.63704	19.89762	0.00971	0.01027
		Total:		100.00%					
		Single-Unit Truck Weighted Average Emission Factors*:			0.84477	12.44200	9.48330	0.00318	0.00334
Tractor Trailer Trucks								
T7 Tractor	Diesel	10.32863648	0.089689612	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	13.20150408	0.114636408	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	8.787135768	0.076303857	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	11.34599056	0.098523895	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	9.70501091	0.084274306	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	8.510153956	0.073898661	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	7.600419392	0.065998902	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	6.486424361	0.05632543	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	5.753115478	0.049957678	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	3.970185798	0.034475453	3.456342696	51.07029647	16.80945871	0.014073256	0.014709587
T7 Tractor	Diesel	1.643916459	0.014275091	3.456342696	51.07029647	16.90309586	0.014073256	0.014709587
T7 Tractor	Electricity	0.282541162	0.002453471	0	0	0	0	0
T7 Tractor	Electricity	0.286175448	0.002485029	0	0	0	0	0
T7 Tractor	Electricity	0.174240195	0.00151303	0	0	0	0	0
T7 Tractor	Natural Gas	21.22079951	0.184272657	0.98293806	70.01751009	22.67826721	0.040192259	0.043712749
T7 Tractor	Natural Gas	1.723264617	0.014964118	0.98293806	70.01751009	22.67826721	0.040192259	0.043712749
T7 Tractor	Natural Gas	0.11500916	0.000998692	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.315290294	0.002737851	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.824500813	0.007159624	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.722990311	0.006278149	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.645702723	0.005607016	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.551061942	0.004785194	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.488762809	0.004244214	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.337291885	0.002928903	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.13966089	0.001212757	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
		Total:	100.00%					
		Weighted Average Emission Factors*:		2.84183	58.39668	35.07782	0.02154	0.02298

*Calculated

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups (Average Fleet Mix)														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
					Weighted Average Emission Factors*:			0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans (Average Fleet Mix)														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
					Weighted Average Emission Factors*:			0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks (2016+ model year)														
San Francisco (SF)	2025	T6 instate small	2016+	5	Diesel	1684.485132	72%	0.029069802	0.033093756	0.142582266	1.249201863	0.018607752	0.003039086	0.002907617
San Francisco (SF)	2025	T6 instate small	2016+	5	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	2016+	5	Natural Gas	8.945045387	0%	0.03610457	2.578897878	8.19138056	0.11746531	0	0.004687538	0.004310018
San Francisco (SF)	2025	T6TS	2016+	5	Gasoline	429.8965341	18%	0.056760411	0.082824659	0.307992726	0.15014577	0.03637541	0.007585843	0.006974902
San Francisco (SF)	2025	T6TS	2016+	5	Electricity	7.281077916	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	2016+	5	Diesel	159.6113784	7%	0.018617172	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	2016+	5	Electricity	2.815018602	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	2016+	5	Natural Gas	12.38340112	1%	0.073574465	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			2,328	100%							
					Weighted Average Emission Factors*:			0.03332	0.08407	0.35148	1.33320	0.02202	0.00419	0.00395
					*Note: Highlighted speeds indicate where there was no data for emissions factors at the 5mph speed bin, and emissions for 10 mph were used.									
Tractor Trailer Trucks (2016+ model year)														
San Francisco (SF)	2025	T7 Tractor	2016+	5	Diesel	59.91344111	77%	0.046069264	1.489872574	5.21167941	6.552037088	0.011812857	0.004241577	0.00401937
San Francisco (SF)	2025	T7 Tractor	2016+	5	Electricity	0.522153817	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	2016+	5	Natural Gas	16.98355486	22%	0.089906973	6.421926621	22.68959339	3.103883369	0	0.005705029	0.005245563
			Total:			77	100%							
					Weighted Average Emission Factors*:			0.05538	2.56178	9.01069	5.75142	0.00914	0.00453	0.00426
					*Note: Highlighted speeds indicate where there was no data for emissions factors at the 5mph speed bin, and emissions for 10 mph were used.									

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups (Average Fleet Mix)														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.0046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.0050491	0.000429344	0.000394766
			Total:			70,774	100%							
					Weighted Average Emission Factors*:			0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans (Average Fleet Mix)														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.0046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.0050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
					Weighted Average Emission Factors*:			0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks (2016+ model year)														
San Francisco (SF)	2016+	T6 instate small	2016+	10	Diesel	1684.485132	63%	0.029069802	0.033093756	0.142582266	1.249201863	0.018607752	0.003039086	0.002907617
San Francisco (SF)	2016+	T6 instate small	2016+	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T6 instate small	2016+	10	Natural Gas	8.945045387	0%	0.03610457	2.578897878	8.19138056	0.11746531	0	0.004687538	0.004310018
San Francisco (SF)	2016+	T6TS	2016+	10	Gasoline	767.5545344	29%	0.03573397	0.052142925	0.280644584	0.130277679	0.029528882	0.004772994	0.004388592
San Francisco (SF)	2016+	T6TS	2016+	10	Electricity	12.99992888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Single	2016+	10	Diesel	159.6113784	6%	0.018617172	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2016+	T7 Single	2016+	10	Electricity	2.815018602	0%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Single	2016+	10	Natural Gas	12.38340112	0%	0.073574465	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			2,672	100%							
					Weighted Average Emission Factors*:			0.03017	0.07492	0.33737	1.17512	0.02182	0.00380	0.00358
Tractor Trailer Trucks (2016+ model year)														
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Diesel	59.91344111	77%	0.046069264	1.489872574	5.21167941	6.552037088	0.011812857	0.004241577	0.00401937
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Electricity	0.522153817	1%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Natural Gas	16.98355486	22%	0.089906973	6.421926621	22.68959339	3.103883369	0	0.005705029	0.005245563
			Total:			77	100%							
					Weighted Average Emission Factors*:			0.05538	2.56178	9.01069	5.75142	0.00914	0.00453	0.00426

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STRI	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PI	PM2.5 PI	PM10 RU	PM10 ID	PM10 ST	PM10 PN	PM10 PN	ROG HOT	ROG RUN	ROG DIUI	TOG RUN	TOG IDLE	TOG STRI	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	LDA	2016	Aggregat	Diesel	19.2148	659.4968925	0.000173892	89.81743	0.000218886	0.01895	0	0	0.36831	0	0	0.03738	0	0	0.00506	0	0	0.002	0.00329	0.00529	0	0	0.008	0.0094	0	0	0	0.02157	0	0	0	0	0	0.0031	0.00228	0	0
San Franc	2025	LDA	2017	Aggregat	Diesel	17.2577	627.9110782	0.000165564	81.65777	0.000199001	0.01838	0	0	0.35304	0	0	0.03684	0	0	0.00487	0	0	0.002	0.00327	0.0051	0	0	0.008	0.00934	0	0	0	0.02093	0	0	0	0	0	0.0031	0.0023	0	0
San Franc	2025	LDA	2018	Aggregat	Diesel	12.4959	481.601146	0.000126986	59.84235	0.000145836	0.01779	0	0	0.33695	0	0	0.03626	0	0	0.00468	0	0	0.002	0.00325	0.00489	0	0	0.008	0.00929	0	0	0	0.02025	0	0	0	0	0	0.0031	0.0023	0	0
San Franc	2025	LDA	2020	Aggregat	Diesel	2.97509	128.6648247	3.39256E-05	14.58852	3.55524E-05	0.01652	0	0	0.30234	0	0	0.03503	0	0	0.00425	0	0	0.002	0.00321	0.00444	0	0	0.008	0.00917	0	0	0	0.0188	0	0	0	0	0	0.0031	0.00221	0	0
San Franc	2025	LDA	2021	Aggregat	Diesel	3.63343	166.5036208	4.39027E-05	18.02487	4.39268E-05	0.00548	0	0	0.18169	0	0	0.00883	0	0	0.00067	0	0	0.002	0.00319	0.0007	0	0	0.008	0.0091	0	0	0	0.00624	0	0	0	0	0	0.0031	0.00214	0	0
San Franc	2025	LDA	2022	Aggregat	Diesel	4.27621	207.5959221	5.47377E-05	21.45857	5.22947E-05	0.00507	0	0	0.1668	0	0	0.00833	0	0	0.00063	0	0	0.002	0.00316	0.00066	0	0	0.008	0.00904	0	0	0	0.00578	0	0	0	0	0	0.0031	0.00207	0	0
San Franc	2025	LDA	2023	Aggregat	Diesel	4.38131	225.3054639	5.94072E-05	22.23701	5.41918E-05	0.00465	0	0	0.15129	0	0	0.00781	0	0	0.00059	0	0	0.002	0.00314	0.00062	0	0	0.008	0.00897	0	0	0	0.00529	0	0	0	0	0	0.0031	0.002	0	0
San Franc	2025	LDA	2024	Aggregat	Diesel	4.35121	237.0258004	6.24976E-05	22.33351	5.4427E-05	0.00421	0	0	0.13516	0	0	0.00726	0	0	0.00055	0	0	0.002	0.00311	0.00057	0	0	0.008	0.00889	0	0	0	0.00479	0	0	0	0	0	0.0031	0.00193	0	0
San Franc	2025	LDA	2025	Aggregat	Diesel	3.76064	217.1145107	5.72475E-05	19.5177	4.75648E-05	0.00375	0	0	0.11839	0	0	0.0067	0	0	0.0005	0	0	0.002	0.00309	0.00052	0	0	0.008	0.00882	0	0	0	0.00427	0	0	0	0	0	0.0031	0.00186	0	0
San Franc	2025	LDA	2016	Aggregat	Electricity	383.721	14904.21461	0.003929856	1793.661	0.004371169	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00441	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2017	Aggregat	Electricity	872.723	35303.52239	0.009308626	4129.447	0.0100635	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2018	Aggregat	Electricity	1599.3	67287.26874	0.017741912	7659.017	0.018665096	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2019	Aggregat	Electricity	1174.65	51377.63397	0.013546953	5692.636	0.013873006	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2020	Aggregat	Electricity	585.599	26607.76288	0.007015779	2871.513	0.006997903	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2021	Aggregat	Electricity	775.81	36612.73081	0.00965383	3848.672	0.009379248	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2022	Aggregat	Electricity	973.843	47698.35461	0.012576822	4886.872	0.011909354	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2023	Aggregat	Electricity	1043.19	52995.61772	0.013973573	5294.648	0.012903107	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2024	Aggregat	Electricity	1085.93	57190.02228	0.015079529	5573.763	0.013583312	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2025	Aggregat	Electricity	966.955	52792.28073	0.013919959	5018.498	0.012230126	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDA	2016	Aggregat	Gasoline	7615.5	261351.7883	0.068911706	35597.83	0.08675225	0.00716	0	0.28249	0.71974	0	2.8384	0.02841	0	0.23882	0.00222	0	0.00271	0.002	0.00329	0.00241	0	0.00295	0.008	0.0094	0.04812	0.06375	0.46846	0.01045	0	0.30929	0.04812	0.06375	0.46846	0.042	0.00289	0	0.00067
San Franc	2025	LDA	2017	Aggregat	Gasoline	8170.33	297126.3317	0.078344527	38659.37	0.094213251	0.00669	0	0.25992	0.69604	0	2.68772	0.02693	0	0.22693	0.00238	0	0.00293	0.002	0.00327	0.00259	0	0.00318	0.008	0.00934	0.0475	0.06375	0.46813	0.00976	0	0.28458	0.0475	0.06375	0.46813	0.042	0.00292	0	0.00067
San Franc	2025	LDA	2018	Aggregat	Gasoline	7351.14	283088.1098	0.074643011	35204.4	0.085793438	0.00641	0	0.24432	0.66556	0	2.5841	0.02568	0	0.21707	0.00248	0	0.00305	0.002	0.00325	0.0027	0	0.00332	0.008	0.00929	0.03213	0.05206	0.38449	0.00935	0	0.2675	0.03213	0.05206	0.38449	0.042	0.00291	0	0.00067
San Franc	2025	LDA	2019	Aggregat	Gasoline	6361.19	259609.7997	0.068452388	30827.96	0.075128031	0.00599	0	0.2252	0.61047	0	2.38574	0.02405	0	0.20596	0.00235	0	0.00289	0.002	0.00323	0.00255	0	0.00314	0.008	0.00923	0.03173	0.05214	0.3846	0.00874	0	0.24656	0.03173	0.05214	0.3846	0.042	0.00288	0	0.00066
San Franc	2025	LDA	2020	Aggregat	Gasoline	5387.88	232957.9075	0.061424974	26419.76	0.064385196	0.00566	0	0.20977	0.58201	0	2.30525	0.02267	0	0.19403	0.00168	0	0.00207	0.002	0.00321	0.00183	0	0.00225	0.008	0.00917	0.01986	0.04422	0.31664	0.00825	0	0.22968	0.01986	0.04422	0.31664	0.042	0.0028	0	0.00064
San Franc	2025	LDA	2021	Aggregat	Gasoline	6495.69	297620.3901	0.078474798	32224.1	0.078530423	0.00514	0	0.18884	0.54681	0	2.15946	0.02112	0	0.17749	0.00105	0	0.00129	0.002	0.00319	0.00114	0	0.0014	0.008	0.0091	0.01962	0.04424	0.31653	0.00751	0	0.20676	0.01962	0.04424	0.31653	0.042	0.0027	0	0.00061
San Franc	2025	LDA	2022	Aggregat	Gasoline	7568.73	367417.1015	0.096878385	37980.85	0.092559675	0.00453	0	0.16624	0.50649	0	1.9803	0.01948	0	0.15809	0.00105	0	0.00129	0.002	0.00316	0.00114	0	0.0014	0.008	0.00904	0.01869	0.03718	0.25061	0.00661	0	0.18201	0.01869	0.03718	0.25061	0.042	0.00262	0	0.00059
San Franc	2025	LDA	2023	Aggregat	Gasoline	7709.78	396499.3271	0.104546616	39130.36	0.095361061	0.00396	0	0.14621	0.46168	0	1.82992	0.01784	0	0.13637	0.00105	0	0.00129	0.002	0.00314	0.00114	0	0.0014	0.008	0.00897	0.01847	0.03718	0.25044	0.00578	0	0.16008	0.01847	0.03718	0.25044	0.042	0.00253	0	0.00057
San Franc	2025	LDA	2024	Aggregat	Gasoline	7611.96	414740.7656	0.109356411	39070	0.09521395	0.00334	0	0.12649	0.417	0	1.66916	0.01614	0	0.11419	0.00105	0	0.00129	0.002	0.00311	0.00114	0	0.0014	0.008	0.00889	0.01824	0.03718	0.25028	0.00488	0	0.13849	0.01824	0.03718	0.25028	0.042	0.00244	0	0.00055
San Franc	2025	LDA	2025	Aggregat	Gasoline	6551.4	378373.8212	0.099767389	34001.74	0.082862562	0.00247	0	0.09855	0.36177	0	1.43767	0.01408	0	0.08486	0.00105	0	0.00129	0.002	0.00309	0.00114	0	0.0014	0.008	0.00882	0.01803	0.03718	0.25011	0.00361	0	0.1079	0.01803	0.03718	0.25011	0.042	0.00235	0	0.00053
San Franc	2025	LDA	2016	Aggregat	Plug-in Hy	141.921	4901.281102	0.001292341	586.8421	0.00143014	0.00211	0	0.17554	0.27766	0	1.36975	0.00434	0	0.11697	0.0012	0	0.00281	0.002	0.0015	0.00131	0	0.00305	0.008	0.00427	0.05604	0.04204	0.47977	0.00308	0	0.1922	0.05604	0.04204	0.47977	0.02276	0.00171	0	0.00067
San Franc	2025	LDA	2017	Aggregat	Plug-in Hy	389.66	14324.23492	0.00377693	1611.246	0.003926622	0.00211	0	0.17554	0.27766	0	1.36975	0.00434	0	0.11697	0.00129	0	0.00303	0.002	0.00149	0.0014	0	0.00329	0.008	0.00427	0.05604	0.04204	0.47977	0.00308	0	0.1922	0.05604	0.04204	0.47977	0.02276	0.00171	0	0.00068
San Franc	2025	LDA	2018	Aggregat	Plug-in Hy	381.54	14935.8249	0.003938191	1577.669	0.003844793	0.00211	0	0.17554	0.2777	0	1.36975	0.00434	0	0.11697	0.00135	0	0.00316	0.002	0.00149	0.00146	0	0.00343	0.008	0.00426	0.0384	0.03433	0.39415	0.00308	0	0.1922	0.0384	0.03433	0.39415	0.02276	0.00171	0	0.00068
San Franc	2025	LDA	2019	Aggregat	Plug-in Hy	269.182	11108.56234	0.002929041	1113.068	0.002712557	0.00205	0	0.17554	0.26962	0	1.36975	0.00421	0	0.11697	0.00123	0	0.00299	0.002	0.00149	0.00134	0	0.00325	0.008	0.00426	0.03845	0.03337	0.39488	0.00299	0	0.1922	0.03845	0.03337	0.39488	0.02209	0.00166	0	0.00067
San Franc	2025	LDA	2020	Aggregat	Plug-in Hy	260.455	11317.55846	0.002984147	1076.982	0.002624616	0.00202	0	0.17554	0.26555	0	1.36975	0.00415	0	0.11697	0.00087	0	0.00214	0.002	0.00149	0.00095	0	0.00233	0.008	0.00426	0.0244	0.02787	0.32529	0.00295	0	0.1922	0.0244	0.02787	0.32529	0.02176	0.00164	0	0.00065
San Franc	2025	LDA	2021	Aggregat	Plug-in Hy	341.898	15715.24903	0.004143705	1413.747	0.003445313	0.00196	0	0.17554	0.25816	0	1.36975	0.00403	0	0.11697	0.00053	0	0.00133	0.002	0.00149	0.00057	0	0.00145	0.008	0.00426	0.02442	0.02711	0.32566	0.00286	0	0.1922	0.02442	0.02711	0.32566	0.02115	0.00159	0	0.00063
San Franc	2025	LDA	2022	Aggregat	Plug-in Hy	417.693	20297.27292	0.005351866	1727.161	0.004209107	0.00177	0	0.17554	0.23277	0	1.36975	0.00364	0	0.11697	0.00047	0	0.00133	0.002	0.00149	0.00052	0	0.00145	0.008	0.00427	0.02365	0.02054	0.25852	0.00258	0	0.1922	0.02365	0.02054	0.25852	0.01907	0.00143	0	0.00061
San Franc	2025	LDA	2023	Aggregat	Plug-in Hy	427.521	21954.66435	0.005788877	1767.8	0.004308144	0.00171	0	0.17554	0.22477	0	1.36975	0.00351	0	0.11697	0.00046	0	0.00133	0.002	0.00149	0.0005	0	0.00145	0.008	0.00426	0.02367	0.01983	0.25875	0.00249	0	0.1922	0.02367	0.01983	0.25875	0.01841	0.00138	0	0.00059
San Franc	2025	LDA	2024	Aggregat	Plug-in Hy	419.527	22762.71764	0.00600194	1734.744	0.004227587	0.00165	0	0.17554	0.21686	0	1.36975	0.00339	0	0.11697	0.00044	0	0.00133	0.002	0.00149	0.00048	0	0.00145	0.008	0.00426	0.0237	0.01913	0.25897	0.0024	0	0.1922	0.0237	0.01913	0.25897	0.01776	0.00134	0	0.00057
San Franc	2025	LDA	2025	Aggregat	Plug-in Hy	361.593	20736.80064	0.005467758	1495.186	0.003643782	0.00158	0	0.17554	0.20859	0	1.36975	0.00326	0	0.11697	0.00042	0	0.00133	0.002	0.00149	0.00046	0	0.00145	0.008	0.00426	0.02373	0.0184	0.2592	0.00231	0	0.1922	0.02373	0.0184	0.2592	0.01708	0.00128	0	0.00055
						Total:	3,792,560	100.00%	410,339	100.00%																															
							Weighted Average Emissions Factors:				0.00421		0.17078	0.46365		1.90134	0.01778		0.15219	0.00133		0.00176	0.00200	0.00292	0.00145		0.00192	0.00800	0.00834		0.03938		0.00614		0.18699		0.03938		0.03615	0.00231		0.00054

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STRI	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PI	PM2.5 PI	PM10 RU	PM10 ID	PM10 ST	PM10 PN	PM10 PN	ROG HOT	ROG RUN	ROG DIUI	TOG RUN	TOG IDLE	TOG STRI	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	LDT1	2020	Aggregat	Diesel	0.00398	0.15427256	6.97634E-07	0.019507	6.94503E-07	0.02075	0	0	0.20054	0	0	0.03562	0	0	0.00432	0	0	0.002	0.00392	0.00452	0	0	0.008	0.01119	0	0	0	0.02362	0	0	0	0	0	0.0031	0.00417	0	0
San Franc	2025	LDT1	2021	Aggregat	Diesel	0.00477	0.192881625	8.72227E-07	0.023671	8.42745E-07	0.02037	0	0	0.18647	0	0	0.03515	0	0	0.0041	0	0	0.002	0.00383	0.00428	0	0	0.008	0.01095	0	0	0	0.02319	0	0	0	0	0	0.0031	0.00403	0	0
San Franc	2025	LDT1	2022	Aggregat	Diesel	0.00547	0.230224581	1.0411E-06	0.027436	9.76782E-07	0.01996	0	0	0.17177	0	0	0.03465	0	0	0.00386	0	0	0.002	0.00375	0.00403	0	0	0.008	0.0107	0	0	0	0.02273	0	0	0	0	0	0.0031	0.0039	0	0
San Franc	2025	LDT1	2023	Aggregat	Diesel	0.0054	0.236915232	1.07135E-06	0.027424	9.76371E-07	0.01954	0	0	0.15645	0	0	0.03414	0	0	0.00361	0	0	0.002	0.00366	0.00378	0	0	0.008	0.01045	0	0	0	0.02225	0	0	0	0	0	0.0031	0.00377	0	0
San Franc	2025	LDT1	2024	Aggregat	Diesel	0.00544	0.248165941	1.12223E-06	0.027912	9.93731E-07	0.01911	0	0	0.1405	0	0	0.0336	0	0	0.00336	0	0	0.002	0.00356	0.00351	0	0	0.008	0.01018	0	0	0	0.02175	0	0	0	0	0	0.0031	0.00364	0	0
San Franc	2025	LDT1	2025	Aggregat	Diesel	0.00503	0.239155573	1.08148E-06	0.026128	9.30225E-07	0.01866	0	0	0.12394	0	0	0.03305	0	0	0.00309	0	0	0.002	0.00347	0.00323	0	0	0.008	0.0099	0	0	0	0.02124	0	0	0	0	0	0.0031	0.00351	0	0
San Franc	2025	LDT1	2020	Aggregat	Electricity	0.29136	13.23982327	5.98716E-05	1.428703	5.08653E-05	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT1	2021	Aggregat	Electricity	0.91409	43.1477078	0.000195118	4.534649	0.000161445	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT1	2022	Aggregat	Electricity	2.88857	141.5234927	0.000639982	14.49522	0.000516065	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT1	2023	Aggregat	Electricity	4.10952	208.866656	0.000944513	20.85755	0.00074258	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT1	2024	Aggregat	Electricity	5.42224	285.7339649	0.001292114	27.83081	0.000990845	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT1	2025	Aggregat	Electricity	6.43339	351.5319332	0.001589658	33.3893	0.001188741	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT1	2016	Aggregat	Gasoline	1267.33	41521.50253	0.187763833	5923.98	0.210908187	0.00721	0	0.28431	0.725	0	2.84654	0.02876	0	0.24085	0.00222	0	0.00271	0.002	0.00421	0.00241	0	0.00295	0.008	0.01203	0.04812	0.06377	0.46855	0.01051	0	0.31128	0.04812	0.06377	0.46855	0.042	0.00331	0	0.00076
San Franc	2025	LDT1	2017	Aggregat	Gasoline	678.831	23216.50334	0.10498704	3212.011	0.114355442	0.00673	0	0.2617	0.70202	0	2.69671	0.02729	0	0.22919	0.00238	0	0.00293	0.002	0.00414	0.00259	0	0.00318	0.008	0.01183	0.0475	0.06377	0.46823	0.00983	0	0.28653	0.0475	0.06377	0.46823	0.042	0.00335	0	0.00077
San Franc	2025	LDT1	2018	Aggregat	Gasoline	901.698	32167.3139	0.145463381	4318.207	0.153738737	0.00646	0	0.2461	0.67185	0	2.59347	0.02605	0	0.2196	0.00248	0	0.00305	0.002	0.00407	0.0027	0	0.00332	0.008	0.01163	0.03213	0.05201	0.38422	0.00942	0	0.26945	0.03213	0.05201	0.38422	0.042	0.00334	0	0.00077
San Franc	2025	LDT1	2019	Aggregat	Gasoline	312.295	11618.96897	0.052541985	1513.465	0.053883046	0.00605	0	0.22689	0.61695	0	2.39556	0.02443	0	0.20882	0.00235	0	0.00289	0.002	0.00399	0.00255	0	0.00314	0.008	0.01141	0.03172	0.05201	0.38396	0.00883	0	0.24842	0.03172	0.05201	0.38396	0.042	0.0033	0	0.00075
San Franc	2025	LDT1	2020	Aggregat	Gasoline	342.781	13292.94855	0.060111865	1680.843	0.05984214	0.00572	0	0.21146	0.58879	0	2.31547	0.02306	0	0.19717	0.00168	0	0.00207	0.002	0.00392	0.00183	0	0.00225	0.008	0.01119	0.01986	0.04412	0.31612	0.00834	0	0.23152	0.01986	0.04412	0.31612	0.042	0.00321	0	0.00073
San Franc	2025	LDT1	2021	Aggregat	Gasoline	409.613	16557.8082	0.074875844	2032.025	0.072345067	0.00521	0	0.19045	0.55427	0	2.17048	0.02152	0	0.18094	0.00105	0	0.00129	0.002	0.00383	0.00114	0	0.0014	0.008	0.01095	0.01961	0.04412	0.31591	0.0076	0	0.20852	0.01961	0.04412	0.31591	0.042	0.0031	0	0.00071
San Franc	2025	LDT1	2022	Aggregat	Gasoline	466.412	19640.05583	0.088814035	2340.517	0.083328152	0.0046	0	0.16775	0.5149	0	1.99244	0.01989	0	0.16184	0.00105	0	0.00129	0.002	0.00375	0.00114	0	0.0014	0.008	0.0107	0.01869	0.03718	0.25061	0.00672	0	0.18366	0.01869	0.03718	0.25061	0.042	0.003	0	0.00068
San Franc	2025	LDT1	2023	Aggregat	Gasoline	458.497	20103.00375	0.090907525	2327.065	0.082849206	0.00404	0	0.14762	0.47033	0	1.8424	0.01825	0	0.14037	0.00105	0	0.00129	0.002	0.00366	0.00114	0	0.0014	0.008	0.01045	0.01847	0.03718	0.25044	0.00589	0	0.16162	0.01847	0.03718	0.25044	0.042	0.0029	0	0.00066
San Franc	2025	LDT1	2024	Aggregat	Gasoline	458.981	20945.25635	0.094716265	2355.819	0.08387292	0.00342	0	0.12779	0.42614	0	1.68234	0.01655	0	0.11835	0.00105	0	0.00129	0.002	0.00356	0.00114	0	0.0014	0.008	0.01018	0.01824	0.03718	0.25028	0.00499	0	0.13992	0.01824	0.03718	0.25028	0.042	0.0028	0	0.00063
San Franc	2025	LDT1	2025	Aggregat	Gasoline	422.286	20060.03221	0.090713204	2191.662	0.078028531	0.00255	0	0.09963	0.37095	0	1.45121	0.01449	0	0.08895	0.00105	0	0.00129	0.002	0.00347	0.00114	0	0.0014	0.008	0.0099	0.01803	0.03718	0.25011	0.00371	0	0.10909	0.01803	0.03718	0.25011	0.042	0.0027	0	0.00061
San Franc	2025	LDT1	2017	Aggregat	Plug-in Hy	0.23877	8.166049229	3.69276E-05	0.987307	3.51506E-05	0.00211	0	0.17554	0.27766	0	1.36975	0.00434	0	0.11697	0.00129	0	0.00303	0.002	0.00149	0.0014	0	0.00329	0.008	0.00427	0.05604	0.04205	0.47987	0.00308	0	0.1922	0.05604	0.04205	0.47987	0.02276	0.00171	0	0.00078
San Franc	2025	LDT1	2020	Aggregat	Plug-in Hy	0.64999	25.21028811	0.000114003	2.687728	9.56897E-05	0.00202	0	0.17554	0.26555	0	1.36975	0.00415	0	0.11697	0.00087	0	0.00214	0.002	0.00149	0.00095	0	0.00233	0.008	0.00426	0.02439	0.02781	0.32476	0.00295	0	0.1922	0.02439	0.02781	0.32476	0.02176	0.00164	0	0.00075
San Franc	2025	LDT1	2021	Aggregat	Plug-in Hy	1.74587	70.59960296	0.000319258	7.219159	0.00025702	0.00196	0	0.17554	0.25816	0	1.36975	0.00403	0	0.11697	0.00053	0	0.00133	0.002	0.00149	0.00057	0	0.00145	0.008	0.00426	0.02441	0.02703	0.32502	0.00286	0	0.1922	0.02441	0.02703	0.32502	0.02115	0.00159	0	0.00072
San Franc	2025	LDT1	2022	Aggregat	Plug-in Hy	3.08825	130.1734421	0.000588656	12.76992	0.000454641	0.00177	0	0.17554	0.23277	0	1.36975	0.00364	0	0.11697	0.00047	0	0.00133	0.002	0.00149	0.00052	0	0.00145	0.008	0.00427	0.02365	0.02054	0.25852	0.00258	0	0.1922	0.02365	0.02054	0.25852	0.01907	0.00143	0	0.0007
San Franc	2025	LDT1	2023	Aggregat	Plug-in Hy	4.25349	186.7599256	0.000844545	17.58819	0.000626182	0.00171	0	0.17554	0.22477	0	1.36975	0.00351	0	0.11697	0.00046	0	0.00133	0.002	0.00149	0.0005	0	0.00145	0.008	0.00427	0.02367	0.01983	0.25875	0.00249	0	0.1922	0.02367	0.01983	0.25875	0.01841	0.00138	0	0.00068
San Franc	2025	LDT1	2024	Aggregat	Plug-in Hy	5.45386	249.3322427	0.001127502	22.55171	0.000802896	0.00165	0	0.17554	0.21686	0	1.36975	0.00339	0	0.11697	0.00044	0	0.00133	0.002	0.00149	0.00048	0	0.00145	0.008	0.00426	0.0237	0.01913	0.25897	0.0024	0	0.1922	0.0237	0.01913	0.25897	0.01776	0.00134	0	0.00066
San Franc	2025	LDT1	2025	Aggregat	Plug-in Hy	6.25636	297.8691427	0.00134699	25.87006	0.000921037	0.00158	0	0.17554	0.20859	0	1.36975	0.00326	0	0.11697	0.00042	0	0.00133	0.002	0.00149	0.00046	0	0.00145	0.008	0.00426	0.02373	0.0184	0.2592	0.00231	0	0.1922	0.02373	0.0184	0.2592	0.01708	0.00128	0	0.00063
						Total:	221,137	100.00%	28,088	100.00%																															
							Weighted Average Emissions Factors:				0.00539		0.21164	0.58035		2.30951	0.02266		0.18926	0.00171		0.00218	0.00200	0.00388	0.00186		0.00237	0.00800	0.01109		0.04859		0.00786		0.23172		0.04859		0.04170	0.00310		0.00072

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STRI	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PI	PM2.5 PI	PM10 RU	PM10 ID	PM10 ST	PM10 PN	PM10 PN	ROG HOT	ROG RUN	ROG DIUI	TOG RUN	TOG IDLE	TOG STRI	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	LDT2	2016	Aggregat	Diesel	34.0416	1115.307288	0.00063885	159.1238	0.000730876	0.02212	0	0	0.25061	0	0	0.0373	0	0	0.00513	0	0	0.002	0.00421	0.00536	0	0	0.008	0.01203	0	0	0	0.02518	0	0	0	0	0	0.0031	0.00334	0	0
San Franc	2025	LDT2	2017	Aggregat	Diesel	12.4998	427.5035083	0.000244875	59.14524	0.000271662	0.0218	0	0	0.23903	0	0	0.03691	0	0	0.00494	0	0	0.002	0.00414	0.00516	0	0	0.008	0.01183	0	0	0	0.02482	0	0	0	0	0	0.0031	0.00328	0	0
San Franc	2025	LDT2	2018	Aggregat	Diesel	7.8942	281.6189115	0.000161312	37.80511	0.000173644	0.02147	0	0	0.22682	0	0	0.0365	0	0	0.00474	0	0	0.002	0.00407	0.00496	0	0	0.008	0.01163	0	0	0	0.02444	0	0	0	0	0	0.0031	0.00329	0	0
San Franc	2025	LDT2	2019	Aggregat	Diesel	4.04391	150.4539219	8.61803E-05	19.59784	9.00155E-05	0.02112	0	0	0.21399	0	0	0.03607	0	0	0.00454	0	0	0.002	0.00399	0.00474	0	0	0.008	0.01141	0	0	0	0.02404	0	0	0	0	0	0.0031	0.00316	0	0
San Franc	2025	LDT2	2020	Aggregat	Diesel	11.159	432.7429108	0.000247876	54.7187	0.00025133	0.02075	0	0	0.20054	0	0	0.03562	0	0	0.00432	0	0	0.002	0.00392	0.00452	0	0	0.008	0.01119	0	0	0	0.02362	0	0	0	0	0	0.0031	0.00316	0	0
San Franc	2025	LDT2	2021	Aggregat	Diesel	13.2885	537.1618014	0.000307687	65.92204	0.000302789	0.02037	0	0	0.18647	0	0	0.03515	0	0	0.0041	0	0	0.002	0.00383	0.00428	0	0	0.008	0.01095	0	0	0	0.02319	0	0	0	0	0	0.0031	0.003	0	0
San Franc	2025	LDT2	2022	Aggregat	Diesel	15.3511	646.4219598	0.000370272	77.03399	0.000353827	0.01996	0	0	0.17177	0	0	0.03465	0	0	0.00386	0	0	0.002	0.00375	0.00403	0	0	0.008	0.0107	0	0	0	0.02273	0	0	0	0	0	0.0031	0.0029	0	0
San Franc	2025	LDT2	2023	Aggregat	Diesel	15.2521	668.7417266	0.000383056	77.41058	0.000355557	0.01954	0	0	0.15645	0	0	0.03414	0	0	0.00361	0	0	0.002	0.00366	0.00378	0	0	0.008	0.01045	0	0	0	0.02225	0	0	0	0	0	0.0031	0.00279	0	0
San Franc	2025	LDT2	2024	Aggregat	Diesel	15.4169	703.5520746	0.000402996	79.13038	0.000363456	0.01911	0	0	0.1405	0	0	0.0336	0	0	0.00336	0	0	0.002	0.00356	0.00351	0	0	0.008	0.01018	0	0	0	0.02175	0	0	0	0	0	0.0031	0.00269	0	0
San Franc	2025	LDT2	2025	Aggregat	Diesel	14.1464	672.0271614	0.000384938	73.42001	0.000337228	0.01866	0	0	0.12394	0	0	0.03305	0	0	0.00309	0	0	0.002	0.00347	0.00323	0	0	0.008	0.0099	0	0	0	0.02124	0	0	0	0	0	0.0031	0.00259	0	0
San Franc	2025	LDT2	2019	Aggregat	Electricity	11.4049	345.7245621	0.000198032	55.27109	0.000253867	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2020	Aggregat	Electricity	6.03806	190.0432594	0.000108857	29.60791	0.000135993	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2021	Aggregat	Electricity	43.2763	1413.453244	0.000809629	214.687	0.000986086	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2022	Aggregat	Electricity	85.761	2905.095454	0.001664044	430.3601	0.001976701	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2023	Aggregat	Electricity	96.847	3400.665082	0.001947907	491.539	0.002257703	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2024	Aggregat	Electricity	110.185	4008.476792	0.002296063	565.5456	0.002597625	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2025	Aggregat	Electricity	114.361	4308.170861	0.002467728	593.5311	0.002726167	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LDT2	2016	Aggregat	Gasoline	4048.36	132636.7335	0.075974565	18923.62	0.086918699	0.00816	0	0.33292	0.73767	0	3.1891	0.03006	0	0.2561	0.00222	0	0.00271	0.002	0.00421	0.00241	0	0.00295	0.008	0.01203	0.04826	0.06577	0.47862	0.01191	0	0.36451	0.04826	0.06577	0.47862	0.042	0.00364	0	0.00085
San Franc	2025	LDT2	2017	Aggregat	Gasoline	5537.58	189389.3337	0.108482559	26202.07	0.120349576	0.00771	0	0.31055	0.71888	0	3.04992	0.02854	0	0.24579	0.00238	0	0.00293	0.002	0.00414	0.00259	0	0.00318	0.008	0.01183	0.04764	0.06577	0.4783	0.01126	0	0.34002	0.04764	0.06577	0.4783	0.042	0.00358	0	0.00083
San Franc	2025	LDT2	2018	Aggregat	Gasoline	5974.16	213123.1575	0.122077337	28610.09	0.131409927	0.0073	0	0.2877	0.69084	0	2.90189	0.02706	0	0.23485	0.00248	0	0.00305	0.002	0.00407	0.0027	0	0.00332	0.008	0.01163	0.03213	0.05201	0.38422	0.01065	0	0.31499	0.03213	0.05201	0.38422	0.042	0.00358	0	0.00083
San Franc	2025	LDT2	2019	Aggregat	Gasoline	4963.96	184685.3304	0.105788098	24056.64	0.110495322	0.00696	0	0.26752	0.65691	0	2.77004	0.02569	0	0.22366	0.00235	0	0.00289	0.002	0.00399	0.00255	0	0.00314	0.008	0.01141	0.03172	0.05201	0.38396	0.01016	0	0.2929	0.03172	0.05201	0.38396	0.042	0.00344	0	0.00079
San Franc	2025	LDT2	2020	Aggregat	Gasoline	3065.74	118889.1132	0.068099903	15033	0.069048567	0.00648	0	0.24093	0.6235	0	2.63875	0.02407	0	0.20975	0.00168	0	0.00207	0.002	0.00392	0.00183	0	0.00225	0.008	0.01119	0.01986	0.04412	0.31612	0.00945	0	0.26379	0.01986	0.04412	0.31612	0.042	0.00344	0	0.00079
San Franc	2025	LDT2	2021	Aggregat	Gasoline	3588.55	145067.2581	0.083094793	17802.24	0.081768036	0.00599	0	0.21893	0.59218	0	2.50941	0.02251	0	0.19426	0.00105	0	0.00129	0.002	0.00383	0.00114	0	0.0014	0.008	0.01095	0.01961	0.04412	0.31591	0.00874	0	0.2397	0.01961	0.04412	0.31591	0.042	0.00327	0	0.00075
San Franc	2025	LDT2	2022	Aggregat	Gasoline	4104.47	172850.3821	0.099009017	20596.75	0.094603586	0.00551	0	0.19821	0.5597	0	2.39819	0.02097	0	0.17767	0.00105	0	0.00129	0.002	0.00375	0.00114	0	0.0014	0.008	0.0107	0.01869	0.03718	0.25061	0.00804	0	0.21701	0.01869	0.03718	0.25061	0.042	0.00315	0	0.00072
San Franc	2025	LDT2	2023	Aggregat	Gasoline	4059.87	178028.4976	0.101975052	20605.55	0.094643996	0.00487	0	0.17429	0.51919	0	2.2147	0.01931	0	0.1562	0.00105	0	0.00129	0.002	0.00366	0.00114	0	0.0014	0.008	0.01045	0.01847	0.03718	0.25044	0.0071	0	0.19082	0.01847	0.03718	0.25044	0.042	0.00304	0	0.0007
San Franc	2025	LDT2	2024	Aggregat	Gasoline	4096.67	186974.5894	0.107099389	21027.04	0.096579982	0.00394	0	0.14354	0.46614	0	1.93253	0.01738	0	0.12975	0.00105	0	0.00129	0.002	0.00356	0.00114	0	0.0014	0.008	0.01018	0.01824	0.03718	0.25028	0.00575	0	0.15716	0.01824	0.03718	0.25028	0.042	0.00293	0	0.00067
San Franc	2025	LDT2	2025	Aggregat	Gasoline	3739.8	177685.5794	0.101778627	19409.57	0.089150734	0.00319	0	0.12185	0.41493	0	1.71312	0.01561	0	0.10775	0.00105	0	0.00129	0.002	0.00347	0.00114	0	0.0014	0.008	0.0099	0.01803	0.03718	0.25011	0.00466	0	0.13342	0.01803	0.03718	0.25011	0.042	0.00282	0	0.00064
San Franc	2025	LDT2	2016	Aggregat	Plug-in Hy	5.93655	194.4994611	0.00011141	24.54762	0.00011275	0.00211	0	0.17554	0.27766	0	1.36975	0.00434	0	0.11697	0.0012	0	0.00281	0.002	0.0015	0.00131	0	0.00305	0.008	0.00428	0.0562	0.04337	0.49016	0.00308	0	0.1922	0.0562	0.04337	0.49016	0.02276	0.00171	0	0.00085
San Franc	2025	LDT2	2018	Aggregat	Plug-in Hy	20.7997	742.0099032	0.000425025	86.00659	0.00039504	0.00211	0	0.17554	0.2777	0	1.36975	0.00434	0	0.11697	0.00135	0	0.00316	0.002	0.00149	0.00146	0	0.00343	0.008	0.00427	0.0384	0.03429	0.39387	0.00308	0	0.1922	0.0384	0.03429	0.39387	0.02276	0.00171	0	0.00084
San Franc	2025	LDT2	2019	Aggregat	Plug-in Hy	56.4547	2099.518202	0.001202608	233.4401	0.001072221	0.00205	0	0.17554	0.26962	0	1.36975	0.00421	0	0.11697	0.00123	0	0.00299	0.002	0.00149	0.00134	0	0.00325	0.008	0.00426	0.03844	0.03329	0.39423	0.00299	0	0.1922	0.03844	0.03329	0.39423	0.02209	0.00166	0	0.00081
San Franc	2025	LDT2	2020	Aggregat	Plug-in Hy	40.6936	1577.508432	0.0009036	168.2678	0.000772876	0.00202	0	0.17554	0.26555	0	1.36975	0.00415	0	0.11697	0.00087	0	0.00214	0.002	0.00149	0.00095	0	0.00233	0.008	0.00426	0.02439	0.02781	0.32476	0.00295	0	0.1922	0.02439	0.02781	0.32476	0.02176	0.00164	0	0.0008
San Franc	2025	LDT2	2021	Aggregat	Plug-in Hy	74.5974	3008.699982	0.001723389	308.4604	0.001416799	0.00196	0	0.17554	0.25816	0	1.36975	0.00403	0	0.11697	0.00053	0	0.00133	0.002	0.00149	0.00057	0	0.00145	0.008	0.00426	0.02441	0.02703	0.32502	0.00286	0	0.1922	0.02441	0.02703	0.32502	0.02115	0.00159	0	0.00077
San Franc	2025	LDT2	2022	Aggregat	Plug-in Hy	91.5145	3838.497223	0.002198698	378.4126	0.001738099	0.00177	0	0.17554	0.23277	0	1.36975	0.00364	0	0.11697	0.00047	0	0.00133	0.002	0.00149	0.00052	0	0.00145	0.008	0.00427	0.02365	0.02054	0.25852	0.00258	0	0.1922	0.02365	0.02054	0.25852	0.01907	0.00143	0	0.00074
San Franc	2025	LDT2	2023	Aggregat	Plug-in Hy	97.3895	4250.782118	0.002434856	402.7057	0.00184968	0.00171	0	0.17554	0.22477	0	1.36975	0.00351	0	0.11697	0.00046	0	0.00133	0.002	0.00149	0.0005	0	0.00145	0.008	0.00427	0.02367	0.01983	0.25875	0.00249	0	0.1922	0.02367	0.01983	0.25875	0.01841	0.00138	0	0.00072
San Franc	2025	LDT2	2024	Aggregat	Plug-in Hy	93.2213	4232.062129	0.002424133	385.4701	0.001770515	0.00165	0	0.17554	0.21686	0	1.36975	0.00339	0	0.11697	0.00044	0	0.00133	0.002	0.00149	0.00048	0	0.00145	0.008	0.00426	0.0237	0.01913	0.25897	0.0024	0	0.1922	0.0237	0.01913	0.25897	0.01776	0.00134	0	0.00069
San Franc	2025	LDT2	2025	Aggregat	Plug-in Hy	91.5655	4323.72583	0.002476638	378.6232	0.001739066	0.00158	0	0.17554	0.20859	0	1.36975	0.00326	0	0.11697	0.00042	0	0.00133	0.002	0.00149	0.00046	0	0.00145	0.008	0.00426	0.02373	0.0184	0.2592	0.00231	0	0.1922	0.02373	0.0184	0.2592	0.01708	0.00128	0	0.00066
						Total:	1,745,804	100.00%	217,243	100.00%																															
							Weighted Average Emissions Factors:				0.00590		0.23010	0.58391		2.50979	0.02257		0.19278	0.00163		0.00206	0.00200	0.00380	0.00177		0.00224	0.00800	0.01086		0.04621		0.00859		0.25193		0.04621		0.04116	0.00322		0.00075

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STRI	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PI	PM2.5 PI	PM10 RU	PM10 ID	PM10 ST	PM10 PN	PM10 PN	ROG HOT	ROG RUN	ROG DIUI	TOG RUN	TOG IDLE	TOG STRI	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	LHD1	2016	Aggregat	Diesel	97.8106	3720.90805	0.019822802	1230.334	0.023250842	0.08326	0.10976	0	0.21295	0.90975	0	0.54983	2.29462	0	0.01691	0.02642	0	0.003	0.0273	0.01767	0.02762	0	0.012	0.078	0	0	0	0.09478	0.12495	0	0	0	0	0.22	0.00674	0.00127	0
San Franc	2025	LHD1	2017	Aggregat	Diesel	73.1529	2903.872251	0.015470117	920.1713	0.017389387	0.0818	0.10976	0	0.20076	0.90975	0	0.46148	1.99314	0	0.01589	0.02642	0	0.003	0.0273	0.01661	0.02762	0	0.012	0.078	0	0	0	0.09312	0.12495	0	0	0	0	0.22	0.00652	0.00123	0
San Franc	2025	LHD1	2018	Aggregat	Diesel	55.7616	2316.609371	0.012341527	701.4108	0.013255254	0.08025	0.10976	0	0.18781	0.90975	0	0.36771	1.6494	0	0.01481	0.02642	0	0.003	0.0273	0.01548	0.02762	0	0.012	0.078	0	0	0	0.09135	0.12495	0	0	0	0	0.22	0.00609	0.00115	0
San Franc	2025	LHD1	2019	Aggregat	Diesel	42.8367	1869.440538	0.009959276	538.8324	0.010182849	0.0786	0.10976	0	0.17408	0.90975	0	0.30613	1.43164	0	0.01366	0.02642	0	0.003	0.0273	0.01428	0.02762	0	0.012	0.078	0	0	0	0.08948	0.12495	0	0	0	0	0.22	0.00609	0.00115	0
San Franc	2025	LHD1	2020	Aggregat	Diesel	115.047	5299.176146	0.028230883	1447.148	0.027348193	0.07687	0.10976	0	0.15958	0.90975	0	0.24712	1.21011	0	0.01245	0.02642	0	0.003	0.0273	0.01301	0.02762	0	0.012	0.078	0	0	0	0.08751	0.12495	0	0	0	0	0.22	0.00609	0.00115	0
San Franc	2025	LHD1	2021	Aggregat	Diesel	138.019	6752.315419	0.035972351	1736.109	0.032808973	0.07504	0.10976	0	0.14431	0.90975	0	0.19291	0.99397	0	0.01118	0.02642	0	0.003	0.0273	0.01168	0.02762	0	0.012	0.078	0	0	0	0.08543	0.12495	0	0	0	0	0.22	0.00594	0.00112	0
San Franc	2025	LHD1	2022	Aggregat	Diesel	161.475	8465.485751	0.045099111	2031.157	0.038384792	0.07312	0.10976	0	0.12827	0.90975	0	0.14137	0.77065	0	0.00984	0.02642	0	0.003	0.0273	0.01028	0.02762	0	0.012	0.078	0	0	0	0.08324	0.12495	0	0	0	0	0.22	0.0058	0.00109	0
San Franc	2025	LHD1	2023	Aggregat	Diesel	162.569	9257.011248	0.049315892	2044.919	0.038644866	0.07111	0.10976	0	0.11146	0.90975	0	0.13278	0.77065	0	0.00843	0.02642	0	0.003	0.0273	0.00881	0.02762	0	0.012	0.078	0	0	0	0.08095	0.12495	0	0	0	0	0.22	0.00565	0.00107	0
San Franc	2025	LHD1	2024	Aggregat	Diesel	155.972	9874.086773	0.052603306	1961.929	0.037076523	0.069	0.10976	0	0.09387	0.90975	0	0.12379	0.77065	0	0.00697	0.02642	0	0.003	0.0273	0.00728	0.02762	0	0.012	0.078	0	0	0	0.07855	0.12495	0	0	0	0	0.22	0.00565	0.00107	0
San Franc	2025	LHD1	2025	Aggregat	Diesel	116.842	8668.24825	0.04617931	1469.724	0.027774837	0.0668	0.10976	0	0.07552	0.90975	0	0.11441	0.77065	0	0.00543	0.02642	0	0.003	0.0273	0.00568	0.02762	0	0.012	0.078	0	0	0	0.07605	0.12495	0	0	0	0	0.22	0.00565	0.00107	0
San Franc	2025	LHD1	2024	Aggregat	Electricity	21.2093	1342.777134	0.007153524	296.9441	0.005611646	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LHD1	2025	Aggregat	Electricity	21.9571	1629.049693	0.008678615	306.7273	0.005796529	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LHD1	2016	Aggregat	Gasoline	439.361	16715.83052	0.089052079	6545.824	0.123702905	0.0058	0.46336	0.12759	0.57957	3.7814	3.28343	0.01969	0.04034	0.59017	0.00103	0	7.9E-05	0.002	0.0273	0.00112	0	8.6E-05	0.008	0.078	0.01475	0.0385	0.46622	0.00847	0.67613	0.1397	0.01475	0.0385	0.46622	0.045	0.00849	0.00119	0.00028
San Franc	2025	LHD1	2017	Aggregat	Gasoline	319.534	12685.4867	0.067580786	4760.587	0.089965521	0.0055	0.43742	0.11848	0.56717	3.7814	3.29409	0.01826	0.03808	0.54922	0.0011	0	8.5E-05	0.002	0.0273	0.0012	0	9.3E-05	0.008	0.078	0.01475	0.0385	0.46622	0.00803	0.63828	0.12972	0.01475	0.0385	0.46622	0.045	0.00855	0.00117	0.00033
San Franc	2025	LHD1	2018	Aggregat	Gasoline	229.567	9538.275004	0.050814299	3420.201	0.064634928	0.00503	0.40019	0.10609	0.55597	3.7814	3.29473	0.01629	0.03484	0.49182	0.00115	0	8.9E-05	0.002	0.0273	0.00125	0	9.7E-05	0.008	0.078	0.0102	0.03818	0.40358	0.00734	0.58396	0.11616	0.0102	0.03818	0.40358	0.045	0.0083	0.00112	0.00035
San Franc	2025	LHD1	2019	Aggregat	Gasoline	193.503	8445.527686	0.044992787	2882.91	0.054481198	0.00459	0.36424	0.09441	0.54801	3.7814	3.29537	0.01444	0.03171	0.43764	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.0102	0.03818	0.40358	0.00669	0.5315	0.10336	0.0102	0.03818	0.40358	0.045	0.00819	0.00112	0.00032
San Franc	2025	LHD1	2020	Aggregat	Gasoline	194.333	8952.060759	0.047691296	2895.275	0.054714885	0.00419	0.32829	0.08393	0.54554	3.7814	3.32108	0.01285	0.02858	0.39104	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.00656	0.03788	0.34747	0.00612	0.47904	0.0919	0.00656	0.03788	0.34747	0.045	0.00808	0.00112	0.00029
San Franc	2025	LHD1	2021	Aggregat	Gasoline	231.751	11339.09057	0.060407982	3452.747	0.065249972	0.00389	0.29204	0.07543	0.55026	3.7814	3.41031	0.01168	0.02543	0.35753	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.00656	0.03788	0.34747	0.00567	0.42615	0.08258	0.00656	0.03788	0.34747	0.045	0.00776	0.00109	0.00026
San Franc	2025	LHD1	2022	Aggregat	Gasoline	268.106	14057.1022	0.074887943	3994.383	0.075485807	0.0037	0.25611	0.06927	0.56226	3.7814	3.60089	0.01103	0.0223	0.33967	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.00637	0.03757	0.29354	0.0054	0.37372	0.07584	0.00637	0.03757	0.29354	0.045	0.00747	0.00106	0.00023
San Franc	2025	LHD1	2023	Aggregat	Gasoline	268.012	15262.60898	0.081310172	3992.973	0.075459163	0.00413	0.25611	0.07469	0.57817	3.7814	3.89311	0.01238	0.0223	0.38324	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.00637	0.03757	0.29354	0.00603	0.37372	0.08177	0.00637	0.03757	0.29354	0.045	0.00728	0.00104	0.00024
San Franc	2025	LHD1	2024	Aggregat	Gasoline	247.005	15638.67877	0.08331365	3680.008	0.069544744	0.00454	0.25611	0.07935	0.58847	3.7814	4.17477	0.01364	0.0223	0.42464	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.00637	0.03757	0.29354	0.00663	0.37372	0.08687	0.00637	0.03757	0.29354	0.045	0.00728	0.00104	0.00024
San Franc	2025	LHD1	2025	Aggregat	Gasoline	174.874	12974.84053	0.069122292	2605.366	0.049236186	0.00442	0.25611	0.07391	0.5737	3.7814	4.08683	0.01282	0.0223	0.40211	0.00118	0	9.2E-05	0.002	0.0273	0.00128	0	1E-04	0.008	0.078	0.00637	0.03757	0.29354	0.00645	0.37372	0.08092	0.00637	0.03757	0.29354	0.045	0.00728	0.00104	0.00024
						Total:	187,708	100.00%	52,916	100.00%																															
							Weighted Average Emissions Factors:				0.02616		0.06798	0.42069		2.55639	0.07390		0.32666	0.00390		0.00006	0.00231	0.02708	0.00411		0.00007	0.00926	0.07738		0.02538		0.03077		0.07443		0.02538		0.09941	0.00709		0.00020

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STRI	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PI	PM2.5 PI	PM10 RU	PM10 ID	PM10 ST	PM10 PN	PM10 PN	ROG HOT	ROG RUN	ROG DIUI	TOG RUN	TOG IDLE	TOG STRI	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	LHD2	2016	Aggregat	Diesel	104.008	3856.97881	0.085074194	1308.288	0.104896222	0.09665	0.10976	0	0.24722	0.90975	0	0.63833	2.2947	0	0.01963	0.02642	0	0.003	0.03185	0.02052	0.02762	0	0.012	0.091	0	0	0	0.11003	0.12495	0	0	0	0	0.22	0.00782	0.00205	0
San Franc	2025	LHD2	2017	Aggregat	Diesel	63.0478	2433.839277	0.053683706	793.0615	0.063586252	0.09496	0.10976	0	0.23307	0.90975	0	0.53576	1.99321	0	0.01845	0.02642	0	0.003	0.03185	0.01928	0.02762	0	0.012	0.091	0	0	0	0.10811	0.12495	0	0	0	0	0.22	0.00757	0.00199	0
San Franc	2025	LHD2	2018	Aggregat	Diesel	30.9908	1248.986837	0.027549166	389.8252	0.031255485	0.09316	0.10976	0	0.21803	0.90975	0	0.42715	1.65041	0	0.01719	0.02642	0	0.003	0.03185	0.01797	0.02762	0	0.012	0.091	0	0	0	0.10606	0.12495	0	0	0	0	0.22	0.00708	0.00186	0
San Franc	2025	LHD2	2019	Aggregat	Diesel	35.5084	1499.440445	0.033073474	446.6511	0.035811687	0.09125	0.10976	0	0.20209	0.90975	0	0.35558	1.43237	0	0.01586	0.02642	0	0.003	0.03185	0.01658	0.02762	0	0.012	0.091	0	0	0	0.10388	0.12495	0	0	0	0	0.22	0.00708	0.00186	0
San Franc	2025	LHD2	2020	Aggregat	Diesel	54.8415	2437.762071	0.053770232	689.8374	0.055309928	0.08924	0.10976	0	0.18526	0.90975	0	0.28712	1.21109	0	0.01446	0.02642	0	0.003	0.03185	0.01511	0.02762	0	0.012	0.091	0	0	0	0.10159	0.12495	0	0	0	0	0.22	0.00708	0.00186	0
San Franc	2025	LHD2	2021	Aggregat	Diesel	65.3771	3077.990931	0.067891895	822.3611	0.065935441	0.08711	0.10976	0	0.16753	0.90975	0	0.22375	0.99305	0	0.01298	0.02642	0	0.003	0.03185	0.01356	0.02762	0	0.012	0.091	0	0	0	0.09917	0.12495	0	0	0	0	0.22	0.0069	0.00181	0
San Franc	2025	LHD2	2022	Aggregat	Diesel	75.3122	3788.122611	0.083555419	947.3323	0.075955409	0.08488	0.10976	0	0.14891	0.90975	0	0.16411	0.77057	0	0.01142	0.02642	0	0.003	0.03185	0.01194	0.02762	0	0.012	0.091	0	0	0	0.09664	0.12495	0	0	0	0	0.22	0.00673	0.00177	0
San Franc	2025	LHD2	2023	Aggregat	Diesel	74.915	4078.982421	0.089970975	942.337	0.075554901	0.08255	0.10976	0	0.12939	0.90975	0	0.15413	0.77057	0	0.00979	0.02642	0	0.003	0.03185	0.01023	0.02762	0	0.012	0.091	0	0	0	0.09398	0.12495	0	0	0	0	0.22	0.00656	0.00172	0
San Franc	2025	LHD2	2024	Aggregat	Diesel	71.412	4305.8589	0.094975237	898.2729	0.072021918	0.0801	0.10976	0	0.10898	0.90975	0	0.1437	0.77057	0	0.00809	0.02642	0	0.003	0.03185	0.00845	0.02762	0	0.012	0.091	0	0	0	0.09119	0.12495	0	0	0	0	0.22	0.00656	0.00172	0
San Franc	2025	LHD2	2025	Aggregat	Diesel	54.0808	3801.509167	0.083850689	680.2688	0.054542733	0.07755	0.10976	0	0.08768	0.90975	0	0.13281	0.77057	0	0.00631	0.02642	0	0.003	0.03185	0.00659	0.02762	0	0.012	0.091	0	0	0	0.08829	0.12495	0	0	0	0	0.22	0.00656	0.00172	0
San Franc	2025	LHD2	2024	Aggregat	Electricity	5.40765	326.0700091	0.007192195	71.84708	0.005760571	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.01593	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LHD2	2025	Aggregat	Electricity	5.68319	399.5006218	0.008811869	75.22826	0.006031668	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.01593	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	LHD2	2016	Aggregat	Gasoline	44.1483	1637.339377	0.03611514	657.7443	0.052736766	0.00629	0.46026	0.12674	0.57957	3.7814	3.28343	0.03379	0.04007	0.58622	0.00103	0	7.9E-05	0.002	0.03185	0.00112	0	8.6E-05	0.008	0.091	0.01475	0.0385	0.46622	0.00917	0.67161	0.13876	0.01475	0.0385	0.46622	0.045	0.00945	0.00138	0.00025
San Franc	2025	LHD2	2017	Aggregat	Gasoline	39.364	1519.725583	0.033520907	586.4653	0.04702174	0.00591	0.43084	0.1167	0.56717	3.7814	3.29409	0.03125	0.03751	0.54097	0.0011	0	8.5E-05	0.002	0.03185	0.0012	0	9.3E-05	0.008	0.091	0.01475	0.0385	0.46622	0.00862	0.62869	0.12777	0.01475	0.0385	0.46622	0.045	0.00926	0.00135	0.00025
San Franc	2025	LHD2	2018	Aggregat	Gasoline	18.6843	753.088573	0.016611033	278.3686	0.022319098	0.00531	0.38699	0.10259	0.556	3.7814	3.29473	0.02753	0.03369	0.4756	0.00115	0	8.9E-05	0.002	0.03185	0.00125	0	9.7E-05	0.008	0.091	0.0102	0.03818	0.40358	0.00775	0.5647	0.11233	0.0102	0.03818	0.40358	0.045	0.00886	0.00129	0.00024
San Franc	2025	LHD2	2019	Aggregat	Gasoline	28.646	1209.777496	0.026684317	426.7828	0.03421868	0.00472	0.34336	0.089	0.54806	3.7814	3.29537	0.02394	0.0299	0.41256	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.0102	0.03818	0.40358	0.00688	0.50103	0.09744	0.0102	0.03818	0.40358	0.045	0.00886	0.00129	0.00024
San Franc	2025	LHD2	2020	Aggregat	Gasoline	21.6569	962.7693088	0.021236006	322.6561	0.025869987	0.00418	0.30011	0.07673	0.54558	3.7814	3.32108	0.0208	0.02613	0.35747	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.00656	0.03788	0.34747	0.0061	0.43792	0.08401	0.00656	0.03788	0.34747	0.045	0.00886	0.00129	0.00024
San Franc	2025	LHD2	2021	Aggregat	Gasoline	26.5701	1251.05964	0.027594886	395.8543	0.031738894	0.00372	0.25611	0.06615	0.55028	3.7814	3.41031	0.0183	0.0223	0.31354	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.00656	0.03788	0.34747	0.00543	0.37371	0.07242	0.00656	0.03788	0.34747	0.045	0.00864	0.00126	0.00024
San Franc	2025	LHD2	2022	Aggregat	Gasoline	31.5748	1588.338657	0.03503432	470.4176	0.037717247	0.00334	0.21214	0.05737	0.56227	3.7814	3.60089	0.01648	0.01847	0.28135	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.00637	0.03757	0.29354	0.00488	0.30955	0.06282	0.00637	0.03757	0.29354	0.045	0.00843	0.00122	0.00023
San Franc	2025	LHD2	2023	Aggregat	Gasoline	32.3926	1763.894051	0.038906583	482.602	0.038694167	0.00373	0.21214	0.06186	0.57817	3.7814	3.89311	0.01865	0.01847	0.31744	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.00637	0.03757	0.29354	0.00545	0.30955	0.06773	0.00637	0.03757	0.29354	0.045	0.00822	0.0012	0.00023
San Franc	2025	LHD2	2024	Aggregat	Gasoline	31.3334	1889.471274	0.041676466	466.8217	0.037428927	0.0041	0.21214	0.06572	0.58847	3.7814	4.17477	0.02073	0.01847	0.35173	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.00637	0.03757	0.29354	0.00599	0.30955	0.07196	0.00637	0.03757	0.29354	0.045	0.00822	0.0012	0.00024
San Franc	2025	LHD2	2025	Aggregat	Gasoline	21.4245	1506.141952	0.03322129	319.1924	0.025592279	0.00399	0.21214	0.06122	0.5737	3.7814	4.08683	0.01972	0.01847	0.33307	0.00118	0	9.1E-05	0.002	0.03185	0.00128	0	9.9E-05	0.008	0.091	0.00637	0.03757	0.29354	0.00583	0.30955	0.06703	0.00637	0.03757	0.29354	0.045	0.00822	0.0012	0.00024
						Total:	45,337	100.00%	12,472	100.00%																															
							Weighted Average Emissions Factors:				0.05964		0.03018	0.28571		1.25581	0.19672		0.14487	0.00881		0.00003	0.00267	0.03160	0.00922		0.00003	0.01069	0.09027		0.01178		0.06835		0.03304		0.01178		0.16212	0.00737		0.00008

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STRI	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PI	PM2.5 PI	PM10 RU	PM10 ID	PM10 ST	PM10 PN	PM10 PN	ROG HOT	ROG RUN	ROG DIUI	TOG RUN	TOG IDLE	TOG STRI	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	MDV	2016	Aggregat	Diesel	30.8076	1096.042456	0.001286682	144.0068	0.00150386	0.01979	0	0	0.39131	0	0	0.0382	0	0	0.00535	0	0	0.002	0.00429	0.00559	0	0	0.008	0.01226	0	0	0	0.02253	0	0	0	0	0	0.0031	0.0043	0	0
San Franc	2025	MDV	2017	Aggregat	Diesel	29.985	1113.631755	0.001307331	141.8793	0.001481643	0.01917	0	0	0.37443	0	0	0.0376	0	0	0.00514	0	0	0.002	0.00421	0.00537	0	0	0.008	0.01204	0	0	0	0.02182	0	0	0	0	0	0.0031	0.00423	0	0
San Franc	2025	MDV	2018	Aggregat	Diesel	48.4004	1875.206052	0.002201369	231.7883	0.00242056	0.01851	0	0	0.35652	0	0	0.03696	0	0	0.00492	0	0	0.002	0.00413	0.00514	0	0	0.008	0.01181	0	0	0	0.02107	0	0	0	0	0	0.0031	0.00423	0	0
San Franc	2025	MDV	2019	Aggregat	Diesel	12.5326	506.4739377	0.000594567	60.73633	0.000634268	0.01781	0	0	0.3376	0	0	0.03629	0	0	0.00468	0	0	0.002	0.00405	0.0049	0	0	0.008	0.01157	0	0	0	0.02028	0	0	0	0	0	0.0031	0.00406	0	0
San Franc	2025	MDV	2020	Aggregat	Diesel	17.7857	749.3335665	0.000879668	87.21292	0.000910763	0.01708	0	0	0.31764	0	0	0.03558	0	0	0.00444	0	0	0.002	0.00396	0.00464	0	0	0.008	0.01131	0	0	0	0.01944	0	0	0	0	0	0.0031	0.00406	0	0
San Franc	2025	MDV	2021	Aggregat	Diesel	21.227	932.4444243	0.001094629	105.3038	0.001099686	0.00575	0	0	0.19158	0	0	0.00916	0	0	0.0007	0	0	0.002	0.00386	0.00073	0	0	0.008	0.01104	0	0	0	0.00655	0	0	0	0	0	0.0031	0.00386	0	0
San Franc	2025	MDV	2022	Aggregat	Diesel	24.4184	1117.679314	0.001312082	122.5348	0.001279629	0.00529	0	0	0.17466	0	0	0.00859	0	0	0.00065	0	0	0.002	0.00376	0.00068	0	0	0.008	0.01075	0	0	0	0.00602	0	0	0	0	0	0.0031	0.00373	0	0
San Franc	2025	MDV	2023	Aggregat	Diesel	24.2717	1157.140983	0.001358408	123.189	0.001286461	0.0048	0	0	0.15695	0	0	0.008	0	0	0.0006	0	0	0.002	0.00366	0.00063	0	0	0.008	0.01046	0	0	0	0.00547	0	0	0	0	0	0.0031	0.00359	0	0
San Franc	2025	MDV	2024	Aggregat	Diesel	24.3368	1207.988215	0.001418099	124.9137	0.001304471	0.0043	0	0	0.13845	0	0	0.00738	0	0	0.00055	0	0	0.002	0.00355	0.00058	0	0	0.008	0.01015	0	0	0	0.00489	0	0	0	0	0	0.0031	0.00346	0	0
San Franc	2025	MDV	2025	Aggregat	Diesel	21.5268	1112.680817	0.001306214	111.7238	0.00116673	0.00377	0	0	0.11917	0	0	0.00673	0	0	0.0005	0	0	0.002	0.00344	0.00053	0	0	0.008	0.00982	0	0	0	0.00429	0	0	0	0	0	0.0031	0.00333	0	0
San Franc	2025	MDV	2020	Aggregat	Electricity	19.1107	601.4954108	0.000706116	93.71035	0.000978615	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	2021	Aggregat	Electricity	40.6338	1327.145757	0.001557982	201.5779	0.002105074	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	2022	Aggregat	Electricity	86.3438	2924.837267	0.003433567	433.2846	0.004524783	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	2023	Aggregat	Electricity	115.181	4044.451216	0.00474792	584.5931	0.006104894	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	2024	Aggregat	Electricity	121.322	4413.645756	0.005181331	622.7098	0.006502946	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	2025	Aggregat	Electricity	116.185	4376.895166	0.005138188	602.9992	0.006297109	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	MDV	2016	Aggregat	Gasoline	1290.1	45898.03138	0.053881279	6030.448	0.062975853	0.00832	0	0.34038	0.75119	0	3.21261	0.03136	0	0.26209	0.00222	0	0.00271	0.002	0.00429	0.00241	0	0.00295	0.008	0.01226	0.04826	0.06577	0.47862	0.01214	0	0.37267	0.04826	0.06577	0.47862	0.042	0.00441	0	0.00102
San Franc	2025	MDV	2017	Aggregat	Gasoline	1365.48	50713.38267	0.059534185	6461.004	0.067472132	0.00786	0	0.31692	0.73242	0	3.07247	0.02969	0	0.25155	0.00238	0	0.00293	0.002	0.00421	0.00259	0	0.00318	0.008	0.01204	0.04764	0.06577	0.4783	0.01147	0	0.34699	0.04764	0.06577	0.4783	0.042	0.00434	0	0.001
San Franc	2025	MDV	2018	Aggregat	Gasoline	1541.82	59735.76535	0.070125871	7383.748	0.077108339	0.00743	0	0.29296	0.70344	0	2.92228	0.02805	0	0.24042	0.00248	0	0.00305	0.002	0.00413	0.0027	0	0.00332	0.008	0.01181	0.03213	0.05201	0.38422	0.01084	0	0.32075	0.03213	0.05201	0.38422	0.042	0.00434	0	0.001
San Franc	2025	MDV	2019	Aggregat	Gasoline	1141.62	46135.86062	0.054160475	5532.61	0.057776937	0.00708	0	0.27171	0.66759	0	2.78711	0.02651	0	0.2289	0.00235	0	0.00289	0.002	0.00405	0.00255	0	0.00314	0.008	0.01157	0.03172	0.05201	0.38396	0.01033	0	0.29749	0.03172	0.05201	0.38396	0.042	0.00417	0	0.00096
San Franc	2025	MDV	2020	Aggregat	Gasoline	1785.17	75213.454	0.088295662	8753.683	0.091414542	0.00658	0	0.24399	0.63211	0	2.65231	0.0247	0	0.2144	0.00168	0	0.00207	0.002	0.00396	0.00183	0	0.00225	0.008	0.01131	0.01986	0.04412	0.31612	0.0096	0	0.26714	0.01986	0.04412	0.31612	0.042	0.00417	0	0.00096
San Franc	2025	MDV	2021	Aggregat	Gasoline	2109.19	92655.57294	0.108771566	10463.34	0.109268463	0.00606	0	0.22096	0.59859	0	2.51932	0.02295	0	0.19782	0.00105	0	0.00129	0.002	0.00386	0.00114	0	0.0014	0.008	0.01104	0.01961	0.04412	0.31591	0.00885	0	0.24192	0.01961	0.04412	0.31591	0.042	0.00396	0	0.00091
San Franc	2025	MDV	2022	Aggregat	Gasoline	2370.11	108502.297	0.127374581	11893.54	0.124203963	0.00556	0	0.19928	0.56338	0	2.40381	0.02121	0	0.17984	0.00105	0	0.00129	0.002	0.00376	0.00114	0	0.0014	0.008	0.01075	0.01869	0.03718	0.25061	0.00811	0	0.21818	0.01869	0.03718	0.25061	0.042	0.00382	0	0.00088
San Franc	2025	MDV	2023	Aggregat	Gasoline	2324.34	110837.7692	0.130116272	11797.01	0.123195891	0.00488	0	0.17445	0.51989	0	2.21574	0.01935	0	0.1566	0.00105	0	0.00129	0.002	0.00366	0.00114	0	0.0014	0.008	0.01046	0.01847	0.03718	0.25044	0.00711	0	0.191	0.01847	0.03718	0.25044	0.042	0.00369	0	0.00084
San Franc	2025	MDV	2024	Aggregat	Gasoline	2306.56	114529.9219	0.134450617	11838.92	0.123633649	0.00391	0	0.14296	0.46268	0	1.92765	0.01722	0	0.12806	0.00105	0	0.00129	0.002	0.00355	0.00114	0	0.0014	0.008	0.01015	0.01824	0.03718	0.25028	0.0057	0	0.15652	0.01824	0.03718	0.25028	0.042	0.00355	0	0.00081
San Franc	2025	MDV	2025	Aggregat	Gasoline	2028.11	104873.0533	0.123114087	10525.89	0.109921651	0.00312	0	0.12066	0.4057	0	1.70044	0.01524	0	0.10384	0.00105	0	0.00129	0.002	0.00344	0.00114	0	0.0014	0.008	0.00982	0.01803	0.03718	0.25011	0.00455	0	0.1321	0.01803	0.03718	0.25011	0.042	0.00342	0	0.00078
San Franc	2025	MDV	2016	Aggregat	Plug-in Hy	12.9446	460.5297944	0.000540632	53.52588	0.00055897	0.00211	0	0.17554	0.27766	0	1.36975	0.00434	0	0.11697	0.0012	0	0.00281	0.002	0.0015	0.00131	0	0.00305	0.008	0.00428	0.0562	0.04337	0.49016	0.00308	0	0.1922	0.0562	0.04337	0.49016	0.02276	0.00171	0	0.00103
San Franc	2025	MDV	2017	Aggregat	Plug-in Hy	10.9993	408.5101893	0.000479564	45.48209	0.000474969	0.00211	0	0.17554	0.27766	0	1.36975	0.00434	0	0.11697	0.00129	0	0.00303	0.002	0.0015	0.0014	0	0.00329	0.008	0.00428	0.0562	0.04337	0.49016	0.00308	0	0.1922	0.0562	0.04337	0.49016	0.02276	0.00171	0	0.00102
San Franc	2025	MDV	2018	Aggregat	Plug-in Hy	32.2715	1250.312229	0.001467785	133.4426	0.001393538	0.00211	0	0.17554	0.2777	0	1.36975	0.00434	0	0.11697	0.00135	0	0.00316	0.002	0.00149	0.00146	0	0.00343	0.008	0.00427	0.0384	0.03429	0.39387	0.00308	0	0.1922	0.0384	0.03429	0.39387	0.02276	0.00171	0	0.00102
San Franc	2025	MDV	2019	Aggregat	Plug-in Hy	6.83856	276.3628377	0.000324432	28.27743	0.000295301	0.00205	0	0.17554	0.26962	0	1.36975	0.00421	0	0.11697	0.00123	0	0.00299	0.002	0.00149	0.00134	0	0.00325	0.008	0.00427	0.03844	0.03329	0.39423	0.00299	0	0.1922	0.03844	0.03329	0.39423	0.02209	0.00166	0	0.00098
San Franc	2025	MDV	2020	Aggregat	Plug-in Hy	16.0317	673.6442228	0.000790814	66.29122	0.000692278	0.00202	0	0.17554	0.26555	0	1.36975	0.00415	0	0.11697	0.00087	0	0.00214	0.002	0.00149	0.00095	0	0.00233	0.008	0.00426	0.02439	0.02781	0.32476	0.00295	0	0.1922	0.02439	0.02781	0.32476	0.02176	0.00164	0	0.00098
San Franc	2025	MDV	2021	Aggregat	Plug-in Hy	22.7066	992.6520884	0.001165308	93.89164	0.000980509	0.00196	0	0.17554	0.25816	0	1.36975	0.00403	0	0.11697	0.00053	0	0.00133	0.002	0.00149	0.00057	0	0.00145	0.008	0.00426	0.02441	0.02703	0.32502	0.00286	0	0.1922	0.02441	0.02703	0.32502	0.02115	0.00159	0	0.00093
San Franc	2025	MDV	2022	Aggregat	Plug-in Hy	42.7024	1937.021128	0.002273936	176.5745	0.001843964	0.00177	0	0.17554	0.23277	0	1.36975	0.00364	0	0.11697	0.00047	0	0.00133	0.002	0.00149	0.00052	0	0.00145	0.008	0.00427	0.02365	0.02054	0.25852	0.00258	0	0.1922	0.02365	0.02054	0.25852	0.01907	0.00143	0	0.0009
San Franc	2025	MDV	2023	Aggregat	Plug-in Hy	44.6203	2101.263539	0.002466746	184.5049	0.001926781	0.00171	0	0.17554	0.22477	0	1.36975	0.00351	0	0.11697	0.00046	0	0.00133	0.002	0.00149	0.0005	0	0.00145	0.008	0.00427	0.02367	0.01983	0.25875	0.00249	0	0.1922	0.02367	0.01983	0.25875	0.01841	0.00138	0	0.00087
San Franc	2025	MDV	2024	Aggregat	Plug-in Hy	62.9188	3082.42815	0.003618569	260.1691	0.002716941	0.00165	0	0.17554	0.21686	0	1.36975	0.00339	0	0.11697	0.00044	0	0.00133	0.002	0.00149	0.00048	0	0.00145	0.008	0.00426	0.0237	0.01913	0.25897	0.0024	0	0.1922	0.0237	0.01913	0.25897	0.01776	0.00134	0	0.00084
San Franc	2025	MDV	2025	Aggregat	Plug-in Hy	58.91	3001.415817	0.003523465	243.593	0.002543837	0.00158	0	0.17554	0.20859	0	1.36975	0.00326	0	0.11697	0.00042	0	0.00133	0.002	0.00149	0.00046	0	0.00145	0.008	0.00426	0.02373	0.0184	0.2592	0.00231	0	0.1922	0.02373	0.0184	0.2592	0.01708	0.00128	0	0.00081
						Total:	851,836	100.00%	95,758	100%																															
							Weighted Average Emissions Factors:				0.00549		0.20709	0.54921		2.32889	0.02129		0.17690	0.00141		0.00174	0.00200	0.00372	0.00153		0.00190	0.00800	0.01064		0.04216		0.00796		0.22674		0.04216		0.04025	0.00376		0.00086

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STR	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STR	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PM	PM2.5 PM	PM10 RU	PM10 ID	PM10 ST	PM10 PM	PM10 PM	ROG HOT	ROG RUN	ROG DIU	TOG RUN	TOG IDLE	TOG STR	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	T6 instate	2016	Aggregat	Diesel	330.131	12376.96731	0.201663112	4293.57	0.221947548	0.00585	0.17222	0	0.04798	7.29256	0	0.37786	9.96858	1.73312	0.00258	0.00238	0	0.003	0.01614	0.0027	0.00249	0	0.012	0.04611	0	0	0	0.00666	0.19606	0	0	0	0	0.22	0.01162	0.02042	0
San Franc	2025	T6 instate	2017	Aggregat	Diesel	249.218	9813.445939	0.159894585	3189.439	0.164871709	0.00567	0.17317	0	0.046	7.33307	0	0.36359	10.0239	1.75059	0.00263	0.00239	0	0.003	0.01607	0.00274	0.0025	0	0.012	0.04591	0	0	0	0.00645	0.19715	0	0	0	0	0.22	0.01116	0.01975	0
San Franc	2025	T6 instate	2018	Aggregat	Diesel	150.468	6232.560119	0.101549712	1888.455	0.097619905	0.00546	0.17431	0	0.04386	7.38124	0	0.34779	10.0898	1.77213	0.00267	0.00241	0	0.003	0.01599	0.00279	0.00252	0	0.012	0.04568	0	0	0	0.00622	0.19844	0	0	0	0	0.22	0.01113	0.01988	0
San Franc	2025	T6 instate	2019	Aggregat	Diesel	243.979	10042.11033	0.16362031	3140.211	0.162326959	0.00534	0.17284	0	0.04355	7.31884	0	0.34933	10.0045	1.74439	0.00247	0.00239	0	0.003	0.0161	0.00258	0.0025	0	0.012	0.04599	0	0	0	0.00608	0.19676	0	0	0	0	0.22	0.01117	0.01972	0
San Franc	2025	T6 instate	2020	Aggregat	Diesel	122.454	5162.264436	0.084110937	1579.127	0.081629839	0.00516	0.17272	0	0.04212	7.31401	0	0.33987	9.99788	1.7423	0.00239	0.00239	0	0.003	0.01611	0.0025	0.0025	0	0.012	0.04602	0	0	0	0.00587	0.19663	0	0	0	0	0.22	0.01117	0.0197	0
San Franc	2025	T6 instate	2021	Aggregat	Diesel	37.3404	1423.750063	0.023197756	532.2617	0.027514211	0.00521	0.16647	0	0.04541	7.04926	0	0.37571	9.636	1.63887	0.0017	0.0023	0	0.003	0.01664	0.00178	0.00241	0	0.012	0.04754	0	0	0	0.00593	0.18952	0	0	0	0	0.22	0.01026	0.01717	0
San Franc	2025	T6 instate	2022	Aggregat	Diesel	22.9311	943.4763533	0.015372455	315.5613	0.016312312	0.00489	0.16874	0	0.04164	7.14534	0	0.34178	9.76732	1.67404	0.00187	0.00233	0	0.003	0.01644	0.00196	0.00244	0	0.012	0.04696	0	0	0	0.00557	0.1921	0	0	0	0	0.22	0.0102	0.01741	0
San Franc	2025	T6 instate	2023	Aggregat	Diesel	137.671	6247.854289	0.101798907	1767.977	0.091392063	0.00451	0.17297	0	0.03681	7.32444	0	0.29138	10.0121	1.74682	0.00215	0.00239	0	0.003	0.0161	0.00225	0.0025	0	0.012	0.04601	0	0	0	0.00514	0.19691	0	0	0	0	0.22	0.0101	0.01785	0
San Franc	2025	T6 instate	2024	Aggregat	Diesel	78.7467	3635.074907	0.059227798	1017.866	0.052616533	0.00428	0.17259	0	0.03512	7.30812	0	0.27302	9.98984	1.73976	0.00203	0.00239	0	0.003	0.01614	0.00212	0.00249	0	0.012	0.04611	0	0	0	0.00488	0.19648	0	0	0	0	0.22	0.01002	0.01764	0
San Franc	2025	T6 instate	2025	Aggregat	Diesel	85.6492	4069.309001	0.066302956	1095.758	0.056643055	0.00401	0.17319	0	0.03272	7.33389	0	0.20749	4.01199	1.33624	0.00199	0.00239	0	0.003	0.0161	0.00208	0.0025	0	0.012	0.046	0	0	0	0.00457	0.19717	0	0	0	0	0.22	0.01002	0.01773	0
San Franc	2025	T6 instate	2026	Aggregat	Diesel	15.0335	297.3990272	0.004845647	192.5518	0.009953585	0.00375	0.17313	0	0.03057	7.33104	0	0.16534	4.02425	1.33624	0.00189	0.00239	0	0.003	0.01611	0.00198	0.0025	0	0.012	0.04602	0	0	0	0.00427	0.19709	0	0	0	0	0.22	0.01002	0.01772	0
San Franc	2025	T6 instate	2024	Aggregat	Electricity	6.90269	318.6393507	0.005191724	89.22293	0.004612202	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.00807	0	0	0	0.012	0.02306	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T6 instate	2025	Aggregat	Electricity	9.66068	458.9920333	0.007478549	123.5946	0.006388974	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.00805	0	0	0	0.012	0.023	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T6 instate	2026	Aggregat	Electricity	2.04534	40.46180868	0.000659261	26.19711	0.001354208	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.00805	0	0	0	0.012	0.02301	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T6 instate	2020	Aggregat	Natural Ga	1.75519	73.99266923	0.001205594	22.63422	0.001170031	0.01104	0.16891	0	3.16408	38.869	0	0.05516	5.13888	0	0.00161	0.01947	0	0.003	0.01611	0.00176	0.02118	0	0.012	0.04602	0	0	0	0.78891	12.0648	0	0	0	0	1.06	0	0	0
San Franc	2025	T6 instate	2021	Aggregat	Natural Ga	0.53521	20.4071428	0.000332502	7.629107	0.000394371	0.01245	0.16279	0	3.80843	37.4621	0	0.05956	4.95287	0	0.00185	0.01877	0	0.003	0.01664	0.00201	0.02041	0	0.012	0.04754	0	0	0	0.88955	11.6281	0	0	0	0	1.06	0	0	0
San Franc	2025	T6 instate	2022	Aggregat	Natural Ga	0.32868	13.52319987	0.000220339	4.523058	0.00023381	0.01192	0.16501	0	3.56327	37.9727	0	0.05788	5.02037	0	0.00176	0.01902	0	0.003	0.01644	0.00192	0.02069	0	0.012	0.04696	0	0	0	0.85126	11.7866	0	0	0	0	1.06	0	0	0
San Franc	2025	T6 instate	2023	Aggregat	Natural Ga	1.97329	89.55283511	0.001459122	25.34108	0.001309957	0.01104	0.16915	0	3.15969	38.9245	0	0.05513	5.14621	0	0.00161	0.0195	0	0.003	0.0161	0.00175	0.02121	0	0.012	0.04601	0	0	0	0.78822	12.082	0	0	0	0	1.06	0	0	0
San Franc	2025	T6 instate	2024	Aggregat	Natural Ga	1.12871	52.10288984	0.000848934	14.58945	0.000754172	0.01113	0.16877	0	3.20221	38.8378	0	0.05542	5.13475	0	0.00163	0.01946	0	0.003	0.01614	0.00177	0.02116	0	0.012	0.04611	0	0	0	0.79486	12.0551	0	0	0	0	1.06	0	0	0
San Franc	2025	T6 instate	2025	Aggregat	Natural Ga	1.22764	58.32692971	0.000950345	15.70592	0.000811886	0.01103	0.16937	0	3.1552	38.9747	0	0.0551	5.15285	0	0.00161	0.01953	0	0.003	0.0161	0.00175	0.02124	0	0.012	0.046	0	0	0	0.78752	12.0976	0	0	0	0	1.06	0	0	0
San Franc	2025	T6 instate	2026	Aggregat	Natural Ga	0.21548	4.262731621	6.94545E-05	2.759918	0.000142668	0.01104	0.1693	0	3.1613	38.9595	0	0.05514	5.15085	0	0.00161	0.01952	0	0.003	0.01611	0.00176	0.02123	0	0.012	0.04602	0	0	0	0.78847	12.0929	0	0	0	0	1.06	0	0	0
						Total:	61.374	100.00%	19.345	100%																																
						Weighted Average Emissions Factors:					0.00520		0.00000	0.05841		0.00000	0.33004		1.68424	0.00237		0.00000	0.00300	0.01601	0.00248		0.00000	0.01200	0.04573		0.00000		0.00992		0.00000		0.00000		0.22134	0.01075		0.00000

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STR	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STR	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PM	PM2.5 PM	PM10 RU	PM10 ID	PM10 ST	PM10 PM	PM10 PM	ROG HOT	ROG RUN	ROG DIU	TOG RUN	TOG IDLE	TOG STR	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	T6TS	2024	Aggregat	Electricity	1.45135	125.5608214	0.007792721	29.03854	0.006512635	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.00788	0	0	0	0.012	0.02251	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T6TS	2025	Aggregat	Electricity	1.58796	142.7899264	0.008862016	31.77184	0.007125646	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.00788	0	0	0	0.012	0.02251	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T6TS	2016	Aggregat	Gasoline	17.7518	1071.668097	0.066511273	355.1787	0.079657896	0.00761	1.02858	0.16429	0.17274	15.3009	3.29721	0.06827	0.08956	0.36894	0.0012	0	0.00041	0.003	0.01576	0.00131	0	0.00045	0.012	0.04502	0.01051	0.04051	0.48612	0.01111	1.5009	0.17988	0.01051	0.04051	0.48612	0.045	0.01821	0.00531	0.00042
San Franc	2025	T6TS	2017	Aggregat	Gasoline	57.5419	3653.230231	0.226731571	1151.299	0.258208185	0.00914	1.02858	0.16249	0.16226	15.3009	3.23675	0.09242	0.08956	0.30768	0.00129	0	0.00045	0.003	0.01576	0.0014	0	0.00048	0.012	0.04502	0.01051	0.04051	0.48612	0.01334	1.5009	0.17791	0.01051	0.04051	0.48612	0.045	0.01752	0.00512	0.0004
San Franc	2025	T6TS	2018	Aggregat	Gasoline	36.3956	2426.054353	0.150568971	728.2022	0.163317954	0.01104	1.02858	0.1581	0.16225	15.3009	3.24779	0.08124	0.08956	0.30389	0.00134	0	0.00047	0.003	0.01576	0.00146	0	0.00051	0.012	0.04502	0.00727	0.04018	0.41211	0.01612	1.5009	0.1731	0.00727	0.04018	0.41211	0.045	0.01752	0.00512	0.0004
San Franc	2025	T6TS	2019	Aggregat	Gasoline	11.238	785.3002022	0.048738332	224.85	0.050428366	0.01002	1.02858	0.15253	0.15597	15.3009	3.20396	0.07818	0.08956	0.3421	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00727	0.04018	0.41211	0.01462	1.5009	0.167	0.00727	0.04018	0.41211	0.045	0.01752	0.00512	0.0004
San Franc	2025	T6TS	2020	Aggregat	Gasoline	13.1274	959.9444117	0.059577331	262.6521	0.058906457	0.00976	1.02858	0.14825	0.15415	15.3009	3.19937	0.07819	0.08956	0.33161	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00467	0.03986	0.34771	0.01424	1.5009	0.16232	0.00467	0.03986	0.34771	0.045	0.01752	0.00512	0.0004
San Franc	2025	T6TS	2021	Aggregat	Gasoline	15.8466	1211.047082	0.075161594	317.0588	0.071108532	0.01012	1.02858	0.14855	0.15463	15.3009	3.28485	0.07872	0.08956	0.33883	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00467	0.03986	0.34771	0.01476	1.5009	0.16264	0.00467	0.03986	0.34771	0.045	0.01584	0.00466	0.00037
San Franc	2025	T6TS	2022	Aggregat	Gasoline	18.3495	1463.441758	0.090826044	367.1372	0.082339903	0.01119	1.02858	0.15682	0.1595	15.3009	3.4769	0.08393	0.08956	0.36214	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00454	0.03954	0.28748	0.01633	1.5009	0.1717	0.00454	0.03954	0.28748	0.045	0.01584	0.00466	0.00037
San Franc	2025	T6TS	2023	Aggregat	Gasoline	18.4861	1536.512657	0.095361066	369.8704	0.082952894	0.01281	1.02858	0.17471	0.1708	15.3009	3.82828	0.09462	0.08956	0.41147	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00454	0.03954	0.28748	0.01869	1.5009	0.19128	0.00454	0.03954	0.28748	0.045	0.01584	0.00466	0.00038
San Franc	2025	T6TS	2024	Aggregat	Gasoline	16.7944	1452.943812	0.090174507	336.0233	0.075361827	0.01469	1.02858	0.19436	0.18281	15.3009	4.23127	0.10663	0.08956	0.46781	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00454	0.03954	0.28748	0.02144	1.5009	0.2128	0.00454	0.03954	0.28748	0.045	0.01569	0.00462	0.00038
San Franc	2025	T6TS	2025	Aggregat	Gasoline	14.2802	1284.085099	0.079694575	285.7186	0.064079704	0.014	1.02858	0.17716	0.16989	15.3009	4.08558	0.07557	0.03584	0.33583	0.00138	0	0.00048	0.003	0.01576	0.0015	0	0.00052	0.012	0.04502	0.00454	0.03954	0.28748	0.02043	1.5009	0.19397	0.00454	0.03954	0.28748	0.045	0.01572	0.00463	0.00038
						Total:	16,113	100.00%	4,459	100%																																
						Weighted Average Emissions Factors:					0.01075		0.16126	0.16191		3.39697	0.08440		0.34007	0.00132		0.00046	0.00300	0.01562	0.00144		0.00050	0.01200	0.04464		0.03934		0.01569		0.17656		0.03934		0.04425	0.01653		0.00039

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STR	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STR	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PM	PM2.5 PM	PM10 RU	PM10 ID	PM10 ST	PM10 PM	PM10 PM	ROG HOT	ROG RUN	ROG DIU	TOG RUN	TOG IDLE	TOG STR	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	T7 Single	2016	Aggregat	Diesel	22.3478	1263.205641	0.085625316	210.5163	0.099966625	0.009	1.86284	0	0.07794	27.5249	0	1.15039	22.013	3.72418	0.01908	0.00758	0	0.009	0.02812	0.01994	0.00793	0	0.036	0.08035	0	0	0	0.01024	2.1207	0	0	0	0	0.22	0.01599	0.04321	0
San Franc	2025	T7 Single	2017	Aggregat	Diesel	20.3562	1260.593323	0.085448242	191.7555	0.091057806	0.00892	1.86284	0	0.04513	27.5249	0	1.1138	22.013	3.72418	0.01493	0.00758	0	0.009	0.02812	0.0156	0.00793	0	0.036	0.08035	0	0	0	0.01016	2.1207	0	0	0	0	0.22	0.01658	0.04197	0
San Franc	2025	T7 Single	2018	Aggregat	Diesel	24.7366	1629.444347	0.110450494	233.0185	0.110652117	0.00876	1.86284	0	0.0443	27.5249	0	1.07443	22.013	3.72418	0.0143	0.00758	0	0.009	0.02812	0.01495	0.00793	0	0.036	0.08035	0	0	0	0.00997	2.1207	0	0	0	0	0.22	0.01658	0.04197	0
San Franc	2025	T7 Single	2019	Aggregat	Diesel	53.3509	3582.006308	0.242803239	502.5656	0.238650394	0.0086	1.86284	0	0.04348	27.5249	0	1.03189	22.013	3.72418	0.01367	0.00758	0	0.009	0.02812	0.01429	0.00793	0	0.036	0.08035	0	0	0	0.00979	2.1207	0	0	0	0	0.22	0.01658	0.04197	0
San Franc	2025	T7 Single	2020	Aggregat	Diesel	16.739	1048.059301	0.071041805	157.681	0.074877033	0.00844	1.86284	0	0.04267	27.5249	0	0.98562	22.013	3.72418	0.01306	0.00758	0	0.009	0.02812	0.01365	0.00793	0	0.036	0.08035	0	0	0	0.0096	2.1207	0	0	0	0	0.22	0.01658	0.04197	0
San Franc	2025	T7 Single	2021	Aggregat	Diesel	11.394	701.6600408	0.047561427	107.3314	0.050967826	0.00828	1.86284	0	0.04187	27.5249	0	0.93477	22.013	3.72418	0.01246	0.00758	0	0.009	0.02812	0.01302	0.00793	0	0.036	0.08035	0	0	0	0.00943	2.1207	0	0	0	0	0.22	0.01456	0.03684	0
San Franc	2025	T7 Single	2022	Aggregat	Diesel	13.1526	878.1655011	0.059525699	123.8979	0.058834669	0.00813	1.86284	0	0.0411	27.5249	0	0.87804	22.013	3.72418	0.01187	0.00758	0	0.009	0.02812	0.01241	0.00793	0	0.036	0.08035	0	0	0	0.00925	2.1207	0	0	0	0	0.22	0.01456	0.03684	0
San Franc	2025	T7 Single	2023	Aggregat	Diesel	12.655	881.478075	0.059750239	119.2104	0.056608748	0.00798	1.86284	0	0.04036	27.5249	0	0.77992	22.013	3.72418	0.01106	0.00758	0	0.009	0.02812	0.01156	0.00793	0	0.036	0.08035	0	0	0	0.00908	2.1207	0	0	0	0	0.22	0.01456	0.03684	0
San Franc	2025	T7 Single	2024	Aggregat	Diesel	11.6265	848.4505468	0.057511496	109.5219	0.052008044	0.00784	1.86284	0	0.03965	27.5249	0	0.70541	22.013	3.72418	0.0106	0.00758	0	0.009	0.02812	0.01107	0.00793	0	0.036	0.08035	0	0	0	0.00892	2.1207	0	0	0	0	0.22	0.01439	0.03641	0
San Franc	2025	T7 Single	2025	Aggregat	Diesel	15.632	1292.324986	0.087599146	147.253	0.069925166	0.00771	1.86284	0	0.03897	27.5249	0	0.51935	9.00191	2.85496	0.01016	0.00758	0	0.009	0.02812	0.01062	0.00793	0	0.036	0.08035	0	0	0	0.00877	2.1207	0	0	0	0	0.22	0.01443	0.03652	0
San Franc	2025	T7 Single	2026	Aggregat	Diesel	2.45226	84.6848635	0.005740291	23.10025	0.01096948	0.00758	1.86284	0	0.03834	27.5249	0	0.3461	9.03574	2.85722	0.00976	0.00758	0	0.009	0.03107	0.0102	0.00793	0	0.036	0.08878	0	0	0	0.00863	2.1207	0	0	0	0	0.22	0.01443	0.03652	0
San Franc	2025	T7 Single	2024	Aggregat	Electricity	1.03275	75.36508007	0.005108558	9.728475	0.004619704	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.01406	0	0	0	0.036	0.04018	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Single	2025	Aggregat	Electricity	1.81832	150.3243146	0.010189605	17.12859	0.008133753	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.01406	0	0	0	0.036	0.04018	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Single	2026	Aggregat	Electricity	0.34396	11.87829162	0.00080516	3.240148	0.00153863	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.01554	0	0	0	0.036	0.04439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Single	2016	Aggregat	Natural Ga	1.32233	74.74422252	0.005066473	12.45631	0.005915053	0.01504	0.52977	0	10.518	37.7368	0	0.63067	12.2227	0	0.00111	0.02166	0	0.009	0.02812	0.0012	0.02356	0	0.036	0.08035	0	0	0	1.07405	37.8404	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2017	Aggregat	Natural Ga	1.64281	101.733824	0.00689594	15.47527	0.00734865	0.01519	0.52977	0	7.04654	37.7368	0	0.4512	12.2227	0	0.00159	0.02166	0	0.009	0.02812	0.00173	0.02356	0	0.036	0.08035	0	0	0	1.08513	37.8404	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2018	Aggregat	Natural Ga	6.41115	422.3146661	0.028626239	60.39305	0.028678495	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2019	Aggregat	Natural Ga	1.39208	93.46482303	0.006335433	13.11338	0.006227074	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2020	Aggregat	Natural Ga	1.0298	64.47801893	0.004370587	9.700745	0.004606536	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2021	Aggregat	Natural Ga	0.70097	43.16707018	0.002926043	6.603172	0.003135609	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2022	Aggregat	Natural Ga	0.80917	54.02592368	0.003662101	7.622366	0.003619588	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2023	Aggregat	Natural Ga	0.77855	54.22971769	0.003675915	7.333985	0.003482646	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2024	Aggregat	Natural Ga	0.71528	52.19781969	0.003538185	6.737938	0.003199605	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2025	Aggregat	Natural Ga	0.9617	79.50557266	0.005389217	9.059203	0.00430189	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.02812	0.00226	0.0467	0	0.036	0.08035	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Single	2026	Aggregat	Natural Ga	0.15087	5.209926792	0.00035315	1.421158	0.000674857	0.01525	0.37243	0	4.03928	85.7031	0	0.16386	11.3308	0	0.00207	0.04294	0	0.009	0.03107	0.00226	0.0467	0	0.036	0.08878	0	0	0	1.08902	26.6019	0	0	0	0	1.06	0	0	0
						Total:	14.753	100.00%	2.106	100%																																
						Weighted Average Emissions Factors:					0.00879		0.00000	0.38148		0.00000	0.88024		3.33554	0.01239		0.00000	0.00900	0.02792	0.01296		0.00000	0.03600	0.07976		0.00000		0.08582		0.00000		0.00000		0.27596	0.01443		0.00000

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUN	ROG IDLE	ROG STR	CO RUNE	CO IDLEX	CO STREX	NOx RUN	NOx IDLE	NOx STR	PM2.5 RU	PM2.5 ID	PM2.5 ST	PM2.5 PM	PM2.5 PM	PM10 RU	PM10 ID	PM10 ST	PM10 PM	PM10 PM	ROG HOT	ROG RUN	ROG DIU	TOG RUN	TOG IDLE	TOG STR	TOG HOT	TOG RUN	TOG DIU	NH3 RUN	SOx RUN	SOx IDLE	SOx STREX
San Franc	2025	T7 Tractor	2016	Aggregat	Diesel	10.3286	775.1620707	0.081071415	150.0751	0.089689612	0.01014	3.45634	0	0.0829	51.0703	0	1.33981	40.8434	4.37918	0.02739	0.01407	0	0.009	0.02743	0.02863	0.01471	0	0.036	0.07837	0	0	0	0.01155	3.93478	0	0	0	0	0.22	0.01533	0.08018	0
San Franc	2025	T7 Tractor	2017	Aggregat	Diesel	13.2015	1024.590284	0.107158216	191.8179	0.114636408	0.01019	3.45634	0	0.04727	51.0703	0	1.31383	40.8434	4.37918	0.02158	0.01407	0	0.009	0.02743	0.02255	0.01471	0	0.036	0.07837	0	0	0	0.0116	3.93478	0	0	0	0	0.22	0.01594	0.07787	0
San Franc	2025	T7 Tractor	2018	Aggregat	Diesel	8.78714	705.4630087	0.073781841	127.6771	0.076303857	0.00997	3.45634	0	0.04627	51.0703	0	1.28351	40.8434	4.37918	0.0207	0.01407	0	0.009	0.02743	0.02164	0.01471	0	0.036	0.07837	0	0	0	0.01135	3.93478	0	0	0	0	0.22	0.01557	0.07787	0
San Franc	2025	T7 Tractor	2019	Aggregat	Diesel	11.346	942.4630877	0.098568828	164.8572	0.098523895	0.00973	3.45634	0	0.04516	51.0703	0	1.24819	40.8434	4.37918	0.01973	0.01407	0	0.009	0.02743	0.02063	0.01471	0	0.036	0.07837	0	0	0	0.01108	3.93478	0	0	0	0	0.22	0.01557	0.07787	0
San Franc	2025	T7 Tractor	2020	Aggregat	Diesel	9.70501	834.2234189	0.08724843	141.0138	0.084274306	0.00947	3.45634	0	0.04395	51.0703	0	1.20693	40.8434	4.37918	0.01868	0.01407	0	0.009	0.02743	0.01952	0.01471	0	0.036	0.07837	0	0	0	0.01078	3.93478	0	0	0	0	0.22	0.01557	0.07787	0
San Franc	2025	T7 Tractor	2021	Aggregat	Diesel	8.51015	757.0669128	0.079178908	123.6525	0.073898661	0.00919	3.45634	0	0.04264	51.0703	0	1.15838	40.8434	4.37918	0.01753	0.01407	0	0.009	0.02743	0.01832	0.01471	0	0.036	0.07837	0	0	0	0.01046	3.93478	0	0	0	0	0.22	0.01338	0.06835	0
San Franc	2025	T7 Tractor	2022	Aggregat	Diesel	7.60042	699.7933055	0.073188867	110.4341	0.065998902	0.00889	3.45634	0	0.04123	51.0703	0	1.10045	40.8434	4.37918	0.01629	0.01407	0	0.009	0.02743	0.01702	0.01471	0	0.036	0.07837	0	0	0	0.01012	3.93478	0	0	0	0	0.22	0.01338	0.06835	0
San Franc	2025	T7 Tractor	2023	Aggregat	Diesel	6.48642	618.1282931	0.064647817	94.24775	0.05632543	0.00856	3.45634	0	0.03971	51.0703	0	1.02058	40.8434	4.37918	0.0148	0.01407	0	0.009	0.02743	0.01547	0.01471	0	0.036	0.07837	0	0	0	0.00974	3.93478	0	0	0	0	0.22	0.01338	0.06835	0
San Franc	2025	T7 Tractor	2024	Aggregat	Diesel	5.75312	567.4213907	0.059344564	83.59277	0.049957678	0.00821	3.45634	0	0.03809	51.0703	0	0.93048	40.8434	4.37918	0.01342	0.01407	0	0.009	0.02743	0.01402	0.01471	0	0.036	0.07837	0	0	0	0.00935	3.93478	0	0	0	0	0.22	0.01274	0.06606	0
San Franc	2025	T7 Tractor	2025	Aggregat	Diesel	3.97019	405.2429685	0.042382906	57.6868	0.034475453	0.00784	3.45634	0	0.03637	51.0703	0	0.7028	16.8095	3.36163	0.01196	0.01407	0	0.009	0.02743	0.0125	0.01471	0	0.036	0.07837	0	0	0	0.00892	3.93478	0	0	0	0	0.22	0.01276	0.06613	0
San Franc	2025	T7 Tractor	2026	Aggregat	Diesel	1.64392	69.91545022	0.007312206	23.88611	0.014275091	0.00745	3.45634	0	0.03454	51.0703	0	0.48866	16.9031	3.36559	0.01041	0.01407	0	0.009	0.03031	0.01088	0.01471	0	0.036	0.0866	0	0	0	0.00848	3.93478	0	0	0	0	0.22	0.01275	0.06612	0
San Franc	2025	T7 Tractor	2024	Aggregat	Electricity	0.28254	27.86662281	0.00291447	4.105323	0.002453471	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.01372	0	0	0	0.036	0.03919	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Tractor	2025	Aggregat	Electricity	0.28618	29.21036795	0.003055007	4.158129	0.002485029	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.01372	0	0	0	0.036	0.03919	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Tractor	2026	Aggregat	Electricity	0.17424	7.410401923	0.000775027	2.53171	0.00151303	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.01516	0	0	0	0.036	0.0433	0	0	0	0	0	0	0	0	0	0	0	0	0
San Franc	2025	T7 Tractor	2016	Aggregat	Natural Ga	21.2208	1592.616694	0.166566057	308.3382	0.184272657	0.01419	0.98294	0	10.3287	70.0175	0	0.59752	22.6783	0	0.00106	0.04019	0	0.009	0.02743	0.00116	0.04371	0	0.036	0.07837	0	0	0	1.01343	70.2099	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2017	Aggregat	Natural Ga	1.72326	133.7453802	0.013987949	25.03903	0.014964118	0.01444	0.98294	0	6.74995	70.0175	0	0.43573	22.6783	0	0.00153	0.04019	0	0.009	0.02743	0.00166	0.04371	0	0.036	0.07837	0	0	0	1.03159	70.2099	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2018	Aggregat	Natural Ga	0.11501	9.233350929	0.000965683	1.671083	0.000998692	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2019	Aggregat	Natural Ga	0.31529	26.18982116	0.002739099	4.581168	0.002737851	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2020	Aggregat	Natural Ga	0.8245	70.87244866	0.007412295	11.98	0.007159624	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2021	Aggregat	Natural Ga	0.72299	64.31752537	0.006726739	10.50505	0.006278149	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2022	Aggregat	Natural Ga	0.6457	59.45177754	0.006217848	9.382061	0.005607016	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2023	Aggregat	Natural Ga	0.55106	52.5138287	0.005492233	8.00693	0.004785194	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2024	Aggregat	Natural Ga	0.48876	48.20596314	0.005041688	7.101724	0.004244214	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2025	Aggregat	Natural Ga	0.33729	34.42790124	0.00360069	4.900851	0.002928903	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.02743	0.00217	0.08664	0	0.036	0.07837	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
San Franc	2025	T7 Tractor	2026	Aggregat	Natural Ga	0.13966	5.939750724	0.000621217	2.029273	0.001212757	0.01459	0.69101	0	3.65716	159.015	0	0.16035	21.0234	0	0.00199	0.07966	0	0.009	0.03031	0.00217	0.08664	0	0.036	0.0866	0	0	0	1.04212	49.3577	0	0	0	0	1.06	0	0	0
						Total:	9,561	100.00%	1,673	100%																																
						Weighted Average Emissions Factors:					0.01037		0.00000	1.99330		0.00000	1.01111		3.27145	0.01483		0.00000	0.00900	0.02736	0.01551		0.00000	0.03600	0.07818		0.00000		0.23193		0.00000		0.00000		0.40279	0.01129		0.00000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

2016+ Model Year Data use for SFG Controlled Scenario Operations:

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUNEX	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	SOx_RUNEX	NH3_RUNEX	PM10_PMBW	PM2.5_PMBW
San Franci	2025	T6TS	2016	5	Gasoline	29.07723931	29.07723931	0	0.119438241	0.006243584	0.006790467	0.039512053	0.057655895	0.323110242	0.039404084	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2017	5	Gasoline	99.12196694	99.12196694	0	0.161678672	0.006708532	0.00729614	0.047450171	0.069239179	0.3035072	0.037914613	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2018	5	Gasoline	65.82538306	65.82538306	0	0.14212284	0.0069875	0.007599544	0.057343447	0.083675424	0.303485378	0.037915035	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2019	5	Gasoline	21.30730771	21.30730771	0	0.136768421	0.007173479	0.007801813	0.052030972	0.075923472	0.291742017	0.037914624	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2020	5	Gasoline	26.04587508	26.04587508	0	0.136780272	0.007173479	0.007801813	0.050673291	0.073942348	0.288345453	0.037914513	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2021	5	Gasoline	32.85896625	32.85896625	0	0.137705784	0.007173479	0.007801813	0.052531897	0.076654421	0.289235799	0.034290379	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2022	5	Gasoline	39.70711299	39.70711299	0	0.146834647	0.007173479	0.007801813	0.058100211	0.084779692	0.298344533	0.03429076	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2023	5	Gasoline	41.68972312	41.68972312	0	0.165524979	0.007173479	0.007801813	0.066510733	0.097052305	0.3194926	0.034291451	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2024	5	Gasoline	39.42227547	39.42227547	0	0.186545663	0.007173479	0.007801813	0.076276328	0.111302239	0.341947456	0.033964758	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2025	5	Gasoline	34.8406842	34.8406842	0	0.132210095	0.007173479	0.007801813	0.072696274	0.106078232	0.317784767	0.034031481	0.045	0.061495877	0.021523557
San Franci	2025	T6TS	2024	5	Electricity	3.406802967	0	3.406802967	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Franci	2025	T6TS	2025	5	Electricity	3.874274949	0	3.874274949	0	0	0	0	0	0	0	0	0.030747939	0.010761779
Weighted	2025	T6TS	2016+	5	Gasoline	429.8965341	429.8965341	0	0.15014577	0.006974902	0.007585843	0.056760411	0.082824659	0.307992726	0.03637541	0.045	0.061495877	0.021523557
Weighted	2025	T6TS	2016+	5	Electricity	7.281077916	0	7.281077916	0	0	0	0	0	0	0	0	0.030747939	0.010761779

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUN	PM10_RUN	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	SOx_RUNEX	NH3_RUNEX	PM10_PMB	PM2.5_PMI
San Francisco (SF)	2025	T6 instate	2016	10	Diesel	351.042621	351.043	0	1.395162	0.003167	0.00331	0.03242	0.036907	0.159013	0.019735	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2017	10	Diesel	268.029362	268.029	0	1.369159	0.003104	0.003245	0.031593	0.035966	0.154958	0.018989	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2018	10	Diesel	162.904107	162.904	0	1.339456	0.003035	0.003173	0.030692	0.034941	0.150539	0.018989	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2019	10	Diesel	278.437899	278.438	0	1.305226	0.002961	0.003095	0.029717	0.033831	0.145757	0.018989	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2020	10	Diesel	143.970909	143.971	0	1.266015	0.002881	0.003011	0.028668	0.032636	0.140612	0.018989	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2021	10	Diesel	50.8846822	50.8847	0	1.220138	0.002795	0.002922	0.027545	0.031358	0.135103	0.017174	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2022	10	Diesel	30.9015488	30.9015	0	1.166857	0.002704	0.002826	0.026348	0.029995	0.12923	0.017174	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2023	10	Diesel	173.912945	173.913	0	1.08639	0.002584	0.002701	0.025076	0.028547	0.122995	0.017174	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2024	10	Diesel	103.067746	103.068	0	1.008105	0.002488	0.0026	0.023731	0.027016	0.116395	0.01701	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2025	10	Diesel	113.049198	113.049	0	0.774357	0.002386	0.002494	0.022311	0.0254	0.109433	0.017043	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2026	10	Diesel	8.28411337	8.28411	0	0.616176	0.002278	0.002381	0.020818	0.023699	0.102107	0.017041	0.22	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2024	10	Electricity	9.0345978	0	9.0346	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francisco (SF)	2025	T6 instate	2025	10	Electricity	12.7512266	0	12.7512	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francisco (SF)	2025	T6 instate	2026	10	Electricity	1.12707232	0	1.12707	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francisco (SF)	2025	T6 instate	2020	10	Natural Gas	2.06358895	2.06359	0	0.11747	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2021	10	Natural Gas	0.72934921	0.72935	0	0.117429	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2022	10	Natural Gas	0.44292347	0.44292	0	0.117442	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2023	10	Natural Gas	2.49275937	2.49276	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2024	10	Natural Gas	1.4773086	1.47731	0	0.117467	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2025	10	Natural Gas	1.62037649	1.62038	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6 instate	2026	10	Natural Gas	0.1187393	0.11874	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
Weighted Average	2025	T6 instate	2016+	10	Diesel	1684.48513	1684.49	0	1.249202	0.002908	0.003039	0.02907	0.033094	0.142582	0.018608	0.22	0.061496	0.021524
Weighted Average	2025	T6 instate	2016+	10	Electricity	22.9128968	0	22.9129	0	0	0	0	0	0	0	0	0.030748	0.010762
Weighted Average	2025	T6 instate	2016+	10	Natural Gas	8.94504539	8.94505	0	0.117465	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2024	10	Electricity	6.08264282	0	6.08264	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francisco (SF)	2025	T6TS	2025	10	Electricity	6.91728606	0	6.91729	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francisco (SF)	2025	T6TS	2016	10	Gasoline	51.9156707	51.9157	0	0.103634	0.003928	0.004273	0.024875	0.036298	0.29442	0.031988	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2017	10	Gasoline	176.97634	176.976	0	0.140284	0.004221	0.004591	0.029873	0.04359	0.276557	0.030778	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2018	10	Gasoline	117.527282	117.527	0	0.123316	0.004397	0.004782	0.036101	0.052679	0.276537	0.030779	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2019	10	Gasoline	38.0429228	38.0429	0	0.11867	0.004514	0.004909	0.032757	0.047798	0.265837	0.030778	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2020	10	Gasoline	46.5033512	46.5034	0	0.118681	0.004514	0.004909	0.031902	0.046551	0.262742	0.030778	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2021	10	Gasoline	58.6677178	58.6677	0	0.119484	0.004514	0.004909	0.033072	0.048258	0.263553	0.027836	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2022	10	Gasoline	70.894674	70.8947	0	0.127405	0.004514	0.004909	0.036577	0.053374	0.271853	0.027837	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2023	10	Gasoline	74.4345057	74.4345	0	0.143622	0.004514	0.004909	0.041872	0.0611	0.291123	0.027837	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2024	10	Gasoline	70.3861136	70.3861	0	0.161861	0.004514	0.004909	0.04802	0.070071	0.311584	0.027572	0.045	0.061496	0.021524
San Francisco (SF)	2025	T6TS	2025	10	Gasoline	62.2059566	62.206	0	0.114715	0.004514	0.004909	0.045767	0.066782	0.289567	0.027626	0.045	0.061496	0.021524
Weighted Average	2025	T6TS	2016+	10	Electricity	12.9999289	0	12.9999	0	0	0	0	0	0	0	0	0.030748	0.010762
Weighted Average	2025	T6TS	2016+	10	Gasoline	767.554534	767.555	0	0.130278	0.004389	0.004773	0.035734	0.052143	0.280645	0.029529	0.045	0.061496	0.021524
San Francisco (SF)	2025	T7 Single	2016	10	Diesel	14.9681442	14.9681	0	6.097104	0.006275	0.006559	0.052495	0.059762	0.687712	0.027668	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2017	10	Diesel	14.9371899	14.9372	0	5.903176	0.005545	0.005796	0.04719	0.053722	0.44441	0.02663	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2018	10	Diesel	19.3078285	19.3078	0	5.694518	0.005311	0.005551	0.046323	0.052735	0.43624	0.02663	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2019	10	Diesel	42.4443852	42.4444	0	5.469049	0.005079	0.005309	0.045463	0.051756	0.428147	0.02663	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2020	10	Diesel	12.4188036	12.4188	0	5.223795	0.004851	0.00507	0.044617	0.050793	0.420176	0.02663	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2021	10	Diesel	8.31420341	8.3142	0	4.954326	0.004627	0.004836	0.043788	0.04985	0.412375	0.023376	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2022	10	Diesel	10.4056754	10.4057	0	4.65361	0.00441	0.004609	0.042983	0.048933	0.404789	0.023376	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2023	10	Diesel	10.4449272	10.4449	0	4.133575	0.004109	0.004294	0.042205	0.048047	0.397465	0.023376	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2024	10	Diesel	10.053573	10.0536	0	3.738692	0.003935	0.004113	0.04146	0.047199	0.390449	0.023104	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2025	10	Diesel	15.313189	15.3132	0	2.752547	0.003774	0.003945	0.040753	0.046394	0.383789	0.023176	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2026	10	Diesel	1.00345914	1.00346	0	1.834316	0.003624	0.003788	0.040088	0.045638	0.377529	0.023172	0.22	0.151225	0.052929
San Francisco (SF)	2025	T7 Single	2024	10	Electricity	0.89302592	0	0.89303	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francisco (SF)	2025	T7 Single	2025	10	Electricity	1.78124285	0	1.78124	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francisco (SF)	2025	T7 Single	2026	10	Electricity	0.14074983	0	0.14075	0	0	0	0	0	0	0	0	0.075613	0.026464
San Francisco (SF)	2025	T7 Single	2016	10	Natural Gas	0.88566918	0.88567	0	3.82542	0.004437	0.004826	0.095012	6.786603	23.09307	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2017	10	Natural Gas	1.20547795	1.20548	0	1.827685	0.006373	0.006931	0.082435	5.888223	22.20168	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2018	10	Natural Gas	5.00414707	5.00415	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2019	10	Natural Gas	1.1074958	1.1075	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2020	10	Natural Gas	0.76402151	0.76402	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2021	10	Natural Gas	0.51150099	0.5115	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2022	10	Natural Gas	0.64017116	0.64017	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2023	10	Natural Gas	0.64258598	0.64259	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2024	10	Natural Gas	0.61850934	0.61851	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2025	10	Natural Gas	0.942088	0.94209	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Single	2026	10	Natural Gas	0.06173416	0.06173	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.151225	0.052929
Weighted Average	2025	T7 Single	2016+	10	Diesel	159.611378	159.611	0	5.016935	0.001832	0.001916	0.018617	0.058252	0.298502	0.010168	0.099546	0.060428	0.02115
Weighted Average	2025	T7 Single	2016+	10	Electricity	2.8150186	0	2.81502	0	0	0	0	0	0	0	0	0.068896	0.024114
Weighted Average	2025	T7 Single	2016+	10	Natural Gas	12.3834011	12.3834	0	0.809767	0.007843	0.00853	0.073574	5.255319	21.37813	0	1.06	0.137155	0.048004
San Francisco (SF)	2025	T7 Tractor	2016	10	Diesel	6.27648006	6.27648	0	7.554571	0.008797	0.009195	0.061896	0.070464	0.810875	0.027425	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2017	10	Diesel	8.29609797	8.2961	0	7.408077	0.007818	0.008172	0.055612	0.06331	0.523721	0.026396	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2018	10	Diesel	5.7121274	5.71213	0	7.237134	0.0075	0.007839	0.054434	0.061969	0.512631	0.025187	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2019	10	Diesel	7.63111483	7.63111	0	7.037975	0.00715	0.007473	0.053135	0.06049	0.500398	0.025187	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2020	10	Diesel	6.75469924	6.7547	0	6.80534	0.006766	0.007072	0.051715	0.058873	0.487021	0.025187	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2021	10	Diesel	6.12996373	6.12996	0	6.531583	0.00635	0.006637	0.050173	0.057118	0.472502	0.021638	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2022	10	Diesel	5.66621987	5.66622	0	6.204922	0.005901	0.006168	0.04851	0.055225	0.456839	0.021638	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2023	10	Diesel	5.00497902	5.00498	0	5.754584	0.005363	0.005606	0.046725	0.053193	0.440033	0.021638	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2024	10	Diesel	4.59440571	4.59441	0	5.246547	0.004861	0.005081	0.044819	0.051024	0.422084	0.020609	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2025	10	Diesel	3.28124854	3.28125	0	3.962771	0.004332	0.004528	0.042792	0.048716	0.402991	0.020633	0.22	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2026	10	Diesel	0.56610475	0.5661	0	2.755319	0.003772	0.003943	0.040643	0.046269	0.382756	0.020629	0.22	0.151225	0.052929
San Francisco (SF)	2025	T7 Tractor	2024	10	Electricity	0.22563579	0	0.22564	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francisco (SF)	2025	T7 Tractor	2025	10	Electricity	0.23651608	0	0.23652	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francisco (SF)	2025	T7 Tractor	2026	10	Electricity	0.06000196	0	0.06	0	0	0	0	0	0	0	0	0.075613	0.026464
San Francisco (SF)	2025	T7 Tractor	2016	10	Natural Gas	12.8954025	12.8954	0	3.83342	0.004437	0.004826	0.095012	6.786603	23.09307	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2017	10	Natural Gas	1.0829351	1.08294	0	1.831507	0.006373	0.006931	0.082435	5.888223	22.20168	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2018	10	Natural Gas	0.07476236	0.07476	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2019	10	Natural Gas	0.21205874	0.21206	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2020	10	Natural Gas	0.57385356	0.57385	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2021	10	Natural Gas	0.5207784	0.52078	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2022	10	Natural Gas	0.48138049	0.48138	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2023	10	Natural Gas	0.42520398	0.4252	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2024	10	Natural Gas	0.39032323	0.39032	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2025	10	Natural Gas	0.2787624	0.27876	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francisco (SF)	2025	T7 Tractor	2026	10	Natural Gas	0.04809411	0.04809	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.151225	0.052929
Weighted Average	2025	T7 Tractor	2016+	10	Diesel	59.9134411	59.9134	0	6.552037	0.004019	0.004242	0.046069	1.489873	5.211679	0.011813	0.345642	0.103455	0.036209
Weighted Average	2025	T7 Tractor	2016+	10	Electricity	0.52215382	0	0.52215	0	0	0	0	0	0	0	0	0.069355	0.024274
Weighted Average	2025	T7 Tractor	2016+	10	Natural Gas	16.9835549	16.9836	0	3.103883	0.005246	0.005705	0.089907	6.421927	22.68959	0	1.06	0.137125	0.047994

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/hide for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Enviro Consumption	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Francisco	2025	LDA	Aggregate	Aggregate	Gasoline	1.26519	4522617	4522617	0	586607		0.090899504	0	0.251834039	0.001004246	0	0.001929271	0.002003001	0.002135916	0.001636005	0	0.002098258	0.000800002	0.000245474	0.00987364	0	0.318920933	0.091494696	0.235610625	1.385036446	0.014407592	0	0.349178278	0.091494696	0.235610625	1.385036446	0.036297666	0.746835618	0	3.198476435	0.003824107	0	0.006079646
San Francisco	2025	LDA	Aggregate	Aggregate	Diesel	522.922	13133.8	13133.8	0	2181.78		0.176920046	0	0	0.018752118	0	0	0.002000001	0.003116766	0.019600006	0	0	0.000800002	0.00047647	0.036491746	0	0	0	0	0	0.041543427	0	0	0	0	0	0.0031	0.471041794	0	0	0.002426018	0	0
San Francisco	2025	LDA	Aggregate	Aggregate	Electricity	10080.4	464806	0	464806	49186.4		0	0	0	0	0	0	0.002000001	0.001312171	0	0	0	0.000800002	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDA	Aggregate	Aggregate	Plug-in Hy	3902.38	172918	83076.9	89840.7	16136.3		0.003848369	0	0.116967433	0.000731552	0	0.001952217	0.002000001	0.00149273	0.000795629	0	0.002123214	0.000800002	0.00426694	0.001872521	0	0.175544867	0.040981342	0.036860583	0.413516449	0.002732379	0	0.192199534	0.040981342	0.036860583	0.413516449	0.019153856	0.246312279	0	1.369749453	0.001517471	0	0.000632335
San Francisco	2025	LDT1	Aggregate	Aggregate	Gasoline	1287.8	38992.8	38992.8	0	57785.1		0.085478255	0	0.337737694	0.018894276	0	0.002369931	0.002000001	0.004163487	0.002060197	0	0.002573166	0.000800002	0.011895678	0.021321813	0	0.444774718	0.136491328	0.371983028	2.090419443	0.031112739	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148914458	0	4.36434E+00	0.00138548	0	0.000824164
San Francisco	2025	LDT1	Aggregate	Aggregate	Diesel	7.45932	69.5602	69.5602	0	20.6959		1.114418449	0	0	0.277392351	0	0	0.002000001	0.004787907	0.289934802	0	0	0.000800002	0.013679733	0.349198191	0	0	0	0	0	0.397538924	0	0	0	0	0	0.0031	1.604483182	0	0	0.004377097	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582	1685.29	0	1685.29	189.527		0	0	0	0	0	0	0.002000001	0.001534653	0	0	0	0.000800002	0.00043847	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	21.6866	968.111	425.519	547.591	89.6741		0.00347924	0	0.116967433	0.000668675	0	0.001373883	0.002000001	0.001492977	0.000509727	0	0.001499223	0.000800002	0.00426422	0.00169396	0	0.175544867	0.024130781	0.020405943	0.268650215	0.002470364	0	0.192199534	0.024130781	0.020405943	0.268650215	0.01824359	0.222774746	0	1.369749453	0.001371106	0	0.000670971
San Francisco	2025	LDT2	Aggregate	Aggregate	Gasoline	6514.61	2247694	2247694	0	306132		0.053799627	0	0.286685343	0.001589194	0	0.001959004	0.002000001	0.004010051	0.001728393	0	0.002130595	0.000800002	0.011457289	0.011066457	0	0.345876424	0.073542195	0.189839959	1.157658403	0.037420442	0.808624799	0	0.345876424	0.073542195	0.189839959	1.157658403	0.037420442	0.808624799	0	1.403243452	0.003486018	0	0.000834063
San Francisco	2025	LDT2	Aggregate	Aggregate	Diesel	323.61	10956.2	10956.2	0	1519.06		0.046067349	0	0	0.005705153	0	0	0.002000001	0.004085646	0.005963123	0	0	0.000800002	0.011673273	0.023818559	0	0	0	0	0	0.029377412	0	0	0	0	0	0.0031	0.237163918	0	0	0.003243055	0	0
San Francisco	2025	LDT2	Aggregate	Aggregate	Electricity	471.006	16624.5	0	16624.5	2393.17		0	0	0	0	0	0	0.002000001	0.00152658	0	0	0	0.000800002	0.00436165?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT2	Aggregate	Aggregate	Plug-in Hy	573.856	24320.1	11125.6	13194.5	2372.89		0.003604333	0	0.116967433	0.000858843	0	0.001615961	0.002000001	0.001492525	0.000639971	0	0.001779257	0.000800002	0.00426435?	0.001782974	0	0.175544867	0.026394882	0.023454188	0.294961451	0.002601751	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187607	0.234581046	0	1.369749453	0.00144499	0	0.000735091
San Francisco	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.79	192265	192265	0	73401.8		0.122685523	0.035806036	0.605579514	0.003349256	0	0.002030311	0.002000001	0.027300008	0.00146?439	0	0.000250485	0.000800002	0.078000022	0.030988209	0.41052157	0.147891953	0.038246673	0.199488999	2.044600648	0.044965055	0.9096958?9	0.376300677	0.246249344	0.00840866	0.001170284	0.000257423	0
San Francisco	2025	LHD1	Aggregate	Aggregate	Diesel	1645.23	74071.9	74071.9	0	29496.2		0.831542744	1.595461413	0	0.023310594	0.026842341	0	0.003000001	0.027300008	0.024364596	0.028055823	0	0.001000003	0.078000022	0.123544886	0.109759705	0	0	0	0	0.140646728	0.124954127	0	0	0	0	0.197938222	0.29873818	0.069745076	0	0.005950635	0.001193684	0
San Francisco	2025	LHD1	Aggregate	Aggregate	Electricity	41.1664	2971.83	0	2971.83	603.671		0	0	0	0	0	0	0.002000001	0.013650004	0	0	0	0.000800002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LHD2	Aggregate	Aggregate	Gasoline	613.122	23192.5	23192.5	0	9134.6		0.128039603	0.035803514	0.602400653	0.001262585	0	0.000187914	0.002000001	0.031850009	0.001373176	0	0.000204373	0.000800002	0.091000026	0.021709682	0.401462734	0.142249981	0.037405291	0.190932946	2.01563418	0.031678717	0.585813478	0.155745824	0.037405291	0.190932946	2.01563418	0.044983621	0.808987589	0.376306422	3.210582123	0.009488786	0.001351859	0.000251199
San Francisco	2025	LHD2	Aggregate	Aggregate	Diesel	997.915	41685.4	41685.4	0	12552.5		0.779228061	1.770292562	0	0.024159339	0.026839604	0	0.003000001	0.031850009	0.025251717	0.028053172	0	0.001000003	0.091000026	0.12517659	0.109759705	0	0	0	0	0.142505225	0.124954127	0	0	0	0	0.200558839	0.299730009	0.909745076	0	0.007192983	0.001956377	0
San Francisco	2025	LHD2	Aggregate	Aggregate	Electricity	11.0908	725.573	0	725.571	147.075		0	0	0	0	0	0	0.002000001	0.015925205	0	0	0	0.000800002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aggregate	Aggregate	Gasoline	2732.4	105129	105129	0	129176		0.063592069	0	0.322581185	0.00145799	0	0.001861306	0.002000001	0.003490839	0.001585692	0	0.002024326	0.000800002	0.011402398	0.013232512	0	0.386403973	0.074243599	0.199741652	1.20717336	0.038721122	0.826961861	0	0.386403973	0.074243599	0.199741652	1.20717336	0.037871122	0.826961861	0	3.411746556	0.004130955	0	0.000987125
San Francisco	2025	MDV	Aggregate	Aggregate	Diesel	499.07	18274.1	18274.1	0	2334.77		0.051159132	0	0	0.005623961	0	0	0.002000001	0.004134729	0.005878252	0	0	0.000800002	0.011813511	0.017898853	0	0	0	0	0	0.020376654	0	0	0	0	0	0.0031	0.341640847	0	0	0.004171945	0	0
San Francisco	2025	MDV	Aggregate	Aggregate	Electricity	503.213	17720.2	0	17720.3	2547.37		0	0	0	0	0	0	0.002000001	0.001526394	0	0	0	0.000800002	0.004361126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aggregate	Aggregate	Plug-in Hy	310.944	14184.1	6466.55	7717.59	1285.75		0.003615179	0	0.116967433	0.000615677	0	0.001720158	0.002000001	0.001493011	0.000669605	0	0.001870828	0.000800002	0.004262744	0.00177687	0	0.175544867	0.028135305	0.024062001	0.303912285	0.002592805	0	0.192199534	0.028135305	0.024062001	0.303912285	0.019147816	0.223774772	0	1.369749453	0.001440038	0	0.000899649
San Francisco	2025	T6 Instate small	Aggregate	Aggregate	Diesel	2377.53	91004.7	91004.7	0	30599.3		0.928902302	10.91315279	1.642590688	0.012271913	0.021894582	0	0.003000001	0.016106138	0.012826795	0.022846558	0	0.001000003	0.040015728	0.020845002	0.224762965	0	0	0	0	0.022637839	0.253875527	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.010863471	0.020109618	0
San Francisco	2025	T6 Instate small	Aggregate	Aggregate	Electricity	18.6087	818.093	0	818.093	239.015		0	0	0	0	0	0	0.003000001	0.008057978	0	0	0	0.001000003	0.012000003	0.023022794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T6 Instate small	Aggregate	Natural Gi	8.61267	394.858	394.858	0	124.965		0.099141052	5.227283201	0	0.001402962	0.016966693	0	0.003000001	0.016165427	0.001525849	0.018452827	0	0.001000003	0.046161219	0.0107419	0.186572035	0	0.767278563	1.332657393	0	0	0	1.06	3.185032455	33.22233081	0	0	0	0	0	0	0
San Francisco	2025	T6TS	Aggregate	Aggregate	Gasoline	619.839	29859	29859	0	12401.7		0.394172164	0.087599075	0.429393506	0.00110628	0	0.000416125	0.003000001	0.015756104	0.001203181	0	0.000452574	0.001200003	0.04501744	0.059953055	1.017757837	0.246771062	0.03335227	0.255006237	2.505971323	0.087483358	1.485109847	0.270182251	0.03335227	0.255006237	2.505971323	0.044991087	1.243147968	15.17523312	5.169725024	0.017921799	0.005355928	0.000453328
San Francisco	2025	T6TS	Aggregate	Aggregate	Electricity	3.0393	268.351	0	268.351	60.8104		0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.001000003	0.02150872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aggregate	Aggregate	Diesel	354.873	20200	20200	0	3342.91		1.31371039	21.58285364	3.215788223	0.016219794	0.01648284	0	0.009000003	0.028142936	0.016951181	0.017228121	0	0.03600001	0.080408388	0.012934103	1.888099178	0	0	0	0	0.014724492	2.149456051	0	0	0	0	0.219870805	0.076952119	27.07430131	0	0.015712422	0.0425474	0
San Francisco	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503	237.568	0	237.568	30.0972		0	0	0	0	0	0	0.009000003	0.014135?9	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aggregate	Natural Gi	21.9816	1324.53	1324.53	0	207.067		0.310765714	11.69729479	0	0.001778665	0.034194864	0	0.009000003	0.026153688	0.00193466	0.037190034	0	0.03600001	0.080388252	0.015186001	0.437076083	0	0	0	0	1.084714223	31.21972024	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Diesel	145.207	11375.8	11375.8	0	2109.86		1.555107005	40.11897128	3.925802711	0.022481872	0.015302123	0	0.009000003	0.027449676	0.023498402	0.015994017	0	0.03600001	0.078427645	0.013946176	3.445491977	0	0	0	0	0.01587666	3.932789998	0	0	0	0	0.219983645	0.078284829	50.6647472	0	0.014688828	0.078480774	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.74296	64.4874	0	64.4874	10.7852		0	0	0	0	0	0	0.009000003	0.01388109	0	0	0	0.03600001	0.039660257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Tractor	Aggregate	Natural Gi	28.2625	2178.71	2178.71	0	410.655		0.513115096	22.43584367	0	0.00124699	0.045974698	0	0.009000003	0.027439035	0.001359478	0.050001679	0	0.03600001	0.078397243	0.014272078	0.94017224	0	0	0	0	1.019434108	67.15515999	0	0	0	0	1.06	9.972506791	83.05569655	0	0	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Gasoline	135.576	6617.69	6617.69	0	542.205		0.026036819	0	0.421961422	0.001178368	0	0.000158696	0.002013339	0.03193871	0.001181583	0	0.000172597	0.008853356	0.09123458	0.004765929	0	0.146136388	0.033534589	0.09110026	0.374551506	0.006564413	0	0.160000095	0.033534589	0.09110026	0.374551506	0.045	0.585373312	0	6.357794444	0.00881305	0	0.000384158
San Francisco	2025	UBUS	Aggregate	Aggregate	Diesel	784.367	63648.6	63648.6	0	3137.47		0.411261165	0	0	0.007492158	0	0	0.008769949	0.038491785	0.00783092	0	0	0.035079796	0.109765629	0.07273827	0	0	0	0	0	0.082806984	0	0	0	0	0	0.22	0.084642061	0	0	0.012518461	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603	67.8091	0	67.8091	3.14413		0	0	0	0	0	0	0.008569131	0.019250936	0	0	0	0.034276524	0.010500016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Natural Gi	67.334	5710.54	5710.54	0	269.336		0.058820057	0	0	0.000366603	0	0	0.007963942	0.038462965	0.00038318	0	0	0.031855766	0.108984184	0.05997064	0	0	0	0	0	4.244494266	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNI	PM2.5_RU	PM10_RUI	ROG_RUNI	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06645	0.00822	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.24295	0.06049	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.003	0.00098	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.15091	0.01014	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.12943	1.00698	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.00254	0.00059	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.09234	0.00869	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.16004	0.01266	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.00276	0.00076	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.16389	0.00311	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.20206	0.05069	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.18325	0.00293	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.29945	0.05082	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.10933	0.00795	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.13747	0.01377	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274	0.00079	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.67385	0.0057	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.05694	0.00518	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.22548	0.04421	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.00157	0.00051	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.12711	0.00643	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.18661	0.70103	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.00133	0.0003	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879	0.00547	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.13444	0.01105	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.00145	0.00039	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.14624	0.00231	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.08635	0.04205	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.16066	0.00217	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.14197	0.04269	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.09311	0.00501	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.1178	0.01143	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00144	0.00041	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.49767	0.03989	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.30996	0.0037	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.58654	0.00359	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.74115	0.00739	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.44602	0.00712	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.33215	0.00813	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107	0.00522	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

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35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
3.07E+04	Carbon Dioxide, non-biogenic CO2 (6960)	2.56E+03	8.10E+06		CO2
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
4.74E-01	Methane (CH4) (6970)	3.95E-02	1.25E+02		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
5.76E-02	Nitrous Oxide (N2O) (2030)	4.80E-03	1.52E+01		N2O
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

	PM PROFILE			OG PROFILE				
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

SF Gateway

2035 Operational Emissions Summary - with Emissions Reduction Measures

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	10.00	1.812	1.087
Stationary Sources	1.46	0.42	0.211	0.211
Mobile	4.61	55.46	43.746	12.177
TRUs	0.00	0.00	0.000	0.000
Total Proposed Daily Operational Emissions	***30.6***	***65.9***	***45.770***	***13.477***
Total Existing Daily Operational Emissions	***9.30***	***17.50***	***6.40***	***2.00***
Net New Daily Operational Emissions	**21.32**	**48.39**	**39.37**	**11.48**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.39	1.32	0.239	0.144
Stationary Sources	0.04	0.01	0.005	0.005
Mobile	0.84	10.12	7.984	2.222
TRUs	0.00	0.00	0.000	0.000
Total Proposed Annual Operational Emissions	***5.21***	***11.45***	***8.23***	***2.37***
Total Existing Annual Operational Emissions	***1.70***	***3.20***	***1.20***	***0.40***
Net New Annual Operational Emissions	**3.51**	**8.25**	**7.03**	**1.97**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	2.4146	10.0000	1.8123	0.0000	1.0874	0.0000	0.39	0.32	1.32	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	0.4224	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.01	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	3.2182	159.9496	48.9259	0.8998	42.2875	0.8529	11.1626	0.59	29.19	8.93	0.16	7.72	0.16	2.04
Mobile (activity within buildings)	1.3890	21.2491	6.5389	0.0260	0.5323	0.0241	0.1377	0.25	3.88	1.19	0.00	0.10	0.00	0.03
TRUs in-transit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRUs on-site	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	1.00	0.00	1.00

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	35000										
TACs		2.96	2.41	10.00	1.81	1.1	0.391172	0.318732	1.32	0.23922	0.143532

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	**4.13E-03**

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	0.422367586	0.211183793	0	0.21118	0	0.03659	0.09239	0.01056	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	0.422367586	0.211183793	0	0.21118	0	0.03659	0.09239	0.01056	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Data per 180710-SFG AECOM RFI Response_60-81-Revision3
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

Emission Factors	Diesel Emergency Generator Emission Factors for Tier4 final						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	0.294	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	0.294	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
Nox	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for Diesel TRU in-transit operations	Emissions (lb/day) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	Emissions (tons/year) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	7,475	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wholesale and Storage	17.2	0.56	4,356	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	4,992	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wholesale and Storage	33.8	0.38	1,755	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Off-Site Emissions						**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	38	5	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10mph	17.2	0.56	90	10	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10mph	33.8	0.38	33	10	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tractor Trailer Truck	33.8	0.38	NA	NA	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total On-Site Emissions						**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with Diesel TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	11	0%	0	0.25	0
Parcel and Last Mile Delivery	146	0%	0	0.25	0
Wholesale and Storage	121	0%	0	0.25	0
Total	278	0%	0	0.25	0

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	0%	0	0.25	0
Parcel and Last Mile Delivery	60	0%	0	0.25	0
Wholesale and Storage	30	0%	0	0.25	0
Total	91	0%	0	0.25	0

Table III.

		Total TRU VMT	
Land Use	**% Refrigeration R**	**TRU VMT on Single-Unit Trucks**	**TRU VMT on Tractor Trailer Trucks**
Maker and Manufacturing	25%	220	32.5
Parcel and Last Mile Delivery	64%	7475.2	4992
Wholesale and Storage	45%	4356	1755
Total		12051.2	6779.5

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
Total Visitor VMT by Vehicle Type	**30920**	**26460**	**22240**	**11830**	**91,450**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity hp	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

	Emission Rates g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*1.1286*	*61.4381*	*3.1028*	*0.0912*	*12.3632*	*0.0839*	*3.1417*	*0.2060*	*11.2124*	*0.5663*	*0.0166*	*2.2563*	*0.0153*	*0.5734*
Visitor	*2.0896*	*98.5115*	*45.8231*	*0.8085*	*29.9243*	*0.7690*	*8.0209*	*0.3813*	*17.9783*	*8.3627*	*0.1476*	*5.4612*	*0.1403*	*1.4638*
Sub-Total	3.2182	159.9496	48.9259	0.8998	42.2875	0.8529	11.1626	0.5873	29.1908	8.9290	0.1642	7.7175	0.1557	2.0372
On-Site Vehicle Activity Within Buildings	1.3890	21.2491	6.5389	0.0260	0.5323	0.0241	0.1377	0.2535	3.8780	1.1933	0.0047	0.0972	0.0044	0.0251
Gross Mobile Source Emissions from Proposed Project	**4.6071**	**181.1987**	**55.4648**	**0.9258**	**42.8198**	**0.8770**	**11.3002**	**0.8408**	**33.0688**	**10.1223**	**0.1690**	**7.8146**	**0.1601**	**2.0623**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1581	47054	1.12859651	61.4380772	3.10281428	0.091205567	12.36315542	0.083891937	3.141665342	0.205968862	11.21244908	0.56626361	0.01664502	2.25627586	0.01531028	0.57335392

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

Operational Days Per Year:

Autos/Pickups (on-site worker) 365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.00491959	0.1773792	0.52436376	2.020512678	0.023752411	0.183280786	0.000839962	0.001167972	0.119178666	0.00077262	0.00107391	0.03028511

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[1]	26	106	132	9.11	1202

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips[1]	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
1. Based on page A-81 Daily Work Vehicle Trips Travel Demand Memo for Retail and QSR Land Uses
2. Based on Table 3.2 of Appendix F of Travel Demand Memo (page A-92).

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Starts/Day[1]	VMT/Day[2]	Emissions (lbs/day) ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Emissions (tons/year) ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	962	31676	0.71975	40.90342	2.04743	0.06113	8.32268	0.05623	2.11492	0.13135	7.46487	0.37366	0.01116	1.51889	0.01026	0.38597
Maker and Manufacturing	45	1800	0.03712	2.28129	0.11244	0.00345	0.47294	0.00317	0.12018	0.00677	0.41634	0.02052	0.00063	0.08631	0.00058	0.02193
Parcel and Last Mile Delivery	607	24280	0.50071	30.77213	1.51669	0.04652	6.37942	0.04279	1.62111	0.09138	5.61591	0.27680	0.00849	1.16424	0.00781	0.29585
Wholesale and Storage	121	4840	0.09981	6.13415	0.30234	0.00927	1.27168	0.00853	0.32315	0.01822	1.11948	0.05518	0.00169	0.23208	0.00156	0.05898
General Retail / Café/Quick Service Restaurants[3]	189	756	0.08211	1.71585	0.11596	0.00189	0.19863	0.00174	0.05048	0.01498	0.31314	0.02116	0.00034	0.03625	0.00032	0.00921
												0.00000				
Vans	448	26880	0.86006	35.10549	3.33324	0.12765	7.92635	0.12034	2.09545	0.15696	6.40675	0.60832	0.02330	1.44656	0.02196	0.38242
Maker and Manufacturing	10	600	0.01920	0.78360	0.07440	0.00285	0.17693	0.00269	0.04677	0.00350	0.14301	0.01358	0.00052	0.03229	0.00049	0.00854
Parcel and Last Mile Delivery	401	24060	0.76983	31.42255	2.98354	0.11426	7.09479	0.10771	1.87562	0.14049	5.73462	0.54450	0.02085	1.29480	0.01966	0.34230
Wholesale and Storage	30	1800	0.05759	2.35081	0.22321	0.00855	0.53078	0.00806	0.14032	0.01051	0.42902	0.04074	0.00156	0.09687	0.00147	0.02561
General Retail / Café/Quick Service Restaurants[3]	7	420	0.01344	0.54852	0.05208	0.00199	0.12385	0.00188	0.03274	0.00245	0.10011	0.00950	0.00036	0.02260	0.00034	0.00598
										0.00000		0.00000				
Single Unit Trucks	281	22480	0.26128	4.79224	13.81746	0.15453	8.03014	0.14752	2.20579	0.04768	0.87458	2.52169	0.02820	1.46550	0.02692	0.40256
Maker and Manufacturing	11	880	0.01023	0.18760	0.54090	0.00605	0.31435	0.00577	0.08635	0.00187	0.03424	0.09871	0.00110	0.05737	0.00105	0.01576
Parcel and Last Mile Delivery	146	11680	0.13575	2.48992	7.17918	0.08029	4.17225	0.07665	1.14607	0.02478	0.45441	1.31020	0.01465	0.76143	0.01399	0.20916
Wholesale and Storage	121	9680	0.11251	2.06356	5.94987	0.06654	3.45782	0.06352	0.94983	0.02053	0.37660	1.08585	0.01214	0.63105	0.01159	0.17334
General Retail / Café/Quick Service Restaurants[3]	3	240	0.00279	0.05116	0.14752	0.00165	0.08573	0.00157	0.02355	0.00051	0.00934	0.02692	0.00030	0.01565	0.00029	0.00430
												0.00000				
Tractor Trailer Trucks	91	11830	0.24850	17.71036	26.62497	0.46523	5.64513	0.44493	1.60474	0.04535	3.23214	4.85906	0.08490	1.03024	0.08120	0.29286
Maker and Manufacturing	1	130	0.00273	0.19462	0.29258	0.00511	0.06203	0.00489	0.01763	0.00050	0.03552	0.05340	0.00093	0.01132	0.00089	0.00322
Parcel and Last Mile Delivery	60	7800	0.16384	11.67716	17.55493	0.30674	3.72207	0.29336	1.05807	0.02990	2.13108	3.20377	0.05598	0.67928	0.05354	0.19310
Wholesale and Storage	30	3900	0.08192	5.83858	8.77746	0.15337	1.86103	0.14668	0.52903	0.01495	1.06554	1.60189	0.02799	0.33964	0.02677	0.09655
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Total	1782	92866	2.08959	98.51151	45.82310	0.80855	29.92431	0.76901	8.02090	0.38135	17.97835	8.36272	0.14756	5.46119	0.14035	1.46381

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

Operational Days Per Year:		Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX) ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
		Autos/Pickups												
Autos/Pickups (visiting worker)	365	(visiting worker)	0.004919587	0.177379203	0.524363763	2.020512678	0.023752411	0.183280786	0.000839962	0.001167972	0.119178666	0.000772621	0.001073907	0.03028511
Vans	365	Vans	0.012158893	0.141267359	0.558437217	2.037477843	0.052420813	0.229596807	0.002142688	0.000686382	0.133754921	0.002020116	0.000631103	0.03536014
Single Unit Trucks	365	Single Unit Trucks	0.005006834	0.021212924	0.091679426	0.401313699	0.266754268	0.963914342	0.003117274	6.09896E-05	0.162028986	0.002975896	5.60777E-05	0.04450759
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.009527985	0	0.679060217	0	0.997842851	2.993452417	0.017837994	0	0.216448811	0.017059575	0	0.06152966

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

Vehicle Type and Land Use	Net Visitor VMT by Vehicle Type and Land Use[1] Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total Visitor VMT by Land Use
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
General Retail / Café/Quick Service Restaurants[2]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**31676**	**26880**	**22480**	**11830**	**92,866**

Table II.

Vehicle Type and Land Use	Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1] Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	90	20	22	2	134
Parcel and Last Mile Delivery	1,214	802	292	120	2428
Wholesale and Storage	242	60	242	60	604
General Retail / Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[3]	**1924**	**896**	**562**	**182**	3564

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III.

Vehicle Type and Land Use	Total Daily Auto/Pickup Vehicle Trips by Land Use[1] Autos/ Pickups[2]
Maker and Manufacturing	178
Parcel and Last Mile Delivery	3354
Wholesale and Storage	1,044
General Retail	156
Quick Service Restaurant	354
Total Vehicle Trips[3]	**5086**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV.

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1] Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[3]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V.

Parcel & Last Mile Delivery Land Use	Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1] Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
	20	30	40	65

Notes:
1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.0745	13.7963	1.1668	0.0192	0.3867	0.0177	0.0883	0.1961	2.5178	0.2129	0.0035	0.0706	0.0032	0.0179
Vans	0.1654	2.7055	0.2742	0.0042	0.0779	0.0039	0.0206	0.0302	0.4937	0.0500	0.0008	0.0142	0.0007	0.0038
Single Unit Trucks	0.1157	3.2983	3.6121	0.0019	0.0457	0.0019	0.0126	0.0211	0.6019	0.6592	0.0004	0.0083	0.0003	0.0023
Tractor Trailer Trucks	0.0334	1.4490	1.4857	0.0006	0.0220	0.0006	0.0062	0.0061	0.2644	0.2711	0.0001	0.0040	0.0001	0.0011
Total	1.39	21.25	6.54	0.03	0.53	0.02	0.14	0.25	3.88	1.19	0.00	0.10	0.00	0.03

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.0745	13.7963	1.1668	0.0192	0.3867	0.0177	0.0883	0.1961	2.5178	0.2129	0.0035	0.0706	0.0032	0.0179
Vans	0.1654	2.7055	0.2742	0.0042	0.0779	0.0039	0.0206	0.0302	0.4937	0.0500	0.0008	0.0142	0.0007	0.0038
Single Unit Trucks - Idling	0.0937	2.9533	2.6701	0.0008	0.0000	0.0008	0.0000	0.0171	0.5390	0.4873	0.0001	0.0000	0.0002	0.0000
Single Unit Trucks	0.0219	0.3450	0.9420	0.0011	0.0457	0.0011	0.0126	0.0040	0.0630	0.1719	0.0002	0.0083	0.0002	0.0023
Tractor Trailer Trucks - Idling	0.0278	0.5351	0.3018	0.0002	0.0000	0.0002	0.0000	0.0051	0.0977	0.0551	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks	0.0056	0.9139	1.1839	0.0005	0.0220	0.0004	0.0062	0.0010	0.1668	0.2161	0.0001	0.0040	0.0001	0.0011
Total	1.39	21.25	6.54	0.03	0.53	0.02	0.14	0.25	3.88	1.19	0.00	0.10	0.00	0.03

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)						Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2543	184.15		1.0065	11.6022	1.0438	0.0365	0.0484	0.0078	0.0123	0.1837	2.1174	0.1905	0.0015	0.0088	0.0014	0.0022
Autos/Pickups - 10mph			1287.80	0.0680	2.1941	0.1230	0.0108	0.3184	0.0099	0.0800	0.0124	0.4004	0.0225	0.0020	0.0618	0.0018	0.0157
Vans - 5mph	448	67.54		0.1483	2.1970	0.2400	0.0019	0.0199	0.0017	0.0053	0.0271	0.4010	0.0438	0.0003	0.0036	0.0003	0.0010
Vans - 10mph			196.71	0.0171	0.5084	0.0343	0.0023	0.0580	0.0021	0.0153	0.0031	0.0928	0.0063	0.0004	0.0106	0.0004	0.0028
Single Unit Trucks - Idling				0.0937	2.9533	2.6701	0.0008	0.0000	0.0008	0.0000	0.0171	0.5390	0.4873	0.0001	0.0000	0.0002	0.0000
Single Unit Trucks - 5mph	281	37.93		0.0159	0.2780	0.7086	0.0004	0.0135	0.0004	0.0037	0.0029	0.0507	0.1293	0.0001	0.0025	0.0001	0.0007
Single Unit Trucks - 10mph			90.08	0.0060	0.0670	0.2334	0.0008	0.0322	0.0007	0.0088	0.0011	0.0122	0.0426	0.0001	0.0059	0.0001	0.0016
Tractor Trailer Trucks - Idling				0.0278	0.5351	0.3018	0.0002	0.0000	0.0002	0.0000	0.0051	0.0977	0.0551	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks - 5mph	91	12.86		0.0016	0.2555	0.7636	0.0001	0.0061	0.0001	0.0017	0.0003	0.0466	0.1394	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.14	0.0040	0.6584	0.4202	0.0003	0.0158	0.0003	0.0045	0.0007	0.1202	0.0767	0.0001	0.0029	0.0001	0.0008
Total	3363	302.48	1607.74	1.39	21.25	6.54	0.03	0.53	0.02	0.14	0.25	3.88	1.19	0.00	0.10	0.00	0.03

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
	Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:														
Autos/Pickups	365	Autos/Pickups	5	0.029653	0.177379	0.676175	2.020513	0.040016	0.183281	0.004727	0.001168	0.119179	0.004349	0.001074	0.030285
Vans	365	Autos/Pickups	10	0.023952	0.177379	0.772813	2.020513	0.044335	0.183281	0.003792	0.001168	0.119179	0.003489	0.001074	0.030285
Single Unit Trucks	365	Vans	5	0.058792	0.141267	1.240195	2.037478	0.088568	0.229397	0.008685	0.000686	0.133755	0.007438	0.000631	0.035360
Tractor Trailer Trucks	365	Vans	10	0.039500	0.141267	1.172414	2.037478	0.079058	0.229397	0.005171	0.000686	0.133755	0.004942	0.000631	0.035360
		Single Unit Trucks	5	0.033318	0.021213	0.351477	0.401314	1.333195	0.963914	0.004188	0.000061	0.162029	0.003953	0.000056	0.044508
		Single Unit Trucks	10	0.030168	0.021213	0.337372	0.401314	1.175116	0.963914	0.003801	0.000061	0.162029	0.003583	0.000056	0.044508
		Tractor Trailer Trucks	5	0.055375	0.000000	9.010685	0.000000	5.753420	2.993452	0.004534	0.000000	0.216449	0.004261	0.000000	0.061530
		Tractor Trailer Trucks	10	0.055375	0.000000	9.010685	0.000000	5.753420	2.993452	0.004534	0.000000	0.216449	0.004261	0.000000	0.061530

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	562	0.033	42.52	1339.60	1211.15	0.36	0.37
Tractor Trailer Trucks	182	0.033	12.60	242.74	136.91	0.08	0.09
Total			55.12	1582.34	1348.06	0.44	0.46

Emissions for truck idling using EMFAC 2011 idling emission rates onovided in e/hr-vehicle (https://www.arb.ca.eov/msei/emfac2011 idling emission rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (e/vehicle/day)					
Vehicle Category	Model Year	Fuel	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
T6TS	Aaereeated	GAS	1.011889	15.052638	0.082861	0.000000	0.000000
T6 instate small	Aaereeated	DSL	0.167634	7.334523	8.282249	0.002445	0.002561
T7 Single	Aggregated	DSL	1.710983	30.179858	17.581459	0.009131	0.010075
T7 tractor	Aaereeated	DSL	3.032358	58.417568	32.947665	0.020125	0.021388

*Source: EMFAC 2017

			Emission Factors (g/vehicle/idle-hr)				
Vehicle Cateaory	Idle--hour factor	Trips per Floor	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
T6TS	0.098	49.14054859	10.32539	153.59835	0.84552	0.00000	0.00000
T6 instate small	0.098	100.1036498	1.71055	74.84207	84.51336	0.02495	0.02614
T7 Sinele	0.79	85.85852336	0.21220	9.26421	10.48396	0.00309	0.00324
Single Unit Truck Weighted Average			2.26994	71.52688	64.81230	0.01936	0.01997
T7 tractor	1.48		2.07696	40.01203	22.56689	0.01378	0.01465

*Source: For T6TS and T instate small. Table 4.4-9 EMFAC2017 Idle Hours for Selected Cateaories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.eov/msei/downloads/emfac2017-volume-iii-technical-documentation.odf): for T7 Sinele and T7 Tractor. idle-hour factors uodated to EMFAC2021 documentation Table 4.4-2.5. as uodated data was orovided for EMFAC2021 for these vehicle cateaories.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Total Internal Buildine VMT Estimate

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.53	5.23	15.83	3.45	**63.25**
2nd	47.76	31.55	11.62	4.78	**95.71**
3rd	46.33	30.61	11.28	4.43	**92.65**
4th/Roof	50.52	8.13	9.85	0.00	**90.97**
Total	**184.14**	**67.54**	**47.58**	**12.68**	**803.48**

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	56.23	7.45	21.39	4.91	**287.14**
2nd	143.28	94.66	34.87	14.33	**375.68**
3rd	139.00	91.83	33.83	13.30	**963.04**
4th/Roof	949.28	8.74	0.00	0.00	**1607.74**
Total	**1287.80**	**196.71**	**60.08**	**86.14**	**0.00**

Total Daily Internal Building Vehicle Activity

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	89.60	63616.00	8422.60	24352.00	5555.20	**154037.10**
2nd	196.20	70845.67	50729.46	18705.04	7697.00	**148458.19**
3rd	196.20	74345.73	49269.09	18145.26	7127.00	**51646.58**
4th/Roof	25.65	81397.24	227.96	0.00	0.00	**488796.88**
Total	**507.50**	**290384.70**	**108669.06**	**61048.40**	**20099.20**	**871006.85**

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.50	90525.00	11985.00	34625.00	7905.00	**146840.00**
2nd	279.60	238597.20	150336.39	56115.12	23061.01	**468111.59**
3rd	279.60	223977.20	147780.23	54436.68	22270.05	**448934.97**
4th/Roof	691.95	1527698.68	4470.25	0.00	0.00	**1888160.93**
Total	**1886.70**	**2072857.06**	**819079.87**	**144676.80**	**53837.06**	**2887396.09**

Total Daily Vehicle Activity (Trips) per Floor

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	719	94	270	52	**1135**
2nd	699	492	148	81	**1821**
3rd	591	390	144	59	**1184**
4th/Roof	3178	0	0	0	**3178**
Total	**5086**	**896**	**562**	**192**	**6758**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramps Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.8	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	87.5	87.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	176.4	178	170.4	171.7	178.7	170.7

*Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

Total Daily Vehicle Trips by Land Use and Vehicle Type

Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3162	-	-	-	-
Visitine Workers Maker and Manufacturing	98	20	22	3	134
Visiting Workers Parcel and Last Mile Delivery	1,213	602	292	120	2,609
Visiting Workers Wholesale and Storage	242	60	242	60	604
Visitine Workers General Retail / Café/Quick Service Restaurants	279	14	6	0	298
Total Vehicle Trips	**5086**	**896**	**562**	**182**	**6758**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

% Vehicle Activity Per Floor

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	14%	10%	48%	34%
2nd	12%	45%	26%	33%
3rd	12%	44%	26%	32%
4th/Roof	62%	1%	0%	0%
Total	100%	100%	100%	100%

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pickup Per Le	355	305	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total	Source: July 2019 Project Description - Table 3
PDR Uses						
Manufacturing & Maker Space	35,000	-	-	-	35000	
Parcel Delivery /Last Mile	-	381,000	369,600	8,800	759400	
Wholesale and Storage	372,400	-	-	-	372400	
Retail	8,400	-	-	-	8400	
Logistics Yard	-	72,400	73,400	-	145800	
Vehicle Circulation	13,800	112,800	93,400	17,600	237600	
Parking	111,800	-	-	487,600	599400	
Total					2160000	

Step 2 - Estimated % Use per Floor

Sq Ft Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Parcel Delivery /Last Mile	0.0%	50.17%	48.67%	1.2%	Utilize Level 2 and 3 Loeistics Yard and Parkine and small area of L4 parkine (assume autos/sidcuars and vans only)
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Loeistics Yard and Parkine
Retail Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitze Ground Level Loeistics and Parkine

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Van	MT	HT	Source: Dec 10 2021 Traffic Demand Memo - Table 11 and base A-79 for worker trip data
PDR	4576	882	556	182	
On-site Worker	3030	0	0	0	
Visitine Worker	1546	882	556	182	
Manufacturing & Maker Space	90	20	22	2	
Parcel Delivery/Last Mile	1214	602	292	120	
Wholesale and Storage	242	60	242	60	
Retail/QSR	310	14	6	0	
On-site Worker	132	0	0	0	
Visitine Worker/Consumer	378	14	6	0	

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & vans)	206	306	497	1527
PDR Auto/Pickup	166	303	295	1522
PDR Van	40	201	195	5
PDR MT	130	74	72	0
PDR HT	31	30	30	0
Retail Auto	196	0	0	66
Retail Auto/Pickup	189	0	0	66
Retail Van	7	0	0	0
Retail MT	5	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	402	306	497	1593
Total Daily Auto/Pickup Per Level	355	303	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Mobile Trip Data (per Adavant December 10, 2021, Trip Generation Memorandum)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	3354	0	802	292	120	4568
Wholesale and Storage	1044	0	60	242	60	1406
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5086	0	896	562	182	6726
% of Total Trips	76%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		40	840	300	1180	75	1105	15
SD2	6		48	1308	504	1860	126	1734	21
SD3	2		44	1016	384	1444	96	1348	48
SD4	7		42	1176	434	1652	108	1544	15
East Bay	28		337	8134	3029	11500	755	10745	27
North Bay	28		166	3496	1332	4994	332	4662	12
South Bay	22		518	13217	4967	18702	1239	17463	56
Out of Region	65		129	3229	1162	4520	290	4230	4
			1324	32416	12112	45852	3021	42831	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-9105	4840	-2465	4000	-6465	200	24280	30920
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-6015	1800	-3615	4610	-8225	154	24060	26460
SU Trucks	40	-7.5	880	-2190	9680	8370	5293	3077	132	11680	22240
Tractor Trailers	65	7.5	130	900	3900	4930	888	4042	14	7800	11830
Total Non-Commuter VMT	N/A	N/A	3410	-16410	20220	7220	16127	-8291		67820	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	88	2140	802	0	26	106	0	0	3162
Non-work	134	2428	604	0	132	266	0	0	3564
Total	222	4568	1406	0	158	372	0	0	6726

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e. Miscellaneous Process Methodology 7.9. Entrained Road Travel, Paved Road Dust. Available: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

SFG Operational Emission Factors in Year 2025

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.
Average Fleet Mix for Autos/Pickups and Vans: Model Year 2016+ for SU and TT Trucks

Vehicle Category	Fuel		Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Autos / Pickups (Average Fleet Mix in 2025)																																						
LDA	Gasoline		1.19E+05	4.32E+06	54.05%	5.55E+05	0.52577351	4.78E-03	0.00E+00	1.75E-01	5.46E-01	0.00E+00	2.04E+00	2.39E-02	0.00E+00	1.83E-01	8.81E-04	0.00E+00	1.22E-03	8.00E-03	9.29E-03	8.10E-04	0.00E+00	1.12E-03	2.00E-03	3.25E-03	5.46E-02	1.77E-01	1.07E+00	6.97E-03	0.00E+00	1.91E-01	5.46E-02	1.77E-01	1.07E+00	4.14E-02	2.43E-03	0.00E+00	5.65E-04
LDA	Diesel		1.47E+02	3.73E+03	0.05%	6.25E+02	0.000592126	1.54E-02	0.00E+00	0.00E+00	3.38E-01	0.00E+00	0.00E+00	5.68E-02	0.00E+00	0.00E+00	4.61E-03	0.00E+00	0.00E+00	8.00E-03	9.49E-03	4.41E-03	0.00E+00	0.00E+00	2.00E-03	3.32E-03	0.00E+00	0.00E+00	0.00E+00	1.75E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	2.09E-03	0.00E+00	0.00E+00
LDA	Electricity		1.49E+04	6.19E+05	7.75%	7.13E+04	0.067606369	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.39E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDA	Plug-in Hybrid		5.34E+03	2.06E+05	2.58%	2.21E+04	0.020929396	1.67E-03	0.00E+00	1.76E-01	2.18E-01	0.00E+00	1.37E+00	3.40E-03	0.00E+00	1.17E-01	3.74E-04	0.00E+00	1.22E-03	8.00E-03	4.31E-03	3.44E-04	0.00E+00	1.12E-03	2.00E-03	1.51E-03	3.91E-02	6.46E-02	6.13E-01	2.43E-03	0.00E+00	1.92E-01	3.91E-02	6.46E-02	6.13E-01	1.75E-02	1.34E-03	0.00E+00	5.70E-04
LDT1	Gasoline		1.05E+04	3.09E+05	3.86%	4.69E+04	0.044409895	8.01E-03	0.00E+00	2.36E-01	6.97E-01	0.00E+00	2.51E+00	3.57E-02	0.00E+00	2.29E-01	1.17E-03	0.00E+00	1.57E-03	8.00E-03	1.20E-02	1.07E-03	0.00E+00	1.44E-03	2.00E-03	4.18E-03	9.69E-02	3.39E-01	1.97E+00	1.17E-02	0.00E+00	2.59E-01	9.69E-02	3.39E-01	1.97E+00	3.97E-02	2.94E-03	0.00E+00	6.92E-04
LDT1	Diesel		7.77E-02	2.80E+00	0.00%	3.73E-01	3.53761E-07	2.18E-02	0.00E+00	0.00E+00	2.16E-01	0.00E+00	0.00E+00	3.65E-02	0.00E+00	0.00E+00	4.67E-03	0.00E+00	0.00E+00	8.00E-03	1.14E-02	4.47E-03	0.00E+00	0.00E+00	2.00E-03	3.99E-03	0.00E+00	0.00E+00	0.00E+00	2.48E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	3.57E-03	0.00E+00	0.00E+00
LDT1	Electricity		1.62E+02	7.18E+03	0.09%	7.90E+02	0.000748969	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	Plug-in Hybrid		1.24E+02	4.79E+03	0.06%	5.14E+02	0.000487124	1.62E-03	0.00E+00	1.76E-01	2.12E-01	0.00E+00	1.37E+00	3.31E-03	0.00E+00	1.17E-01	2.90E-04	0.00E+00	9.13E-04	8.00E-03	4.30E-03	2.67E-04	0.00E+00	8.39E-04	2.00E-03	1.51E-03	2.48E-02	2.49E-02	3.12E-01	2.37E-03	0.00E+00	1.92E-01	2.48E-02	2.49E-02	3.12E-01	1.72E-02	1.30E-03	0.00E+00	6.34E-04
LDT2	Gasoline		7.36E+04	2.40E+06	30.00%	3.41E+05	0.322971096	6.46E-03	0.00E+00	2.18E-01	6.49E-01	0.00E+00	2.46E+00	3.09E-02	0.00E+00	2.28E-01	9.95E-04	0.00E+00	1.31E-03	8.00E-03	1.17E-02	9.35E-04	0.00E+00	1.21E-03	2.00E-03	4.09E-03	5.42E-02	1.83E-01	1.09E+00	9.43E-03	0.00E+00	2.38E-01	5.42E-02	1.83E-01	1.09E+00	4.12E-02	2.99E-03	0.00E+00	7.00E-04
LDT2	Diesel		2.98E+02	9.49E+03	0.12%	1.37E+03	0.001288594	2.25E-02	0.00E+00	0.00E+00	2.39E-01	0.00E+00	0.00E+00	3.85E-02	0.00E+00	0.00E+00	5.11E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	4.89E-03	0.00E+00	0.00E+00	2.00E-03	4.11E-03	0.00E+00	0.00E+00	0.00E+00	2.57E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	2.77E-03	0.00E+00	0.00E+00
LDT2	Electricity		1.98E+03	6.05E+04	0.76%	9.67E+03	0.009165305	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	Plug-in Hybrid		1.54E+03	5.54E+04	0.69%	6.35E+03	0.006017263	1.65E-03	0.00E+00	1.76E-01	2.16E-01	0.00E+00	1.37E+00	3.36E-03	0.00E+00	1.17E-01	3.39E-04	0.00E+00	1.07E-03	8.00E-03	4.31E-03	3.12E-04	0.00E+00	9.80E-04	2.00E-03	1.51E-03	2.94E-02	3.69E-02	4.06E-01	2.41E-03	0.00E+00	1.92E-01	2.94E-02	3.69E-02	4.06E-01	1.75E-02	1.32E-03	0.00E+00	6.77E-04
		Total:	7,996,874		100.00%	1,055,029	100.00%																																	
					Weighted Average Emission Factors*:			0.00492		0.17738	0.52436		2.02051	0.02375		0.18328	0.00084		0.00117	0.00800	0.00953	0.00077		0.00107	0.00200	0.00333														
Vans (Average Fleet Mix in 2025)																																						
LHD1	Gasoline		4.48E+03	1.60E+05	0.084166999	6.67E+04	0.199158427	7.79E-03	3.30E-01	1.08E-01	6.39E-01	3.78E+00	3.29E+00	4.43E-02	2.88E-02	4.76E-01	1.29E-03	0.00E+00	1.30E-04	8.00E-03	7.80E-02	1.19E-03	0.00E+00	1.20E-04	2.00E-03	2.73E-02	2.73E-02	1.78E-01	1.91E+00	1.14E-02	4.82E-01	1.19E-01	2.73E-02	1.78E-01	1.91E+00	4.50E-02	7.70E-03	1.10E-03	2.45E-04
LHD1	Diesel		2.18E+03	8.42E+04	0.044412389	2.74E+04	0.081823186	9.22E-02	1.10E-01	0.00E+00	2.26E-01	9.10E-01	0.00E+00	3.44E-01	1.08E+00	0.00E+00	1.86E-02	2.75E-02	0.00E+00	1.20E-02	7.80E-02	1.78E-02	2.63E-02	0.00E+00	3.00E-03	2.73E-02	0.00E+00	0.00E+00	1.05E-01	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-01	5.77E-03	1.11E-03	0.00E+00
LHD1	Electricity		1.42E+03	7.51E+04	0.039593556	1.99E+04	0.059348127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHD2	Gasoline		5.37E+02	1.85E+04	0.009770864	8.00E+03	0.023879313	6.28E-03	3.13E-01	1.01E-01	6.14E-01	3.78E+00	3.26E+00	4.42E-02	2.72E-02	4.65E-01	1.22E-03	0.00E+00	1.11E-04	8.00E-03	9.10E-02	1.13E-03	0.00E+00	1.02E-04	2.00E-03	3.19E-02	2.83E-02	1.89E-01	2.08E+00	9.16E-03	4.56E-01	1.10E-01	2.83E-02	1.89E-01	2.08E+00	4.50E-02	8.72E-03	1.28E-03	2.38E-04
LHD2	Diesel		1.17E+03	4.22E+04	0.022239155	1.47E+04	0.043950553	1.07E-01	1.10E-01	0.00E+00	2.70E-01	9.10E-01	0.00E+00	4.45E-01	1.24E+00	0.00E+00	2.22E-02	2.76E-02	0.00E+00	1.20E-02	9.10E-02	2.12E-02	2.64E-02	0.00E+00	3.00E-03	3.19E-02	0.00E+00	0.00E+00	1.22E-01	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-01	6.82E-03	1.83E-03	0.00E+00
LHD2	Electricity		3.55E+02	1.81E+04	0.009522261	4.70E+03	0.014031925	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	Gasoline		3.82E+04	1.39E+06	0.733454241	1.78E+05	0.532499625	6.61E-03	0.00E+00	2.17E-01	6.50E-01	0.00E+00	2.42E+00	3.12E-02	0.00E+00	2.30E-01	9.21E-04	0.00E+00	1.21E-03	8.00E-03	1.17E-02	8.47E-04	0.00E+00	1.11E-03	2.00E-03	4.11E-03	4.90E-02	1.62E-01	9.75E-01	9.64E-03	0.00E+00	2.37E-01	4.90E-02	1.62E-01	9.75E-01	4.13E-02	3.58E-03	0.00E+00	8.34E-04
MDV	Diesel		4.92E+02	1.68E+04	0.008839832	2.25E+03	0.006726009	1.07E-02	0.00E+00	0.00E+00	2.87E-01	0.00E+00	0.00E+00	2.04E-02	0.00E+00	0.00E+00	2.28E-03	0.00E+00	0.00E+00	8.00E-03	1.20E-02	2.18E-03	0.00E+00	0.00E+00	2.00E-03	4.19E-03	0.00E+00	0.00E+00	0.00E+00	1.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	3.60E-03	0.00E+00	0.00E+00
MDV	Electricity		1.87E+03	5.66E+04	0.029830117	9.09E+03	0.027148518	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.39E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	Plug-in Hybrid		9.26E+02	3.64E+04	0.019170587	3.83E+03	0.011434316	1.64E-03	0.00E+00	1.76E-01	2.15E-01	0.00E+00	1.37E+00	3.35E-03	0.00E+00	1.17E-01	3.35E-04	0.00E+00	1.06E-03	8.00E-03	4.31E-03	3.08E-04	0.00E+00	9.73E-04	2.00E-03	1.51E-03	2.91E-02	3.63E-02	4.00E-01	2.40E-03	0.00E+00	1.92E-01	2.91E-02	3.63E-02	4.00E-01	1.74E-02	1.32E-03	0.00E+00	8.21E-04
		Total:	1,896,542		100.00%	334,894	100.00%																																	
					Weighted Average Emission Factors*:			0.01216		0.14127	0.55844		2.03748	0.05242		0.22960	0.00214		0.00069	0.00827	0.02383	0.00202		0.00063	0.00207	0.00834														

*Calculated

Vehicle Category	Fuel	Model Year	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Single Unit Trucks (2016+ Model Year)																																							
T6TS	Electricity	2024	1.0935893	58.357268	0.000410937	21.88053492	0.00049956	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2025	1.3939724	78.513937	0.000552875	27.8905994	0.000636777	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2026	1.7251223	102.34767	0.000720706	34.51624676	0.000788049	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2027	2.7621676	172.33904	0.001213567	55.26544966	0.001261779	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2028	4.1912847	274.56195	0.001933394	83.85922463	0.00191461	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2029	5.7143978	392.42609	0.002763363	114.3336702	0.002610379	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2030	7.3376951	527.31416	0.003713209	146.8126037	0.003351914	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2031	8.4487028	634.53553	0.004468234	169.0416455	0.00385943	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2032	9.5902498	751.66028	0.005292997	191.8817182	0.004380897	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2033	10.913585	891.45333	0.006277383	218.3590012	0.004985407	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2034	12.017319	1021.7193	0.007194682	240.442526	0.005489601	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Electricity	2035	11.517654	1017.8035	0.007167108	230.4452187	0.00526135	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022509	0.000000	0.000000	0.000000	0.003000	0.007878	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6TS	Gasoline	2016	9.1831075	295.85562	0.002083338	183.7356147	0.004194912	0.000036	1.028580	0.176487	0.182745	15.300935	3.443532	0.003701	0.089556	0.476430	0.001306	0.000000	0.000450	0.012000	0.045017	0.001201	0.000000	0.000413	0.003000	0.015756	0.022710	0.187071	2.057994	0.000053	1.500902	0.193231	0.022710	0.187071	2.057994	0.045000	0.018205	0.005312	0.000421
T6TS	Gasoline	2017	32.178873	1112.5932	0.007834593	643.834897	0.014699549	0.004295	1.028580	0.189993	0.127537	15.300935	3.103983	0.167689	0.089556	0.054229	0.001404	0.000000	0.000485	0.012000	0.045017	0.001291	0.000000	0.000446	0.003000	0.015756	0.022710	0.187071	2.057994	0.006267	1.500902	0.208018	0.022710	0.187071	2.057994	0.045000	0.017517	0.005122	0.000402
T6TS	Gasoline	2018	22.378394	828.75365	0.005835868	447.7468977	0.010222617	0.018431	1.028580	0.190490	0.160347	15.300935	3.442000	0.129916	0.089556	0.000000	0.001462	0.000000	0.000506	0.012000	0.045017	0.001344	0.000000	0.000465	0.003000	0.015756	0.019169	0.186733	1.981459	0.026895	1.500902	0.208563	0.019169	0.186733	1.981459	0.045000	0.017518	0.005122	0.000407
T6TS	Gasoline	2019	7.3270842	289.88739	0.002041312	146.6003012	0.003347067	0.012358	1.028580	0.189487	0.127872	15.300935	3.276707	0.102922	0.089556	0.613009	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.019169	0.186733	1.981459	0.018033	1.500902	0.207464	0.019169	0.186733	1.981459	0.045000	0.017517	0.005122	0.000405
T6TS	Gasoline	2020	9.1988127	388.07292	0.002732709	184.0498439	0.004202086	0.011418	1.028580	0.205626	0.141727	15.300935	3.424491	0.131742	0.089556	0.595442	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.015634	0.186415	1.907851	0.016661	1.500902	0.225135	0.015634	0.186415	1.907851	0.045000	0.017517	0.005122	0.000408
T6TS	Gasoline	2021	11.664438	523.48767	0.003686264	233.3820793	0.005328402	0.008860	1.028580	0.196826	0.159940	15.300935	3.357223	0.124726	0.089556	0.720341	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.009629	0.075251	0.744524	0.012929	1.500902	0.215499	0.009629	0.075251	0.744524	0.045000	0.015843	0.004659	0.000373
T6TS	Gasoline	2022	14.32669	682.50623	0.004806032	286.6484197	0.006544539	0.015036	1.028580	0.193899	0.160365	15.300935	3.380153	0.120502	0.089556	0.530387	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.007077	0.074933	0.679260	0.021940	1.500902	0.212295	0.007077	0.074933	0.679260	0.045000	0.015843	0.004659	0.000373
T6TS	Gasoline	2023	15.003121	757.21379	0.005332103	300.1824393	0.006853537	0.016193	1.028580	0.166466	0.163213	15.300935	3.247535	0.112332	0.089556	0.431913	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.007077	0.074933	0.679260	0.023629	1.500902	0.182259	0.007077	0.074933	0.679260	0.045000	0.015843	0.004659	0.000370
T6TS	Gasoline	2024	14.585776	778.3416	0.005480879	291.8322109	0.006662891	0.007879	1.028580	0.185947	0.185250	15.300935	3.296318	0.106693	0.089556	0.389115	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.007077	0.074933	0.679260	0.011498	1.500902	0.203588	0.007077	0.074933	0.679260	0.045000	0.015553	0.004579	0.000366
T6TS	Gasoline	2025	14.958304	842.50976	0.005932735	299.285749	0.006833065	0.013015	1.028580	0.179437	0.190293	15.300935	3.311639	0.081906	0.044539	0.310076	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.007077	0.074933	0.679260	0.018992	1.500902	0.196461	0.007077	0.074933	0.679260	0.045000	0.015549	0.004578	0.000366
T6TS	Gasoline	2026	15.398407	913.55321	0.006433004	308.0913206	0.007034107	0.008673	1.028580	0.172743	0.177374	15.300935	3.301865	0.076796	0.044793	0.325834	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004913	0.039540	0.304930	0.012656	1.500902	0.189132	0.004913	0.039540	0.304930	0.045000	0.015543	0.004577	0.000365
T6TS	Gasoline	2027	15.059025	939.57293	0.006616229	301.3009785	0.006879075	0.009325	1.028580	0.166199	0.172815	15.300935	3.361150	0.073554	0.045752	0.299403	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004913	0.039540	0.304930	0.013607	1.500902	0.181967	0.004913	0.039540	0.304930	0.045000	0.015383	0.004532	0.000363
T6TS	Gasoline	2028	13.836512	906.39981	0.006382632	276.8409281	0.006320622	0.009678	1.028580	0.163473	0.171167	15.300935	3.303699	0.037221	0.036807	0.149616	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004327	0.039540	0.299945	0.014122	1.500902	0.178982	0.004327	0.039540	0.299945	0.045000	0.015337	0.004520	0.000361
T6TS	Gasoline	2029	12.658481	869.29861	0.006121375	253.2708811	0.005782488	0.010324	1.028580	0.157393	0.162246	15.300935	3.258413	0.037119	0.039021	0.169908	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004327	0.039540	0.299945	0.015065	1.500902	0.172325	0.004327	0.039540	0.299945	0.045000	0.015286	0.004505	0.000359
T6TS	Gasoline	2030	11.261427	809.28818	0.005698797	225.3186306	0.005144304	0.010300	1.028580	0.151469	0.157542	15.300935	3.247927	0.037251	0.040929	0.170349	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.003591	0.039540	0.294960	0.015030	1.500902	0.165840	0.003591	0.039540	0.294960	0.045000	0.015241	0.004493	0.000358
T6TS	Gasoline	2031	10.576874	794.37077	0.005593753	211.6221009	0.004831595	0.010189	1.028580	0.152243	0.156906	15.300935	3.322415	0.037378	0.040781	0.171591	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.003591	0.039540	0.294960	0.014868	1.500902	0.166687	0.003591	0.039540	0.294960	0.045000	0.015245	0.004494	0.000359
T6TS	Gasoline	2032	9.6521251	756.50992	0.005327146	193.1197185	0.004409163	0.011182	1.028580	0.159766	0.161314	15.300935	3.503190	0.039260	0.040122	0.176112	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004542	0.039540	0.287482	0.016317	1.500902	0.174923	0.004542	0.039540	0.287482	0.045000	0.015260	0.004498	0.000363
T6TS	Gasoline	2033	8.6828696	709.24204	0.004994298	173.7268552	0.003966399	0.012908	1.028580	0.176129	0.171385	15.300935	3.840165	0.043162	0.039047	0.191448	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004542	0.039540	0.287482	0.018835	1.500902	0.192839	0.004542	0.039540	0.287482	0.045000	0.015285	0.004505	0.000369
T6TS	Gasoline	2034	7.4069094	629.73964	0.004434463	148.1974442	0.003383531	0.014679	1.028580	0.194134	0.182814	15.300935	4.233147	0.047055	0.037663	0.205524	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004542	0.039540	0.287482	0.021420	1.500902	0.212553	0.004542	0.039540	0.287482	0.045000	0.015318	0.004514	0.000376
T6TS	Gasoline	2035	5.362788	473.90417	0.00333711	107.298663	0.002449761	0.014001	1.028580	0.177188	0.169871	15.300935	4.084730	0.042063	0.036128	0.187039	0.001501	0.000000	0.000520	0.012000	0.045017	0.001380	0.000000	0.000478	0.003000	0.015756	0.004542	0.039540	0.287482	0.020430	1.500902	0.193999	0.004542	0.039540	0.287482	0.045000	0.015353	0.004524	0.000374
T6 instate small	Diesel	2016	144.35614	3925.4762	0.027642184	1877.527791	0.042866287	0.006668	0.172216	0.000000	0.055334	7.292456	0.000000	0.420132	9.968427	1.733071	0.002834	0.002488	0.000000	0.012000	0.046379	0.002711	0.002381	0.000000	0.003000	0.016232	0.000000	0.000000	0.000000	0.007591	0.196055	0.000000	0.000000	0.000000	0.000000	0.220000	0.011654	0.020417	0.000000
T6 instate small	Diesel	2017	120.69484	3396.6652	0.023918434	1544.697079	0.035267349	0.006596	0.173172	0.000000	0.054073	7.332956	0.000000	0.409260	10.023789	1.750543	0.002968	0.002502	0.000000	0.012000	0.046117	0.002839	0.002394	0.000000	0.003000	0.016141	0.000000	0.000000	0.000000	0.007509	0.197144	0.000000	0.000000	0.000000	0.000000	0.220000	0.011182	0.019755	0.000000
T6 instate small	Diesel	2018	80.480621	2364.6668	0.016651369	1010.115507	0.023062189	0.006503	0.174310	0.000000	0.052575	7.381148	0.000000	0.396695	10.089665	1.772087	0.003112	0.002518	0.000000	0.012000	0.045824	0.002978	0.002410	0.000000	0.003000	0.016039	0.000000	0.000000	0.000000	0.007404	0.198439	0.000000	0.000000	0.000000	0.000000	0.220000	0.011148	0.019884	0.000000
T6 instate small	Diesel	2019	145.11394	4403.3132	0.031006988	1867.826297	0.04264479	0.006521	0.172836	0.000000	0.053426	7.318717	0.000000	0.405911	10.004325	1.744336	0.002950	0.002497	0.000000	0.012000	0.046102	0.002822	0.002389	0.000000	0.003000	0.016136	0.000000	0.000000	0.000000	0.007424	0.196761	0.000000	0.000000	0.000000	0.000000	0.220000	0.011181	0.019716	0.000000
T6 instate small	Diesel	2020	79.933145	2508.491	0.017664142	1030.850408	0.023535593	0.006464	0.172721	0.000000	0.052940	7.313853	0.000000	0.403437	9.997676	1.742231	0.002933	0.002495	0.000000	0.012000	0.046095	0.002807	0.002388	0.000000	0.003000	0.016133	0.000000	0.000000	0.000000	0.007359	0.196630	0.000000	0.000000	0.000000	0.000000	0.220000	0.011180	0.019703	0.000000
T6 instate small	Diesel	2021	26.815228	788.46062	0.005552135	382.2202193	0.008726561	0.006702	0.166475	0.000000	0.058464	7.049355	0.000000	0.456494	9.636120	1.638906	0.002155	0.002405	0.000000	0.012000	0.047545	0.002061	0.002301	0.000000	0.003000	0.016641	0.000000	0.000000	0.000000	0.007629	0.189519	0.000000	0.000000	0.000000	0.000000	0.220000	0.010265	0.017175	0.000000
T6 instate small	Diesel	2022	17.973082	561.05521	0.003950805	247.3344692	0.005646953	0.006493	0.168741	0.000000	0.055283	7.145312	0.000000	0.430317	9.767289	1.674035	0.002434	0.002438	0.000000	0.012000	0.046959	0.002329	0.002333	0.000000	0.003000	0.016436	0.000000	0.000000	0.000000	0.007392	0.192099	0.000000	0.000000	0.000000	0.000000	0.220000	0.010203	0.017409	0.000000
T6 instate small	Diesel	2023	115.55935	4022.7439	0.028327118	1484.093203	0.033883688	0.006193	0.172968	0.000000	0.050440	7.324319	0.000000	0.383145	10.011983	1.746769	0.002868	0.002499	0.000000	0.012000	0.045978	0.002744	0.002391	0.000000	0.003000	0.016092	0.000000	0.000000	0.000000	0.007051	0.196911	0.000000	0.000000	0.000000	0.000000	0.220000	0.010099	0.017845	0.000000
T6 instate small	Diesel	2024	74.597349	2656.5941	0.018707046	964.2924186	0.022015991	0.006099	0.172582	0.000000	0.049837	7.307964	0.000000	0.381507	9.989626	1.739695	0.002795	0.002493	0.000000	0.012000	0.046049	0.002674	0.002386	0.000000	0.003000	0.016117	0.000000	0.000000	0.000000	0.006943	0.196472	0.000000	0.000000	0.000000	0.000000	0.220000	0.009921	0.017479	0.000000
T6 instate small	Diesel	2025	125.62458	4667.1004	0.032864509	1607.55534	0.036702481	0.005950	0.173181	0.000000	0.048314	7.333320	0.000000	0.333935	4.985437	1.403203	0.002818	0.002502	0.000000	0.012000	0.045915	0.002696	0.002394	0.000000	0.003000	0.016070	0.000000	0.000000	0.000000	0.006774	0.197153	0.000000	0.000000	0.000000	0.000000	0.220000	0.009904	0.017534	0.000000
T6 instate small	Diesel	2026	130.83364	5005.2837	0.035245908	1673.589376	0.03821012	0.005814	0.173203	0.000000	0.047186	7.334248	0.000000	0.328309	5.014408	1.405485	0.002771	0.002502	0.000000	0.012000	0.045907	0.002651	0.002394	0.000000	0.003000	0.016067	0.000000	0.000000	0.000000	0.006618	0.197178	0.000000	0.000000	0.000000	0.000000	0.220000	0.009900	0.017531	0.000000
T6 instate small	Diesel	2027	131.77617	5188.5053	0.036536107	1684.084814	0.038449744	0.005663	0.173257	0.000000	0.045940	7.336557	0.000000	0.322514	5.123395	1.413709	0.002721	0.002503	0.000000	0.012000	0.045896	0.002604	0.002395	0.000000	0.003000	0.016063	0.000000	0.000000	0.000000	0.006447	0.197240	0.000000	0.000000	0.000000	0.000000	0.220000	0.009797	0.017356	0.000000
T6 instate small	Diesel	2028	126.51202	5118.1615	0.036040764	1616.11804	0.036897978	0.005501	0.173283	0.000000	0.044622	7.337622	0.000000	0.270748	4.122388	0.757227	0.002577	0.002504	0.000000	0.012000	0.045893	0.002466	0.002395	0.000000	0.003000	0.016063	0.000000	0.000000	0.000000	0.006263	0.197269	0.000000	0.000000	0.000000	0.000000	0.220000	0.009767	0.017306	0.000000
T6 instate small	Diesel	2029	117.37994	4872.1523	0.034308431	1499.369712	0.034232469	0.005327	0.173286	0.000000	0.043222	7.337773	0.000000	0.266446	4.370379	0.799025	0.002523	0.002504	0.000000	0.012000	0.045898	0.002414	0.002395	0.000000	0.003000	0.016064	0.000000	0.000000	0.000000	0.006065	0.197273	0.000000	0.000000	0.000000	0.000000	0.220000	0.009735	0.017249	0.000000
T6 instate small	Diesel	2030	105.2962	4476.7337	0.031523996	1345.848916	0.030727399	0.005142	0.173250	0.000000	0.041750	7.336233	0.000000	0.260643	4.583104	0.834705	0.002460	0.002503	0.000000	0.012000	0.045914	0.002353	0.002395	0.000000	0.003000	0.016070	0.000000	0.000000	0.000000	0.005854	0.197232	0.000000	0.000000	0.000000	0.000000	0.220000	0.009709	0.017195	0.000000
T6 instate small	Diesel	2031	95.583928	4156.0644	0.029265926	1223.065492	0.027924101	0.004945	0.173185	0.000000	0.040194	7.333471	0.000000	0.250313	4.564857	0.831345	0.002385	0.002502	0.000000	0.012000	0.045939	0.002282	0.002394	0.000000	0.003000	0.016079	0.000000	0.000000	0.000000	0.005629	0.197157	0.000000	0.000000	0.000000	0.000000	0.220000	0.009713	0.017193	0.000000
T6 instate small	Diesel	2032	84.845094	3766.8192	0.026524963	1087.977538	0.024839876	0.004736	0.173059	0.000000	0.038571	7.328136	0.000000	0.225067	4.487764	0.817821	0.002242	0.002500	0.000000	0.012000	0.045978	0.002145	0.002392	0.000000	0.003000	0.016092	0.000000	0.000000	0.000000	0.005391	0.197014	0.000000	0.000000	0.000000	0.000000	0.220000	0.009727	0.017197	0.000000
T6 instate small	Diesel	2033	75.707646	3434.6506	0.024185917	971.6704172	0.02218444	0.004511	0.173006	0.000000	0.036790	7.325914	0.000000	0.209586	4.366195	0.797141	0.002169	0.002500	0.000000	0.012000	0.046005	0.002075	0.002391	0.000000	0.003000	0.016102	0.000000	0.000000	0.000000	0.005136	0.196954	0.000000	0.000000	0.000000	0.000000	0.220000	0.009746	0.017220	0.000000
T6 instate small	Diesel	2034	62.489262	2896.4726	0.020396208	802.4264068	0.01832039	0.004273	0.172976	0.000000	0.034883	7.324644	0.000000	0.190074	4.210772	0.770868	0.002095	0.002499	0.000000	0.012000	0.046029	0.002004	0.002391	0.000000	0.003000	0.016110	0.000000	0.000000	0.000000	0.004864	0.196920	0.000000	0.000000	0.000000	0.000000	0.220000	0.009768	0.017253	0.000000
T6 instate small	Diesel	2035	35.450915	1677.4016	0.011811826	455.7314232	0.010404913	0.004022	0.172910	0.000000	0.032885	7.321867	0.000000	0.164537	4.037651	0.741488	0.002015	0.002498	0.000000	0.012000	0.046063	0.001928	0.002390	0.000000	0.003000	0.016122	0.000000	0.000000	0.000000	0.004578	0.196845	0.000000	0.000000	0.000000	0.000000	0.220000	0.009795	0.017287	0.000000
T6 instate small	Electricity	2024	5.6732095	202.03687	0.001422691	73.33548649	0.00167434	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.023024	0.000000	0.000000	0.000000	0.003000	0.008058	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2025	11.874824	441.1636	0.00310656	151.9562117	0.003469349	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022958	0.000000	0.000000	0.000000	0.003000	0.008035	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2026	14.867715	568.79205	0.004005286	190.1838904	0.004342134	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022953	0.000000	0.000000	0.000000	0.003000	0.008034	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2027	24.517194	965.33077	0.006797609	313.3270147	0.007153644	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022948	0.000000	0.000000	0.000000	0.003000	0.008032	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2028	38.871657	1572.589	0.011073764	496.5629808	0.011337148	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022947	0.000000	0.000000	0.000000	0.003000	0.008031	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2029	53.748147	2230.9532	0.015709793	686.5597396	0.01567501	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022949	0.000000	0.000000	0.000000	0.003000	0.008032	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2030	69.592051	2958.7496	0.020834747	889.4944901	0.020308262	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022957	0.000000	0.000000	0.000000	0.003000	0.008035	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2031	77.445873	3367.4075	0.023712409	990.9759582	0.02262521	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022969	0.000000	0.000000	0.000000	0.003000	0.008039	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2032	85.509512	3796.317	0.026732679	1096.497443	0.025034396	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.022989	0.000000	0.000000	0.000000	0.003000	0.008046	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2033	96.521619	4378.9241	0.030835246	1238.807531	0.028283512	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.023003	0.000000	0.000000	0.000000	0.003000	0.008051	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2034	102.83872	4766.7317	0.033566087	1320.555006	0.030149908	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.023015	0.000000	0.000000	0.000000	0.003000	0.008055	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Electricity	2035	77.229203	3654.1903	0.025731859	992.8030008	0.022666923	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.012000	0.023031	0.000000	0.000000	0.000000	0.003000	0.008061	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2020	1.1457117	35.95514	0.000253187	14.77556491	0.000337344	0.011112	0.168904	0.000000	3.194800	38.868230	0.000000	0.055367	5.138774	0.000000	0.001768	0.021178	0.000000	0.012000	0.046095	0.001626	0.019473	0.000000	0.003000	0.016133	0.000000	0.000000	0.000000	0.793704	12.064546	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2021	0.3843527	11.301301	7.95808E-05	5.47850553	0.000125081	0.012460	0.162795	0.000000	3.811308	37.462599	0.000000	0.059579	4.952936	0.000000	0.002015	0.020412	0.000000	0.012000	0.047545	0.001853	0.018768	0.000000	0.003000	0.016641	0.000000	0.000000	0.000000	0.889998	11.628244	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2022	0.2576149	8.0418144	5.66284E-05	3.545137565	8.09399E-05	0.011915	0.165011	0.000000	3.562238	37.972547	0.000000	0.057877	5.020356	0.000000	0.001916	0.020690	0.000000	0.012000	0.046959	0.001761	0.019024	0.000000	0.003000	0.016436	0.000000	0.000000	0.000000	0.851095	11.786530	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2023	1.6563554	57.659495	0.000406023	21.27206362	0.000485668	0.011003	0.169145	0.000000	3.145185	38.923852	0.000000	0.055029	5.146128	0.000000	0.001749	0.021208	0.000000	0.012000	0.045978	0.001608	0.019500	0.000000	0.003000	0.016092	0.000000	0.000000	0.000000	0.785955	12.081811	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2024	1.0692317	38.077958	0.000268135	13.82156433	0.000315563	0.011069	0.168768	0.000000	3.175069	38.836933	0.000000	0.055233	5.134637	0.000000	0.001761	0.021161	0.000000	0.012000	0.046049	0.001619	0.019457	0.000000	0.003000	0.016117	0.000000	0.000000	0.000000	0.790622	12.054832	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2025	1.8006242	66.895298	0.000471059	23.04169266	0.00052607	0.010945	0.169353	0.000000	3.118384	38.971681	0.000000	0.054845	5.152452	0.000000	0.001738	0.021234	0.000000	0.012000	0.045915	0.001598	0.019524	0.000000	0.003000	0.016070	0.000000	0.000000	0.000000	0.781769	12.096657	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2026	1.8752875	71.742606	0.000505193	23.98818323	0.00054768	0.010937	0.169375	0.000000	3.114875	38.976617	0.000000	0.054821	5.153104	0.000000	0.001736	0.021237	0.000000	0.012000	0.045907	0.001597	0.019527	0.000000	0.003000	0.016067	0.000000	0.000000	0.000000	0.781220	12.098189	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2027	1.8887972	74.36879	0.000523686	24.13861827	0.000551115	0.010926	0.169428	0.000000	3.110018	38.988885	0.000000	0.054788	5.154726	0.000000	0.001735	0.021244	0.000000	0.012000	0.045896	0.001595	0.019533	0.000000	0.003000	0.016063	0.000000	0.000000	0.000000	0.780462	12.101997	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2028	1.8133442	73.360525	0.000516586	23.16442504	0.000528873	0.010924	0.169453	0.000000	3.109035	38.994545	0.000000	0.054782	5.155474	0.000000	0.001734	0.021247	0.000000	0.012000	0.045893	0.001594	0.019536	0.000000	0.003000	0.016063	0.000000	0.000000	0.000000	0.780308	12.103754	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2029	1.6824507	69.834384	0.000491756	21.49102754	0.000490667	0.010929	0.169456	0.000000	3.111144	38.995351	0.000000	0.054796	5.155581	0.000000	0.001735	0.021247	0.000000	0.012000	0.045898	0.001595	0.019536	0.000000	0.003000	0.016064	0.000000	0.000000	0.000000	0.780638	12.104004	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2030	1.5092498	64.166701	0.000451845	19.29055649	0.000440427	0.010944	0.169420	0.000000	3.117868	38.987162	0.000000	0.054842	5.154498	0.000000	0.001738	0.021243	0.000000	0.012000	0.045914	0.001598	0.019532	0.000000	0.003000	0.016070	0.000000	0.000000	0.000000	0.781688	12.101462	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2031	1.3700402	59.570427	0.000419479	17.53065569	0.000400247	0.010966	0.169357	0.000000	3.128322	38.972488	0.000000	0.054913	5.152558	0.000000	0.001742	0.021235	0.000000	0.012000	0.045939	0.001602	0.019525	0.000000	0.003000	0.016079	0.000000	0.000000	0.000000	0.783321	12.096907	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2032	1.2161165	53.991231	0.000380192	15.59438946	0.000356039	0.011003	0.169233	0.000000	3.145238	38.944135	0.000000	0.055029	5.148810	0.000000	0.001749	0.021219	0.000000	0.012000	0.045978	0.001608	0.019511	0.000000	0.003000	0.016092	0.000000	0.000000	0.000000	0.785963	12.088107	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2033	1.085146	49.230133	0.000346666	13.92731594	0.000317978	0.011028	0.169182	0.000000	3.156591	38.932326	0.000000	0.055106	5.147248	0.000000	0.001753	0.021213	0.000000	0.012000	0.046005	0.001612	0.019505	0.000000	0.003000	0.016102	0.000000	0.000000	0.000000	0.787736	12.084441	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2034	0.895682	41.516227	0.000292346	11.50147817	0.000262593	0.011051	0.169153	0.000000	3.166817	38.925575	0.000000	0.055176	5.146356	0.000000	0.001757	0.021209	0.000000	0.012000	0.046029	0.001616	0.019501	0.000000	0.003000	0.016110	0.000000	0.000000	0.000000	0.789334	12.082346	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T6 instate small	Natural Gas	2035	0.5081312	24.042825	0.000169303	6.532169142	0.000149138	0.011082	0.169089	0.000000	3.181107	38.910818	0.000000	0.055274	5.144405	0.000000	0.001763	0.021201	0.000000	0.012000	0.046063	0.001621	0.019494	0.000000	0.003000	0.016122	0.000000	0.000000	0.000000	0.791565	12.077765	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Diesel	2016	12.010116	362.17694	0.002550356	113.1352928	0.002583019	0.010456	1.862837	0.000000	0.090580	27.524939	0.000000	1.401347	22.013024	3.724176	0.027201	0.007928	0.000000	0.036000	0.080355	0.026024	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011903	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.015991	0.043212	0.000000
T7 Single	Diesel	2017	11.974062	380.96874	0.002682683	112.7956608	0.002575265	0.010442	1.862837	0.000000	0.052812	27.524939	0.000000	1.384463	22.013024	3.724176	0.021708	0.007928	0.000000	0.036000	0.080355	0.020769	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011888	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.016583	0.041968	0.000000
T7 Single	Diesel	2018	16.178859	522.30347	0.003677925	152.4048546	0.003479592	0.010314	1.862837	0.000000	0.052164	27.524939	0.000000	1.365845	22.013024	3.724176	0.021194	0.007928	0.000000	0.036000	0.080355	0.020277	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011742	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.016583	0.041968	0.000000
T7 Single	Diesel	2019	35.88093	1222.9589	0.008611759	337.9983599	0.007716922	0.010178	1.862837	0.000000	0.051477	27.524939	0.000000	1.345483	22.013024	3.724176	0.020648	0.007928	0.000000	0.036000	0.080355	0.019754	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011587	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.016583	0.041968	0.000000
T7 Single	Diesel	2020	11.796725	367.30078	0.002586437	111.125154	0.002537125	0.010036	1.862837	0.000000	0.050755	27.524939	0.000000	1.323359	22.013024	3.724176	0.020074	0.007928	0.000000	0.036000	0.080355	0.019206	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011425	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.016583	0.041968	0.000000
T7 Single	Diesel	2021	9.3597608	292.87394	0.002062342	88.16894665	0.002013006	0.009887	1.862837	0.000000	0.050003	27.524939	0.000000	1.299437	22.013024	3.724176	0.019477	0.007928	0.000000	0.036000	0.080355	0.018635	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011255	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014557	0.036839	0.000000
T7 Single	Diesel	2022	11.029079	380.85399	0.002681875	103.8939277	0.002372027	0.009733	1.862837	0.000000	0.049226	27.524939	0.000000	1.273668	22.013024	3.724176	0.018860	0.007928	0.000000	0.036000	0.080355	0.018044	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.011081	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014557	0.036839	0.000000
T7 Single	Diesel	2023	11.884745	440.90663	0.00310475	111.9543001	0.002556055	0.009576	1.862837	0.000000	0.048429	27.524939	0.000000	1.192730	22.013024	3.724176	0.017148	0.007928	0.000000	0.036000	0.080355	0.016406	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.010901	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014557	0.036839	0.000000
T7 Single	Diesel	2024	12.0176	479.16243	0.003374137	113.205789	0.002584629	0.009415	1.862837	0.000000	0.047615	27.524939	0.000000	1.164640	22.013024	3.724176	0.016554	0.007928	0.000000	0.036000	0.080355	0.015838	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.010718	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014250	0.036063	0.000000
T7 Single	Diesel	2025	24.044132	1194.1413	0.008408833	226.4957258	0.005171178	0.009252	1.862837	0.000000	0.046791	27.524939	0.000000	1.029722	11.504488	3.022146	0.016018	0.007928	0.000000	0.036000	0.080355	0.015325	0.007585	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	0.010532	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014245	0.036050	0.000000
T7 Single	Diesel	2026	23.061583	1201.8914	0.008463407	217.2401098	0.004959861	0.009087	1.862837	0.000000	0.045960	27.524939	0.000000	1.000515	11.572635	3.026699	0.015452	0.007928	0.000000	0.036000	0.088783	0.014784	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.010345	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014240	0.036037	0.000000
T7 Single	Diesel	2027	23.216192	1285.2522	0.009050412	218.696526	0.004993113	0.008923	1.862837	0.000000	0.045127	27.524939	0.000000	0.971682	11.829766	3.043877	0.014896	0.007928	0.000000	0.036000	0.088783	0.014252	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.010158	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014032	0.035511	0.000000
T7 Single	Diesel	2028	21.431434	1246.6215	0.008778385	201.884113	0.004609265	0.008759	1.862837	0.000000	0.044298	27.524939	0.000000	0.839845	9.817252	1.734670	0.014189	0.007928	0.000000	0.036000	0.088783	0.013575	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.009971	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013982	0.035385	0.000000
T7 Single	Diesel	2029	18.912428	1149.8043	0.008096624	178.155072	0.004067501	0.008596	1.862837	0.000000	0.043476	27.524939	0.000000	0.814522	10.462484	1.839927	0.013673	0.007928	0.000000	0.036000	0.088783	0.013082	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.009786	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013922	0.035232	0.000000
T7 Single	Diesel	2030	16.066844	1018.3763	0.007171142	151.3496679	0.003455501	0.008436	1.862837	0.000000	0.042666	27.524939	0.000000	0.787765	11.240371	1.966825	0.013162	0.007928	0.000000	0.036000	0.088783	0.012592	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.009604	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013849	0.035048	0.000000
T7 Single	Diesel	2031	13.975282	922.87755	0.006498664	131.647153	0.003005668	0.008280	1.862837	0.000000	0.041874	27.524939	0.000000	0.743927	11.332504	1.981855	0.012623	0.007928	0.000000	0.036000	0.088783	0.012077	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.009426	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013840	0.035026	0.000000
T7 Single	Diesel	2032	11.615265	797.44312	0.005615387	109.4157984	0.002498098	0.008127	1.862837	0.000000	0.041104	27.524939	0.000000	0.662765	11.167408	1.954922	0.011856	0.007928	0.000000	0.036000	0.088783	0.011343	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.009252	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013856	0.035065	0.000000
T7 Single	Diesel	2033	9.7819132	700.69792	0.004934133	92.14562236	0.002103799	0.007980	1.862837	0.000000	0.040360	27.524939	0.000000	0.600259	10.780580	1.891819	0.011394	0.007928	0.000000	0.036000	0.088783	0.010902	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.009085	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013892	0.035157	0.000000
T7 Single	Diesel	2034	8.1761574	611.28424	0.004304505	77.0194026	0.001758448	0.007839	1.862837	0.000000	0.039648	27.524939	0.000000	0.524079	10.191858	1.795780	0.010957	0.007928	0.000000	0.036000	0.088783	0.010483	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.008924	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.013947	0.035296	0.000000
T7 Single	Diesel	2035	5.2986248	412.66004	0.002905845	49.91304583	0.001139577	0.007706	1.862837	0.000000	0.038971	27.524939	0.000000	0.425306	9.408408	1.667975	0.010552	0.007928	0.000000	0.036000	0.088783	0.010096	0.007585	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	0.008772	2.120698	0.000000	0.000000	0.000000	0.000000	0.220000	0.014020	0.035482	0.000000
T7 Single	Electricity	2024	0.9091174	36.248077	0.00025525	8.563885443	0.000195524	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.040177	0.000000	0.000000	0.000000	0.009000	0.014062	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2025	2.2588858	112.18657	0.000789989	21.27870403	0.000485819	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.040177	0.000000	0.000000	0.000000	0.009000	0.014062	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2026	2.6023768	135.62705	0.00095505	24.51438971	0.000559694	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2027	4.2752154	236.67663	0.001666615	40.27252888	0.000919472	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2028	6.4820746	377.04867	0.002655079	61.06114267	0.001394102	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2029	8.4273028	512.34825	0.003607823	79.38519237	0.001812462	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2030	10.015751	634.83553	0.004470347	94.3483707	0.00215409	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2031	10.556827	697.13503	0.004909044	99.44530856	0.00227046	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2032	10.93465	750.71566	0.005286345	103.0044052	0.002351718	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2033	11.807927	845.8253	0.005956082	111.2306697	0.002539534	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2034	13.050183	975.68709	0.006870535	122.9327238	0.002806706	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Electricity	2035	11.594294	902.97046	0.006358483	109.2182469	0.002493588	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.044391	0.000000	0.000000	0.000000	0.009000	0.015537	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2016	0.7106418	21.430108	0.000150905	6.694246146	0.000152838	0.015037	0.529766	0.000000	10.517992	37.736764	0.000000	0.630675	12.222720	0.000000	0.001205	0.023560	0.000000	0.036000	0.080355	0.001108	0.021662	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.074048	37.840434	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2017	0.9663442	30.745369	0.000216501	9.102962627	0.000207832	0.015192	0.529766	0.000000	7.046543	37.736764	0.000000	0.451204	12.222720	0.000000	0.001730	0.023560	0.000000	0.036000	0.080355	0.001591	0.021662	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.085129	37.840434	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2018	4.1931899	135.3691	0.000953234	39.49984877	0.000901831	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2019	0.9362364	31.910507	0.000224706	8.819347086	0.000201357	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2020	0.7257504	22.596839	0.000159121	6.836569052	0.000156087	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2021	0.5758251	18.017999	0.000126878	5.424272277	0.000123843	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2022	0.6785238	23.43065	0.000164993	6.391694276	0.00014593	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2023	0.7311655	27.125169	0.000191008	6.887579235	0.000157252	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2024	0.7393389	29.478718	0.000207581	6.964572519	0.00015901	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2025	1.4792274	73.46518	0.000517323	13.93432192	0.000318138	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.080355	0.002074	0.042936	0.000000	0.009000	0.028124	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2026	1.4187796	73.941977	0.00052068	13.36490397	0.000305137	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2027	1.4282914	79.070445	0.000556794	13.45450465	0.000307183	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2028	1.3184907	76.693836	0.000540058	12.42018237	0.000283568	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2029	1.163518	70.737511	0.000498115	10.96033984	0.000250238	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2030	0.9884539	62.651882	0.000441178	9.311235295	0.000212587	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2031	0.8597781	56.776669	0.000399807	8.099110056	0.000184913	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2032	0.7145868	49.059774	0.000345466	6.731407197	0.000153686	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2033	0.6017965	43.107879	0.000303554	5.66892272	0.000129429	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2034	0.5030082	37.607029	0.000264819	4.73833732	0.000108182	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Single	Natural Gas	2035	0.3259785	25.387401	0.000178771	3.070717765	7.01083E-05	0.015246	0.372427	0.000000	4.039280	85.703120	0.000000	0.163863	11.330822	0.000000	0.002256	0.046697	0.000000	0.036000	0.088783	0.002074	0.042936	0.000000	0.009000	0.031074	0.000000	0.000000	0.000000	1.089015	26.601912	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
			Total:	142,010	100.00%	43,800	100.00%																																
						Weighted Average Emission Factors*:		0.005007		0.021213	0.091679		0.401314	0.266754		0.963914	0.003117		0.000061	0.015751	0.044624	0.002976		0.000056	0.003938	0.015618													

Tractor Trailer Trucks (2016+ Model Year)

T7 Tractor	Diesel	2016	5.1767009	291.85903	0.018660567	75.2174643	0.024592693	0.010875	3.456343	0.000000	0.088870	51.070296	0.000000	1.431365	40.843383	4.379185	0.032523	0.014710	0.000000	0.036000	0.078375	0.031116	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012380	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.015330	0.080176	0.000000
T7 Tractor	Diesel	2017	7.4755937	421.46911	0.026947436	108.6203766	0.035513927	0.011128	3.456343	0.000000	0.051632	51.070296	0.000000	1.431365	40.843383	4.379185	0.026553	0.014710	0.000000	0.036000	0.078375	0.025404	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012668	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.015938	0.077869	0.000000
T7 Tractor	Diesel	2018	5.6485098	327.2416	0.02092282	82.07284711	0.026834092	0.011128	3.456343	0.000000	0.051632	51.070296	0.000000	1.431365	40.843383	4.379185	0.026553	0.014710	0.000000	0.036000	0.078375	0.025404	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012668	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.015571	0.077869	0.000000
T7 Tractor	Diesel	2019	8.4134975	501.42753	0.032059731	122.2481188	0.03996958	0.011112	3.456343	0.000000	0.051560	51.070296	0.000000	1.429579	40.843383	4.379185	0.026486	0.014710	0.000000	0.036000	0.078375	0.025341	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012651	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.015571	0.077869	0.000000
T7 Tractor	Diesel	2020	8.6023309	527.93254	0.03375438	124.9918678	0.040866661	0.011075	3.456343	0.000000	0.051384	51.070296	0.000000	1.425223	40.843383	4.379185	0.026326	0.014710	0.000000	0.036000	0.078375	0.025187	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012607	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.015571	0.077869	0.000000
T7 Tractor	Diesel	2021	8.7461094	553.21587	0.035370918	127.08097	0.041549703	0.011014	3.456343	0.000000	0.051106	51.070296	0.000000	1.418249	40.843383	4.379185	0.026070	0.014710	0.000000	0.036000	0.078375	0.024942	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012539	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.013377	0.068352	0.000000
T7 Tractor	Diesel	2022	9.8334846	641.57352	0.041020234	142.8805319	0.046715441	0.010932	3.456343	0.000000	0.050724	51.070296	0.000000	1.408575	40.843383	4.379185	0.025720	0.014710	0.000000	0.036000	0.078375	0.024608	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012445	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.013377	0.068352	0.000000
T7 Tractor	Diesel	2023	10.413412	701.27841	0.044837581	151.3068771	0.049470474	0.010828	3.456343	0.000000	0.050239	51.070296	0.000000	1.390414	40.843383	4.379185	0.025170	0.014710	0.000000	0.036000	0.078375	0.024081	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012326	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.013377	0.068352	0.000000
T7 Tractor	Diesel	2024	10.829748	753.23949	0.048159812	157.3562378	0.05144834	0.010701	3.456343	0.000000	0.049651	51.070296	0.000000	1.375019	40.843383	4.379185	0.024631	0.014710	0.000000	0.036000	0.078375	0.023566	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012182	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012399	0.064283	0.000000
T7 Tractor	Diesel	2025	11.264142	809.5641	0.051761034	163.6679797	0.053511992	0.010552	3.456343	0.000000	0.048959	51.070296	0.000000	1.302673	32.064265	4.007491	0.024003	0.014710	0.000000	0.036000	0.078375	0.022964	0.014073	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	0.012012	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012396	0.064268	0.000000
T7 Tractor	Diesel	2026	11.560857	858.94903	0.054918554	167.9792516	0.054921582	0.010381	3.456343	0.000000	0.048165	51.070296	0.000000	1.282594	32.258171	4.015701	0.023277	0.014710	0.000000	0.036000	0.086605	0.022270	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.011818	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012392	0.064244	0.000000
T7 Tractor	Diesel	2027	11.422823	877.66363	0.056115108	165.9736155	0.05426583	0.010187	3.456343	0.000000	0.047267	51.070296	0.000000	1.259673	32.590567	4.029774	0.022459	0.014710	0.000000	0.036000	0.086605	0.021487	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.011597	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.011848	0.062186	0.000000
T7 Tractor	Diesel	2028	11.159562	886.95568	0.056709213	162.1484422	0.053015173	0.009971	3.456343	0.000000	0.046266	51.070296	0.000000	1.193063	30.957941	3.357180	0.021501	0.014710	0.000000	0.036000	0.086605	0.020571	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.011352	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.011833	0.062108	0.000000
T7 Tractor	Diesel	2029	10.768465	885.53058	0.056618096	156.4657914	0.051157204	0.009733	3.456343	0.000000	0.045162	51.070296	0.000000	1.152628	30.263941	3.285430	0.020480	0.014710	0.000000	0.036000	0.086605	0.019594	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.011081	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.011858	0.062234	0.000000
T7 Tractor	Diesel	2030	9.7127753	826.52793	0.052845649	141.1266256	0.046141994	0.009473	3.456343	0.000000	0.043955	51.070296	0.000000	1.094190	28.170434	3.068993	0.019346	0.014710	0.000000	0.036000	0.086605	0.018509	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.010785	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.011930	0.062617	0.000000
T7 Tractor	Diesel	2031	8.4542264	744.55806	0.047604748	122.83991	0.040163069	0.009191	3.456343	0.000000	0.042644	51.070296	0.000000	1.021161	25.135426	2.755220	0.018119	0.014710	0.000000	0.036000	0.086605	0.017335	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.010463	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012036	0.063172	0.000000
T7 Tractor	Diesel	2032	6.5269966	594.94039	0.038038655	94.83726062	0.031007475	0.008886	3.456343	0.000000	0.041231	51.070296	0.000000	0.898622	21.531020	2.382579	0.016051	0.014710	0.000000	0.036000	0.086605	0.015356	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.010116	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012162	0.063831	0.000000
T7 Tractor	Diesel	2033	5.1912135	489.74499	0.031312785	75.42833259	0.024661637	0.008559	3.456343	0.000000	0.039714	51.070296	0.000000	0.791620	17.182005	1.932956	0.014692	0.014710	0.000000	0.036000	0.086605	0.014056	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.009744	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012313	0.064625	0.000000
T7 Tractor	Diesel	2034	4.5992291	449.0715	0.028712248	66.82679844	0.021849327	0.008210	3.456343	0.000000	0.038094	51.070296	0.000000	0.680541	13.780313	1.581273	0.013378	0.014710	0.000000	0.036000	0.086605	0.012799	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.009347	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012432	0.065247	0.000000
T7 Tractor	Diesel	2035	3.1913336	322.48143	0.020618469	46.37007775	0.015160908	0.007839	3.456343	0.000000	0.036371	51.070296	0.000000	0.562983	12.622259	1.461547	0.012105	0.014710	0.000000	0.036000	0.086605	0.011581	0.014073	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	0.008924	3.934783	0.000000	0.000000	0.000000	0.000000	0.220000	0.012472	0.065459	0.000000
T7 Tractor	Electricity	2024	0.2022726	14.068633	0.000899505	2.939021551	0.000960926	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.039187	0.000000	0.000000	0.000000	0.009000	0.013716	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2025	0.2965827	21.31567	0.001362858	4.309346913	0.001408961	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.039187	0.000000	0.000000	0.000000	0.009000	0.013716	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2026	0.4394205	32.648082	0.002087418	6.384779718	0.002087533	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2027	0.6628721	50.931256	0.003256388	9.631531234	0.003149073	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2028	0.8791339	69.873059	0.004467468	12.77381487	0.004176457	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2029	1.2105063	99.544401	0.006364562	17.58865682	0.005750692	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2030	1.6815741	143.09689	0.009149174	24.43327124	0.007988569	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2031	2.2793972	200.74498	0.012835016	33.11964137	0.010828618	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2032	2.6787321	244.16834	0.015611371	38.92197745	0.012725718	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2033	2.610294	246.2581	0.015744984	37.92757125	0.012400592	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2034	2.645103	258.26945	0.016512953	38.43334597	0.012565958	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Electricity	2035	1.9139342	193.40135	0.012365486	27.80946387	0.009092431	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.036000	0.043302	0.000000	0.000000	0.000000	0.009000	0.015156	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2016	10.635841	599.64178	0.038339247	154.5387653	0.050527154	0.014188	0.982938	0.000000	10.328729	70.017510	0.000000	0.597521	22.678267	0.000000	0.001157	0.043713	0.000000	0.036000	0.078375	0.001063	0.040192	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.013433	70.209861	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2017	0.9758302	55.01667	0.003517596	14.17881254	0.004635827	0.014442	0.982938	0.000000	6.749948	70.017510	0.000000	0.435726	22.678267	0.000000	0.001661	0.043713	0.000000	0.036000	0.078375	0.001527	0.040192	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.031588	70.209861	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2018	0.0739297	4.2830546	0.000273845	1.074198632	0.000351214	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2019	0.2338001	13.934018	0.000890898	3.397115929	0.001110703	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2020	0.7308213	44.851141	0.002867644	10.61883368	0.003471876	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2021	0.7430362	46.999116	0.003004979	10.79631585	0.003529905	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2022	0.8354155	54.505646	0.003484923	12.13858654	0.003968766	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2023	0.8846839	59.577946	0.00380923	12.85445678	0.004202823	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2024	0.9200542	63.992362	0.004091474	13.36838745	0.004370855	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2025	0.9569586	68.777487	0.004397421	13.90460904	0.004546175	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.078375	0.001991	0.079665	0.000000	0.009000	0.027431	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2026	0.9821664	72.973042	0.004665671	14.2708783	0.004665929	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2027	0.9704396	74.562964	0.004767326	14.10048708	0.004610219	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2028	0.948074	75.352381	0.004817799	13.77551491	0.004503967	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2029	0.9148478	75.23131	0.004810058	13.29273851	0.004346121	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2030	0.8251604	70.21867	0.004489565	11.98958133	0.003920048	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2031	0.7182389	63.254821	0.004044318	10.43601153	0.003412102	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2032	0.5545088	50.543873	0.003231619	8.057012944	0.002634277	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2033	0.4410258	41.606871	0.002660215	6.408104241	0.002095159	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2034	0.390733	38.151407	0.002439283	5.677350617	0.001856236	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
T7 Tractor	Natural Gas	2035	0.2711236	27.396796	0.001751667	3.939425434	0.001288013	0.014590	0.691008	0.000000	3.657157	159.015200	0.000000	0.160351	21.023423	0.000000	0.002166	0.086643	0.000000	0.036000	0.086605	0.001991	0.079665	0.000000	0.009000	0.030312	0.000000	0.000000	0.000000	1.042118	49.357694	0.000000	0.000000	0.000000	0.000000	1.060000	0.000000	0.000000	0.000000
			Total:	15,640	100.00%	3,059	100.00%																																
				Weighted Average Emission Factors*:				0.00953		0.00000	0.67906		0.00000	0.99784		2.99345	0.01784		0.00000	0.03600	0.07880	0.01706		0.00000	0.00900	0.02758													

*Calculated

Idling Emission Factors
Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VM
Model Year 2016+

Vehicle Category	Fuel	Population	% Trips	ROG_IdleX	CO_IdleX	Nox_IdleX	PM_{10}_IdleX	$PM_{2.5}$_IdleX
Single Unit Trucks								
T6TS	Electricity	1.45134648	0.00480677	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
T6TS	Electricity	1.58795652	0.00612707	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
T6TS	Gasoline	17.75183255	0.04036347	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	57.54192202	0.14143917	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	36.3955502	0.09836209	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	11.23800599	0.03220550	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	13.12735605	0.04043250	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	15.84659906	0.05126993	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	18.34952013	0.06297160	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	18.48612566	0.06594479	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	16.7944496	0.06411039	1.02858001	15.30093521	0.08955589	0.00000000	0.00000000
T6TS	Gasoline	14.28021867	0.06574780	1.02858001	15.30093521	0.03583985	0.00000000	0.00000000
		Total:	67.38%					
		T6TS Weighted Average Emission Factors*:		1.01189	15.05264	0.08286	0.00000	0.00000
T6 instate small	Diesel	330.1307535	0.057027195	0.17221846	7.292564252	9.968575291	0.00238059	0.002488229
T6 instate small	Diesel	249.2179204	0.046917943	0.173174988	7.33068297	10.0239432	0.002393812	0.002502049
T6 instate small	Diesel	150.4675843	0.030680799	0.174312564	7.381238747	10.08978895	0.002409536	0.002518485
T6 instate small	Diesel	243.9791877	0.056732526	0.172838972	7.318839742	10.00449259	0.002389167	0.002497194
T6 instate small	Diesel	122.4544921	0.031310592	0.172724809	7.314005511	9.997884433	0.002387589	0.002495545
T6 instate small	Diesel	37.34004483	0.011609387	0.166472794	7.049264894	9.635997081	0.002301167	0.002405215
T6 instate small	Diesel	22.93113528	0.007512427	0.168741582	7.145336395	9.767322079	0.002332528	0.002437995
T6 instate small	Diesel	137.6706941	0.045077187	0.172971226	7.324439998	10.01214786	0.002390995	0.002499105
T6 instate small	Diesel	78.74667987	0.029288989	0.172585859	7.308121693	9.989841545	0.002385668	0.002493537
T6 instate small	Diesel	85.64918991	0.048827171	0.173194439	7.33389193	4.011985706	0.002394081	0.00250233
T6 instate small	Diesel	15.0334608	0.05083286	0.173127012	7.331036766	4.024250206	0.002393149	0.002501356
T6 instate small	Electricity	6.902688828	0.002227459	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
T6 instate small	Electricity	9.660680923	0.00461545	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
T6 instate small	Electricity	2.045336262	0.005776561	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
T6 instate small	Natural Gas	1.75518609	0.000448786	0.168907164	38.86904004	5.138881389	0.01947291	0.021178567
T6 instate small	Natural Gas	0.535214005	0.000166402	0.162793334	37.462121	4.952872419	0.018768061	0.020411979
T6 instate small	Natural Gas	0.328680549	0.000107678	0.165011977	37.97267667	5.020373058	0.019023843	0.020690165
T6 instate small	Natural Gas	1.973285611	0.000646108	0.169148135	38.92449235	5.146212747	0.019500691	0.021208781
T6 instate small	Natural Gas	1.12870565	0.00041981	0.168771285	38.83777149	5.134747369	0.019457245	0.021161529
T6 instate small	Natural Gas	1.227641911	0.000699858	0.169366414	38.97472304	5.152853752	0.01952856	0.02123615
T6 instate small	Natural Gas	0.215480223	0.000728606	0.169300478	38.95954976	5.150847691	0.019518254	0.021227883
		Total:	43.17%					
		T6 instate small Single Weighted Average Emission Factors*:		0.16763	7.33452	8.28231	0.00244	0.00256
T7 Single	Diesel	22.34779936	0.029025271	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	20.35620962	0.028938137	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	24.73656877	0.03910002	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	53.35091691	0.086714708	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	16.73895573	0.028509562	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	11.39399031	0.022620064	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	13.15264337	0.026654365	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	12.65503307	0.028722283	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	11.62653372	0.029043357	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	15.63195295	0.058108302	1.862836709	27.52493933	9.00190849	0.007584948	0.007927905
T7 Single	Diesel	2.452255856	0.00573374	1.862836709	27.52493933	9.035739929	0.007584948	0.007927905
T7 Single	Electricity	1.032746867	0.002197096	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
T7 Single	Electricity	1.818321737	0.005459129	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
T7 Single	Electricity	0.343964777	0.006289256	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
T7 Single	Natural Gas	1.322325387	0.001717433	0.529766074	37.736763837	12.222719898	0.021662093	0.023559502
T7 Single	Natural Gas	1.642809786	0.002335398	0.529766074	37.73676384	12.2227199	0.021662093	0.023559502
T7 Single	Natural Gas	6.411152243	0.01013383	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	1.392078511	0.002262636	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	1.029803088	0.001753947	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.700973621	0.001391617	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.809168324	0.001639812	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.778554669	0.001767033	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.715280004	0.001786786	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.961698787	0.003574901	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.150866081	0.003428815	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
		Total:	47.89%					
		T7 Single Weighted Average Emission Factors*:		0.152773173	1.71098	30.17966	17.58147	0.00953	0.01007
		T6TS Weighted Average Emission Factors*:		0.087474286	1.01189	15.05264	0.08286	0.00000	0.00000
		T6 instate small Single Weighted Average Emission Factors*:		0.697693311	0.16763	7.33452	8.28231	0.00244	0.00256
		T7 Single Weighted Average Emission Factors*:		0.152773173	1.71098	30.17966	17.58147	0.00953	0.01007
		Total:	93.79%					
		Single-Unit Truck Weighted Average Emission Factors*:		0.77644	11.77538	9.03227	0.00337	0.00355
Tractor Trailer Trucks								
T7 Tractor	Diesel	10.32863648	0.024592693	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	13.20150408	0.035513927	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	8.787135768	0.026834092	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	11.34599056	0.03996958	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	9.70501091	0.040866661	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	8.510153956	0.041549703	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	7.600419392	0.046715441	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	6.486424361	0.049470474	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	5.753115478	0.05144834	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	3.970185798	0.053511992	3.456342696	51.07029647	16.80945871	0.014073256	0.014709587
T7 Tractor	Diesel	1.643916459	0.054921582	3.456342696	51.07029647	16.90309586	0.014073256	0.014709587
T7 Tractor	Electricity	0.282541162	0.000960926	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
T7 Tractor	Electricity	0.286175448	0.001408961	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
T7 Tractor	Electricity	0.174240195	0.002087533	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
T7 Tractor	Natural Gas	21.22079951	0.050527154	0.98293806	70.01751009	22.67826721	0.040192259	0.043712749
T7 Tractor	Natural Gas	1.723264617	0.004635827	0.98293806	70.01751009	22.67826721	0.040192259	0.043712749
T7 Tractor	Natural Gas	0.11500916	0.000351214	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.315290294	0.001110703	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.824500813	0.003471876	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.722990311	0.003529905	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.645702723	0.003968766	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.551061942	0.004202823	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.488762809	0.004370855	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.337291885	0.004546175	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.13966089	0.004665929	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
		Total:	55.52%					
		Weighted Average Emission Factors*:		3.03236	58.41757	32.94767	0.02013	0.02139

*Calculated

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups (Average Fleet Mix)														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.64	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38012	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.16	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
			Weighted Average Emission Factors*:					0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans (Average Fleet Mix)														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.005	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31339	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0221	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
			Weighted Average Emission Factors*:					0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks (2016+ model year)														
San Francisco (SF)	2025	T6 instate small	2016+	5	Diesel	1684.485	72%	0.029069802	0.033093756	0.142582266	1.249201863	0.018607752	0.003039086	0.002907617
San Francisco (SF)	2025	T6 instate small	2016+	5	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	2016+	5	Natural Gas	8.945045	0%	0.03610457	2.578897878	8.19138056	0.11746531	0	0.004687538	0.004310018
San Francisco (SF)	2025	T6TS	2016+	5	Gasoline	429.8965	18%	0.056760411	0.082824659	0.307992726	0.15014577	0.03637541	0.007585843	0.006974902
San Francisco (SF)	2025	T6TS	2016+	5	Electricity	7.281078	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	2016+	5	Diesel	159.6114	7%	0.018617172	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	2016+	5	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	2016+	5	Natural Gas	12.3834	1%	0.073574465	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			2,328	100%							
			Weighted Average Emission Factors*:					0.03332	0.08407	0.35148	1.33320	0.02202	0.00419	0.00395
			*Note: Highlighted speeds indicate where there was no data for emissions factors at the 5mph speed bin, and emissions for 10 mph were used.											
Tractor Trailer Trucks (2016+ model year)														
San Francisco (SF)	2025	T7 Tractor	2016+	5	Diesel	59.91344	77%	0.046069264	1.489872574	5.21167941	6.552037088	0.011812857	0.004241577	0.00401937
San Francisco (SF)	2025	T7 Tractor	2016+	5	Electricity	0.522154	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	2016+	5	Natural Gas	16.98355	22%	0.089906973	6.421926621	22.68959339	3.103883369	0	0.005705029	0.005245563
			Total:			77	100%							
			Weighted Average Emission Factors*:					0.05538	2.56178	9.01069	5.75142	0.00914	0.00453	0.00426
			*Note: Highlighted speeds indicate where there was no data for emissions factors at the 5mph speed bin, and emissions for 10 mph were used.											

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups (Average Fleet Mix)														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.21	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.47	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
			Total:			70,774	100%							
			Weighted Average Emission Factors*:					0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans (Average Fleet Mix)														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.761	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.952	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0871	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
			Weighted Average Emission Factors*:					0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks (2016+ model year)														
San Francisco (SF)	2016+	T6 instate small	2016+	10	Diesel	1684.485	63%	0.029069802	0.033093756	0.142582266	1.249201863	0.018607752	0.003039086	0.002907617
San Francisco (SF)	2016+	T6 instate small	2016+	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T6 instate small	2016+	10	Natural Gas	8.945045	0%	0.03610457	2.578897878	8.19138056	0.11746531	0	0.004687538	0.004310018
San Francisco (SF)	2016+	T6TS	2016+	10	Gasoline	767.5545	29%	0.03573397	0.052142925	0.280644584	0.130277679	0.029528882	0.004772994	0.004388592
San Francisco (SF)	2016+	T6TS	2016+	10	Electricity	12.99993	0%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Single	2016+	10	Diesel	159.6114	6%	0.018617172	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2016+	T7 Single	2016+	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Single	2016+	10	Natural Gas	12.3834	0%	0.073574465	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			2,672	100%							
			Weighted Average Emission Factors*:					0.03017	0.07492	0.33737	1.17512	0.02182	0.00380	0.00358
Tractor Trailer Trucks (2016+ model year)														
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Diesel	59.91344	77%	0.046069264	1.489872574	5.21167941	6.552037088	0.011812857	0.004241577	0.00401937
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Electricity	0.522154	1%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Natural Gas	16.98355	22%	0.089906973	6.421926621	22.68959339	3.103883369	0	0.005705029	0.005245563
			Total:			77	100%							
			Weighted Average Emission Factors*:					0.05538	2.56178	9.01069	5.75142	0.00914	0.00453	0.00426

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2035	T6 Instate small	2016	Aaverage	Diesel	144.3561387	3925.476166	0.039416467	1877.527791	0.056783114	0.006668233	0.172215902	0	0.055331787	7.2924592	0	0.428311776	9.968427207	1.773070922	0.002711045	0.002380554	0	0.003000001	0.001621475	0.002183626	0.002488192	0	0.012000003	0.046378501	0	0	0	0.007591275	0.198054495	0	0	0	0	0	0.22	0.0116537	0.020417333	0
San Francisco (SF)	2035	T6 Instate small	2017	Aggregate	Diesel	120.6998363	3396.665166	0.034106573	1544.697079	0.046700675	0.006595687	0.173172333	0	0.0540725	7.33295587	0	0.402926219	10.02378864	1.752542604	0.002839186	0.002393775	0	0.003000001	0.001640955	0.002967562	0.002502021	0	0.012000003	0.046117014	0	0	0	0.007508688	0.197143519	0	0	0	0	0	0.22	0.011182367	0.019754515	0
San Francisco (SF)	2035	T6 Instate small	2018	Aaverage	Diesel	80.48062124	2364.666801	0.023744078	1010.115507	0.030538723	0.006503417	0.174310422	0	0.05257538	7.381148071	0	0.396695437	10.0898665	1.772086706	0.002977758	0.002405927	0	0.003000001	0.001608569	0.003112399	0.002518454	0	0.012000003	0.045824483	0	0	0	0.007403665	0.198439147	0	0	0	0	0	0.22	0.011147979	0.019884342	0
San Francisco (SF)	2035	T6 Instate small	2019	Aaverage	Diesel	145.1119418	4403.313168	0.044214521	1867.826297	0.056469809	0.006521305	0.172836069	0	0.053425895	7.318718819	0	0.405911262	10.00413456	1.744335517	0.00282215	0.002389127	0	0.003000001	0.001635765	0.003949755	0.002497153	0	0.012000003	0.046102186	0	0	0	0.007426078	0.196760708	0	0	0	0	0	0.22	0.011180624	0.019716156	0
San Francisco (SF)	2035	T6 Instate small	2020	Aggregate	Diesel	79.93314527	2508.490954	0.025188244	1030.850408	0.031165599	0.006464215	0.172721209	0	0.052939662	7.31185308	0	0.403436811	9.999767668	1.742211487	0.002806541	0.002387539	0	0.003000001	0.001613236	0.003933441	0.002495493	0	0.012000003	0.046094959	0	0	0	0.007359017	0.196629949	0	0	0	0	0	0.22	0.011179774	0.019703054	0
San Francisco (SF)	2035	T6 Instate small	2021	Aaverage	Diesel	26.81522777	788.4690166	0.007917086	382.2202193	0.011555626	0.00670527	0.166474917	0	0.054644126	7.044054824	0	0.4564925	9.6361.2001	1.638805899	0.002661344	0.002301196	0	0.003000001	0.001640782	0.002154548	0.002405246	0	0.012000003	0.047545091	0	0	0	0.007629178	0.189539021	0	0	0	0	0	0.22	0.010936589	0.0171749	0
San Francisco (SF)	2035	T6 Instate small	2022	Aaverage	Diesel	17.97308165	561.0552108	0.005631664	247.3344892	0.007477639	0.006493106	0.168741007	0	0.05528304	7.145312058	0	0.483016533	9.767288812	1.674035194	0.002328636	0.00233252	0	0.003000001	0.001635732	0.002431927	0.002437587	0	0.012000003	0.046959235	0	0	0	0.007391907	0.192098792	0	0	0	0	0	0.22	0.010202804	0.017408688	0
San Francisco (SF)	2035	T6 Instate small	2023	Aggregate	Diesel	115.5593493	4022.743892	0.040393151	1484.093303	0.044868444	0.006193249	0.172968378	0	0.050440382	7.324319436	0	0.383145189	10.01198306	1.746769405	0.002743804	0.002390956	0	0.003000001	0.01609239	0.002867867	0.002499064	0	0.012000003	0.045978256	0	0	0	0.007005043	0.196911332	0	0	0	0	0	0.22	0.01000851	0.017844818	0
San Francisco (SF)	2035	T6 Instate small	2024	Aaverage	Diesel	74.59734886	2656.59411	0.026675376	964.2924186	0.029153358	0.006098774	0.172582134	0	0.049837368	7.307969358	0	0.381565089	9.98962592	1.739847409	0.002673776	0.002385617	0	0.003000001	0.001616982	0.002794672	0.002493484	0	0.012000003	0.046048549	0	0	0	0.00694299	0.196471622	0	0	0	0	0	0.22	0.009920978	0.017479222	0
San Francisco (SF)	2035	T6 Instate small	2025	Aaverage	Diesel	125.6245845	4667.100438	0.04686326	1607.55534	0.048601063	0.005950159	0.173180922	0	0.048314285	7.333319558	0	0.333935286	4.985437153	1.40320347	0.002696415	0.002393894	0	0.003000001	0.001607025	0.002818335	0.002502135	0	0.012000003	0.045915214	0	0	0	0.006773804	0.197153297	0	0	0	0	0	0.22	0.009903932	0.017534125	0
San Francisco (SF)	2035	T6 Instate small	2026	Aggregate	Diesel	130.8336364	5005.383749	0.050259024	1673.589376	0.052597463	0.005831556	0.173202855	0	0.047186329	7.334248301	0	0.328309451	5.054607889	1.405484613	0.002651228	0.002394197	0	0.003000001	0.001607436	0.002771025	0.002502452	0	0.012000003	0.04599696	0	0	0	0.006618329	0.197178266	0	0	0	0	0	0.22	0.009899833	0.017530612	0
San Francisco (SF)	2035	T6 Instate small	2027	Aaverage	Diesel	131.7767118	5188.505321	0.052098787	1684.084814	0.052914771	0.005663146	0.173257372	0	0.045940209	7.336558605	0	0.323514383	5.12339469	1.413708587	0.002603605	0.00239495	0	0.003000001	0.001606343	0.002721329	0.00250324	0	0.012000003	0.045895537	0	0	0	0.00644706	0.197240329	0	0	0	0	0	0.22	0.009796925	0.017355894	0
San Francisco (SF)	2035	T6 Instate small	2028	Aaverage	Diesel	126.5120199	5118.161489	0.051392451	1616.11804	0.048859308	0.005502137	0.173282523	0	0.044621807	7.337621833	0	0.270747737	4.122387792	0.757227064	0.00246595	0.002395298	0	0.003000001	0.001606268	0.002577449	0.002503603	0	0.012000003	0.045853224	0	0	0	0.00626274	0.197268962	0	0	0	0	0	0.22	0.009767124	0.017306072	0
San Francisco (SF)	2035	T6 Instate small	2029	Aggregate	Diesel	117.3799434	4872.15233	0.048923226	1499.369712	0.045330297	0.005327362	0.173280103	0	0.043121806	7.337779425	0	0.264646158	4.37037814	0.799024816	0.002414226	0.002395348	0	0.003000001	0.001606185	0.002523387	0.002503655	0	0.012000003	0.045898186	0	0	0	0.006064796	0.197278337	0	0	0	0	0	0.22	0.009735925	0.017248852	0
San Francisco (SF)	2035	T6 Instate small	2030	Aggregate	Diesel	105.2961964	4476.733745	0.044915751	1345.848916	0.040688918	0.005141997	0.173249713	0	0.041749705	7.33623252	0	0.260642967	4.583104359	0.834705453	0.002353424	0.002394845	0	0.003000001	0.0160899	0.002459836	0.002503129	0	0.012000003	0.045914	0	0	0	0.005853773	0.197231611	0	0	0	0	0	0.22	0.009705835	0.017195239	0
San Francisco (SF)	2035	T6 Instate small	2031	Aaverage	Diesel	95.58382791	4156.864404	0.041731848	1221.065492	0.036976819	0.004944578	0.173184509	0	0.040194268	7.33347435	0	0.25031348	4.564857223	0.831345456	0.002281542	0.002393943	0	0.003000001	0.016078507	0.002384704	0.002502187	0	0.012000003	0.045938591	0	0	0	0.005629026	0.19725738	0	0	0	0	0	0.22	0.009713226	0.017192618	0
San Francisco (SF)	2035	T6 Instate small	2032	Aggregate	Diesel	84.84509386	3766.819242	0.037823162	1087.977538	0.032892718	0.004735904	0.173058512	0	0.038571384	7.328136115	0	0.229567109	4.487764338	0.817820772	0.002145249	0.002392202	0	0.003000001	0.016092433	0.002242247	0.002500366	0	0.012000003	0.045978379	0	0	0	0.005391467	0.197013942	0	0	0	0	0	0.22	0.009727021	0.017197303	0
San Francisco (SF)	2035	T6 Instate small	2033	Aggregate	Diesel	75.70764561	3434.650555	0.034487592	971.6704172	0.029376418	0.004511371	0.173006038	0	0.036789524	7.325914127	0	0.205861102	4.36619482	0.797414244	0.002075322	0.002391476	0	0.003000001	0.01610178	0.002169158	0.002499608	0	0.012000003	0.046005085	0	0	0	0.005135853	0.196954205	0	0	0	0	0	0.22	0.009745611	0.017220104	0
San Francisco (SF)	2035	T6 Instate small	2034	Aaverage	Diesel	62.48926162	2896.472618	0.029084043	802.4264058	0.024259879	0.004727716	0.173076035	0	0.034883217	7.324646837	0	0.190078823	4.210771675	0.775868268	0.002004129	0.002391862	0	0.003000001	0.016110198	0.002094747	0.002499175	0	0.012000003	0.046029138	0	0	0	0.004864162	0.196932048	0	0	0	0	0	0.22	0.009763487	0.017253164	0
San Francisco (SF)	2035	T6 Instate small	2035	Aggregate	Diesel	35.45091487	1677.401606	0.016843115	455.7314232	0.013778083	0.004021594	0.172910459	0	0.032885375	7.321866855	0	0.164537066	4.039751461	0.741487898	0.001928139	0.002390155	0	0.003000001	0.016121962	0.002015321	0.002498227	0	0.012000003	0.046062749	0	0	0	0.004578279	0.196845396	0	0	0	0	0	0.22	0.009794592	0.017286598	0
San Francisco (SF)	2035	T6 Instate small	2024	Aggregate	Electricity	5.671209458	202.0188694	0.002028691	73.33548649	0.002217545	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008058486	0	0	0	0.012000003	0.023024274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2025	Aaverage	Electricity	11.87482352	441.1636006	0.004429809	151.9562117	0.004594077	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008035162	0	0	0	0.012000003	0.023957607	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2026	Aggregate	Electricity	14.86775326	568.7920523	0.005711351	190.1838904	0.005749811	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008033718	0	0	0	0.012000003	0.02295348	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2027	Aggregate	Electricity	24.51739425	965.1307655	0.009659373	313.3270147	0.009472785	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008031719	0	0	0	0.012000003	0.022947769	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2028	Aaverage	Electricity	38.87165676	1572.589045	0.015790671	496.5629808	0.01501254	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008031314	0	0	0	0.012000003	0.022946612	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2029	Aaverage	Electricity	53.74814679	2230.953186	0.022401433	686.5597396	0.020756693	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008032183	0	0	0	0.012000003	0.022946093	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2030	Aggregate	Electricity	69.59205109	2958.749642	0.029709378	889.4944901	0.026892	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.00803495	0	0	0	0.012000003	0.02295 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2031	Aaverage	Electricity	77.44587281	3367.407495	0.033831791	990.9759582	0.029960079	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008039213	0	0	0	0.012000003	0.022960296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2032	Aaverage	Electricity	85.50951214	3796.317041	0.038139555	1096.497443	0.0331503	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008046216	0	0	0	0.012000003	0.022980189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2033	Aggregate	Electricity	96.52161874	4378.924066	0.043969625	1238.807531	0.037452747	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.00805089	0	0	0	0.012000003	0.023002542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2034	Aaverage	Electricity	102.8387233	4766.731729	0.047818077	1320.555056	0.03992421	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008055089	0	0	0	0.012000003	0.023014569	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2035	Aaverage	Electricity	77.22920316	3654.190305	0.036692433	992.8030008	0.030015316	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008060981	0	0	0	0.012000003	0.023031375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2020	Aggregate	Natural Gas	1.145711703	35.9553.4018	0.000361033	14.77556491	0.000446708	0.011111186	0.168903644	0	1.194800348	38.86822998	0	0.055367495	5.13877439	0	0.003162607	0.010447504	0	0.003000001	0.001633236	0.001768485	0.021178125	0	0.012000003	0.046094959	0	0	0	0.793704294	12.06434401	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2021	Aaverage	Natural Gas	0.384352701	11.30130127	0.000113479	5.47850553	0.000165631	0.012459974	0.162795411	0	3.811307551	37.46259892	0	0.059578837	4.952935604	0	0.001853091	0.018768301	0	0.003000001	0.001640782	0.002015406	0.020412239	0	0.012000003	0.047545091	0	0	0	0.88999811	11.62834364	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2022	Aaverage	Natural Gas	0.257614909	8.04181443	8.07694E-05	3.545137565	0.00010718	0.011915333	0.16501141 5	0	3.562237534	37.9725473 4	0	0.05787435	5.020555959	0	0.001761369	0.019023778	0	0.003000001	0.001633752	0.001915649	0.020690095	0	0.012000003	0.046959235	0	0	0	0.851095233	11.78652963	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2023	Aaverage	Natural Gas	1.656305426	57.65949457	0.00057897	21.27208362	0.000643116	0.011003867	0.169145351	0	1.145185388	38.92385165	0	0.059028544	5.146128038	0	0.001607786	0.01950037	0	0.003000001	0.001609239	0.001748614	0.021208432	0	0.012000003	0.045978256	0	0	0	0.78595448	12.08183075	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2024	Aaverage	Natural Gas	1.069231735	38.07795818	0.000382348	13.82156433	0.000417866	0.011068715	0.168767643	0	3.175086945	38.83693324	0	0.055232683	5.134636543	0	0.001618791	0.019456825	0	0.003000001	0.001616992	0.001760583	0.021161073	0	0.012000003	0.046048549	0	0	0	0.790622468	12.05483162	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	Aaverage	Natural Gas	1.805024212	66.88529823	0.000671709	23.04169266	0.000696617	0.01094476	0.169353196	0	3.118883746	38.9716812 7	0	0.054845462	5.153451599	0	0.001597916	0.019534332	0	0.003000001	0.001607025	0.001737879	0.021154403	0	0.012000003	0.045915214	0	0	0	0.781768585	12.09665488	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2026	Aaverage	Natural Gas	1.875287503	71.74260626	0.000720381	23.98818323	0.000725232	0.010937087	0.169374644	0	3.114874597	38.97661691	0	0.054821491	5.153104142	0	0.001596624	0.019526805	0	0.003000001	0.001607436	0.001736474	0.021237182	0	0.012000003	0.045909896	0	0	0	0.781220482	12.09818889	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2027	Aaverage	Natural Gas	1.888797216	74.36878966	0.000746751	24.11861827	0.00072978	0.010926467	0.169427956	0	3.110018238	38.98888506	0	0.054788317	5.154726116	0	0.001594835	0.019532951	0	0.003000001	0.001606348	0.001734529	0.021241867	0	0.012000003	0.045895537	0	0	0	0.780461955	12.10199687	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2028	Aaverage	Natural Gas	1.813346155	73.3605.2518	0.000736227	23.16442504	0.000703328	0.010924317	0.169452552	0	3.109034877	38.99454498	0	0.0547816	5.155474414	0	0.001594473	0.019535787	0	0.003000001	0.001606228	0.001734135	0.021216695	0	0.012000003	0.045891224	0	0	0	0.780383832	12.10375369	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2029	Aaverage	Natural Gas	1.682450683	69.83418379	0.000703221	21.49102754	0.000649738	0.01092893	0.169456052	0	3.111144433	38.99535059	0	0.05479601	5.155580324	0	0.001594653	0.019536619	0	0.003000001	0.001606436	0.001734498	0.021247389	0	0.012000003	0.045898186	0	0	0	0.780637859	12.10403074	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2030	Aaverage	Natural Gas	1.509249813	64.16870113	0.00064431	19.29055649	0.00058321	0.010946631	0.169420467	0	3.117882552	38.98716171	0	0.054841936	5.154698271	0	0.001597726	0.019532088	0	0.003000001	0.0160899	0.001737673	0.021242928	0	0.012000003	0.045914	0	0	0	0.78168796	12.10146195	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2031	Aaverage	Natural Gas	1.370040231	59.57042739	0.000598158	17.53085569	0.000530303	0.010966492	0.169356704	0	3.128322168	38.9724839	0	0.054913351	5.152583309	0	0.001601576	0.019524737	0	0.003000001	0.001607507	0.00174186	0.021234932	0	0.012000003	0.045938591	0	0	0	0.783320893	12.09690741	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2032	Aaverage	Natural Gas	1.216116502	53.99123072	0.000542136	15.59438946	0.000471464	0.011003481	0.169233492	0	3.145237514	38.94413474	0	0.055028901	5.148809669	0	0.001607805	0.019510532	0	0.003000001	0.001609243	0.001748635	0.021219483	0	0.012000003	0.045978379	0	0	0	0.785962393	12.08810655	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2033	Aaverage	Natural Gas	1.085146034	49.2303254	0.000494329	13.92731594	0.000421063	0.011028308	0.169182178	0	3.156591293	38.9323636	0	0.055106458	5.147248481	0	0.001611986	0.019506616	0	0.003000001	0.0160278	0.001753182	0.021213049	0	0.012000003	0.046005085	0	0	0	0.787736319	12.08449127	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2034	Aaverage	Natural Gas	0.895681987	41.51622665	0.000416872	11.50147817	0.000347723	0.01105067	0.169152838	0	3.166817287	38.92537456	0	0.055176312	5.146358525	0	0.001615752	0.019501233	0	0.003000001	0.016110198	0.001757278	0.021209371	0	0.012000003	0.046029138	0	0	0	0.789333543	12.08234554	0	1.06	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6 Instate small	2035	Aggregate	Natural Gas	0.508312138	24.04282534	0.002414419	6.532169142	0.003197486	0.011081916	0.169088711	0	0.183186637	38.91081782	0	0.055273823	5.144404834	0	0.001621014	0.01949384	0	0.003000001	0.016121962	0.001763081	0.02120133	0	0.012000003	0.046062749	0	0	0	0.791565433	12.07778511	0	1.06	0	0	0	0	0	0	0	0
Total:				99,590			100.00%	33,077	100%																																			
Weighted Average Emissions Factors:											0.00406		0.00000	0.05767		0.00000	0.22229		0.97604	0.00178		0.00000	0.00300	0.01377	0.00186		0.00000	0.01200	0.03933		0.00000		0.01083		0.00000		0.00000		0.16290	0.00714		0.00000

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2035	T6TS	2024	Aggregate	Electricity	1.09358931	58.35726816	0.002885526	21.88053492	0.00324117	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2025	Aggregate	Electricity	1.393972381	78.51393659	0.00388219	27.8905994	0.004131442	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2026	Aggregate	Electricity	1.725122289	102.3476671	0.00506067	34.51624676	0.005112901	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2027	Aggregate	Electricity	2.762167616	172.3390362	0.008521455	55.26544966	0.008186486	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2028	Aggregate	Electricity	4.191284718	274.5619516	0.013575956	83.85922463	0.01242209	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2029	Aggregate	Electricity	5.714397751	392.4260855	0.019403852	114.3336702	0.016936278	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2030	Aggregate	Electricity	7.337695107	527.3141608	0.026073511	146.8126037	0.021747391	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2031	Aggregate	Electricity	8.448702791	634.5355267	0.031375166	169.0416455	0.025040186	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2032	Aggregate	Electricity	9.590249812	751.6602843	0.037166502	191.8817182	0.028423492	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2033	Aggregate	Electricity	10.91358462	891.4533341	0.044078692	218.3590012	0.032345579	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2034	Aggregate	Electricity	12.01731937	1021.719305	0.050519807	240.442526	0.035616818	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2035	Aggregate	Electricity	11.51765387	1017.803462	0.050326185	230.4452187	0.034135914	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T6TS	2016	Aggregate	Gasoline	9.183107493	295.8556236	0.014628841	183.7356147	0.027216807	3.61434E-05	1.028580008	0.176486656	0.182745183	15.30093521	3.443531923	0.003700662	0.089555892	0.476429621	0.0012012	0	0.000413449	0.003000001	0.015756104	0.001306415	0	0.000449664	0.012000003	0.04501744	0.022709841	0.187071311	2.057993744	5.27404E-05	1.500901533	0.193230673	0.022709841	0.187071311	2.057993744	0.045	0.018205406	0.005312036	0.000420594
San Francisco (SF)	2035	T6TS	2017	Aggregate	Gasoline	32.1788733	1112.593226	0.055013148	643.834897	0.095371441	0.004295008	1.028580008	0.189993072	0.127537434	15.30093521	3.103982972	0.167689481	0.089555892	0.05422872	0.001290651	0	0.000445867	0.003000001	0.015756104	0.001403701	0	0.000484921	0.012000003	0.04501744	0.022709841	0.187071311	2.057993744	0.006267266	1.500901533	0.208018499	0.022709841	0.187071311	2.057993744	0.045	0.017516535	0.005121936	0.000402079
San Francisco (SF)	2035	T6TS	2018	Aggregate	Gasoline	22.37839353	828.7536511	0.040978451	447.7468977	0.066324871	0.018431151	1.028580008	0.190490099	0.160346885	15.30093521	3.442000491	0.129916402	0.089555892	0	0.001344322	0	0.000465317	0.003000001	0.015756104	0.001462073	0	0.000506075	0.012000003	0.04501744	0.019168884	0.186732655	1.981458992	0.026894692	1.500901533	0.208562681	0.019168884	0.186732655	1.981458992	0.045	0.017517653	0.005121936	0.000407397
San Francisco (SF)	2035	T6TS	2019	Aggregate	Gasoline	7.327084227	289.8873899	0.014333736	146.6003012	0.021715943	0.012358368	1.028580008	0.189486881	0.12787211	15.30093521	3.276707171	0.10292228	0.089555892	0.613008621	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.019168884	0.186732655	1.981458992	0.018033301	1.500901533	0.207464284	0.019168884	0.186732655	1.981458992	0.045	0.017516885	0.005121936	0.000404771
San Francisco (SF)	2035	T6TS	2020	Aggregate	Gasoline	9.19881267	388.0729247	0.019188606	184.0498439	0.027263354	0.011417723	1.028580008	0.20562629	0.141726776	15.30093521	3.424490597	0.131742228	0.089555892	0.595441566	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.01563443	0.186415167	1.907850979	0.016660714	1.500901533	0.225134905	0.01563443	0.186415167	1.907850979	0.045	0.017517062	0.005121936	0.000407625
San Francisco (SF)	2035	T6TS	2021	Aggregate	Gasoline	11.66443819	523.4876709	0.025884307	233.3820793	0.034570952	0.00886006	1.028580008	0.196825589	0.159939652	15.30093521	3.357223325	0.124726299	0.089555892	0.720340878	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.009629015	0.075250532	0.744523588	0.012928578	1.500901533	0.215499245	0.009629015	0.075250532	0.744523588	0.045	0.015842756	0.004659389	0.000373095
San Francisco (SF)	2035	T6TS	2022	Aggregate	Gasoline	14.32669031	682.5062332	0.033747119	286.6484197	0.042461309	0.015035548	1.028580008	0.19389899	0.160364922	15.30093521	3.380152555	0.120501522	0.089555892	0.530387001	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.021939837	1.500901533	0.212294988	0.007076629	0.074933043	0.679260245	0.045	0.015843026	0.004659389	0.000373357
San Francisco (SF)	2035	T6TS	2023	Aggregate	Gasoline	15.00312072	757.2137925	0.0374411	300.1824393	0.044466107	0.016193079	1.028580008	0.166466072	0.163212989	15.30093521	3.247534639	0.112332485	0.089555892	0.4319126	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.023628903	1.500901533	0.182259395	0.007076629	0.074933043	0.679260245	0.045	0.015843121	0.004659389	0.000370366
San Francisco (SF)	2035	T6TS	2024	Aggregate	Gasoline	14.58577623	778.3416015	0.038485783	291.8322109	0.043229186	0.007879365	1.028580008	0.185946678	0.18525031	15.30093521	3.296317999	0.106692526	0.089555892	0.389114607	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.01149755	1.500901533	0.203588207	0.007076629	0.074933043	0.679260245	0.045	0.015553139	0.004579289	0.000366032
San Francisco (SF)	2035	T6TS	2025	Aggregate	Gasoline	14.95830413	842.5097641	0.041658634	299.285749	0.044333281	0.013015223	1.028580008	0.179437226	0.190292782	15.30093521	3.311639145	0.081905761	0.04453936	0.310076216	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.018991784	1.500901533	0.196461176	0.007076629	0.074933043	0.679260245	0.045	0.015548524	0.004577932	0.000365959
San Francisco (SF)	2035	T6TS	2026	Aggregate	Gasoline	15.39840666	913.5532067	0.045171439	308.0913206	0.045637652	0.008673247	1.028580008	0.172742826	0.17737371	15.30093521	3.301864633	0.076796025	0.044792508	0.325834154	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004913248	0.039540366	0.304929877	0.012655982	1.500901533	0.189131651	0.004913248	0.039540366	0.304929877	0.045	0.015543053	0.004576528	0.000365482
San Francisco (SF)	2035	T6TS	2027	Aggregate	Gasoline	15.05902532	939.5729259	0.046458007	301.3009785	0.044631797	0.009325263	1.028580008	0.166199167	0.172814965	15.30093521	3.361150308	0.073553678	0.045751661	0.299403117	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004913248	0.039540366	0.304929877	0.013607402	1.500901533	0.181967168	0.004913248	0.039540366	0.304929877	0.045	0.015383325	0.004532418	0.00036303
San Francisco (SF)	2035	T6TS	2028	Aggregate	Gasoline	13.8365118	906.3998127	0.044817734	276.8409281	0.041008523	0.009677864	1.028580008	0.16347309	0.17116711	15.30093521	3.303698945	0.03722061	0.036807375	0.149616156	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004326555	0.039540366	0.299944784	0.014121916	1.500901533	0.178982457	0.004326555	0.039540366	0.299944784	0.045	0.015336903	0.004519598	0.000361119
San Francisco (SF)	2035	T6TS	2029	Aggregate	Gasoline	12.65848066	869.298609	0.042983232	253.2708811	0.037517085	0.010324249	1.028580008	0.157392873	0.162246245	15.30093521	3.258412912	0.037118629	0.0390208	0.169908018	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004326555	0.039540366	0.299944784	0.01506512	1.500901533	0.172325384	0.004326555	0.039540366	0.299944784	0.045	0.015285599	0.004505457	0.000359192
San Francisco (SF)	2035	T6TS	2030	Aggregate	Gasoline	11.26142696	809.2881784	0.040015964	225.3186306	0.033376511	0.010300073	1.028580008	0.151469013	0.157542345	15.30093521	3.247927465	0.037250726	0.040928704	0.170348902	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.003591471	0.039540366	0.294959687	0.015029842	1.500901533	0.165839503	0.003591471	0.039540366	0.294959687	0.045	0.015241399	0.004493268	0.000357957
San Francisco (SF)	2035	T6TS	2031	Aggregate	Gasoline	10.57687429	794.3707651	0.039278359	211.6221009	0.03134764	0.01018934	1.028580008	0.152243006	0.15690577	15.30093521	3.322415326	0.037377682	0.040781099	0.171591021	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.003591471	0.039540366	0.294959687	0.014868261	1.500901533	0.166686928	0.003591471	0.039540366	0.294959687	0.045	0.015244798	0.004494211	0.000359218
San Francisco (SF)	2035	T6TS	2032	Aggregate	Gasoline	9.652125077	756.509916	0.037406296	193.1197185	0.028606877	0.011182124	1.028580008	0.159765713	0.1613139	15.30093521	3.50319043	0.039259516	0.040121563	0.176111788	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0.016316929	1.500901533	0.174923345	0.004541819	0.039540366	0.287482037	0.045	0.015260163	0.004498425	0.000362606
San Francisco (SF)	2035	T6TS	2033	Aggregate	Gasoline	8.682869612	709.2420439	0.035069095	173.7268552	0.025734207	0.01290778	1.028580008	0.1761285	0.171385394	15.30093521	3.840165362	0.043161632	0.039046546	0.191448265	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0.018835002	1.500901533	0.192838538	0.004541819	0.039540366	0.287482037	0.045	0.015285257	0.004505293	0.000368928
San Francisco (SF)	2035	T6TS	2034	Aggregate	Gasoline	7.406909444	629.7396397	0.031138029	148.1974442	0.021952528	0.014679449	1.028580008	0.194134371	0.182813732	15.30093521	4.233147449	0.047054599	0.03766314	0.205523651	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0.021420217	1.500901533	0.2125527	0.004541819	0.039540366	0.287482037	0.045	0.015317507	0.004514131	0.000376324
San Francisco (SF)	2035	T6TS	2035	Aggregate	Gasoline	5.362788035	473.9041724	0.023432607	107.298663	0.015894181	0.014001156	1.028580008	0.17718808	0.169870664	15.30093521	4.0847302	0.042062564	0.036128367	0.187039195	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0.020430455	1.500901533	0.193998645	0.004541819	0.039540366	0.287482037	0.045	0.015352771	0.004523936	0.000374137
						Total:	20.224	100.00%	6.751	100%																																
						Weighted Average Emissions Factors:					0.00775		0.13763	0.11640		2.60374	0.05617		0.21414	0.00097		0.00036	0.00300	0.01345	0.00105		0.00040	0.01200	0.03843		0.05547		0.01131		0.15069		0.05547		0.03182	0.01123		0.00029

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2035	T7 Single	2016	Aggregate	Diesel	12.010116	362.1769417	0.016316875	113.1352928	0.028481233	0.01045597	1.862836709	0	0.090580498	27.52493933	0	1.401346627	22.01302375	3.724176277	0.026024237	0.007584948	0	0.009000003	0.028124083	0.027200937	0.007927905	0	0.03600001	0.080354522	0	0	0	0.011903326	2.120697792	0	0	0	0	0.22	0.015990993	0.043211602	0
San Francisco (SF)	2035	T7 Single	2017	Aggregate	Diesel	11.97406166	380.968744	0.017163488	112.7956608	0.028395732	0.010442211	1.862836709	0	0.052812057	27.52493933	0	1.384463085	22.01302375	3.724176277	0.020768948	0.007584948	0	0.009000003	0.028124083	0.021708027	0.007927905	0	0.03600001	0.080354522	0	0	0	0.011887662	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2035	T7 Single	2018	Aggregate	Diesel	16.1788593	522.3034728	0.023530931	152.4048546	0.038367144	0.010314125	1.862836709	0	0.052164258	27.52493933	0	1.365844829	22.01302375	3.724176277	0.020276688	0.007584948	0	0.009000003	0.028124083	0.02119351	0.007927905	0	0.03600001	0.080354522	0	0	0	0.011741847	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2035	T7 Single	2019	Aggregate	Diesel	35.88092993	1222.958911	0.055097015	337.9983599	0.085089362	0.010178251	1.862836709	0	0.051477068	27.52493933	0	1.345483437	22.01302375	3.724176277	0.019754497	0.007584948	0	0.009000003	0.028124083	0.020647708	0.007927905	0	0.03600001	0.080354522	0	0	0	0.011587164	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2035	T7 Single	2020	Aggregate	Diesel	11.79672548	367.3007848	0.016547716	111.125154	0.02797519	0.010035521	1.862836709	0	0.050755202	27.52493933	0	1.323358599	22.01302375	3.724176277	0.019205955	0.007584948	0	0.009000003	0.028124083	0.020074364	0.007927905	0	0.03600001	0.080354522	0	0	0	0.011424677	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2035	T7 Single	2021	Aggregate	Diesel	9.359760791	292.8739393	0.013194621	88.16894665	0.022196082	0.009886867	1.862836709	0	0.050003374	27.52493933	0	1.299436639	22.01302375	3.724176277	0.018634646	0.007584948	0	0.009000003	0.028124083	0.019477222	0.007927905	0	0.03600001	0.080354522	0	0	0	0.011255445	2.120697792	0	0	0	0	0.22	0.014556546	0.036839234	0
San Francisco (SF)	2035	T7 Single	2022	Aggregate	Diesel	11.02907937	380.853989	0.017158318	103.8939277	0.026154766	0.00973322	1.862836709	0	0.049226297	27.52493933	0	1.273668364	22.01302375	3.724176277	0.01804415	0.007584948	0	0.009000003	0.028124083	0.018860026	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01108053	2.120697792	0	0	0	0	0.22	0.014556546	0.036839234	0
San Francisco (SF)	2035	T7 Single	2023	Aggregate	Diesel	11.88474523	440.9066269	0.019863823	111.9543001	0.028183924	0.009575513	1.862836709	0	0.048428686	27.52493933	0	1.192729822	22.01302375	3.724176277	0.01640634	0.007584948	0	0.009000003	0.028124083	0.017148162	0.007927905	0	0.03600001	0.080354522	0	0	0	0.010900993	2.120697792	0	0	0	0	0.22	0.014556546	0.036839234	0
San Francisco (SF)	2035	T7 Single	2024	Aggregate	Diesel	12.01759968	479.1624326	0.021587332	113.205789	0.02849898	0.009414678	1.862836709	0	0.047615254	27.52493933	0	1.164640244	22.01302375	3.724176277	0.015837557	0.007584948	0	0.009000003	0.028124083	0.016553661	0.007927905	0	0.03600001	0.080354522	0	0	0	0.010717895	2.120697792	0	0	0	0	0.22	0.014249674	0.036062611	0
San Francisco (SF)	2035	T7 Single	2025	Aggregate	Diesel	24.04413225	1194.141292	0.053798717	226.4957258	0.057019143	0.009251647	1.862836709	0	0.046790715	27.52493933	0	1.029721904	11.50448824	3.022146287	0.015325447	0.007584948	0	0.009000003	0.028124083	0.016018396	0.007927905	0	0.03600001	0.080354522	0	0	0	0.010532296	2.120697792	0	0	0	0	0.22	0.014244736	0.036050114	0
San Francisco (SF)	2035	T7 Single	2026	Aggregate	Diesel	23.06158278	1201.891411	0.054147877	217.2401098	0.054689089	0.009087352	1.862836709	0	0.045959783	27.52493933	0	1.00051456	11.57263467	3.026698856	0.014783528	0.007584948	0	0.009000003	0.031074035	0.015451974	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010345258	2.120697792	0	0	0	0	0.22	0.014239636	0.036037209	0
San Francisco (SF)	2035	T7 Single	2027	Aggregate	Diesel	23.21619172	1285.252197	0.057903466	218.696526	0.055055734	0.008922725	1.862836709	0	0.045127172	27.52493933	0	0.971681982	11.82976638	3.043876719	0.014251975	0.007584948	0	0.009000003	0.031074035	0.014896387	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010157843	2.120697792	0	0	0	0	0.22	0.014031698	0.035510966	0
San Francisco (SF)	2035	T7 Single	2028	Aggregate	Diesel	21.4314345	1246.621547	0.056163069	201.884113	0.050823295	0.008758698	1.862836709	0	0.044297595	27.52493933	0	0.839844762	9.817251856	1.734670282	0.013574878	0.007584948	0	0.009000003	0.031074035	0.014188673	0.007927905	0	0.03600001	0.088782956	0	0	0	0.00997111	2.120697792	0	0	0	0	0.22	0.01398185	0.035384813	0
San Francisco (SF)	2035	T7 Single	2029	Aggregate	Diesel	18.91242803	1149.804338	0.051801239	178.155072	0.04484963	0.008596202	1.862836709	0	0.043475767	27.52493933	0	0.814522377	10.46248361	1.839927452	0.013081826	0.007584948	0	0.009000003	0.031074035	0.013673328	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009786122	2.120697792	0	0	0	0	0.22	0.01392154	0.035232182	0
San Francisco (SF)	2035	T7 Single	2030	Aggregate	Diesel	16.06684373	1018.376324	0.045880115	151.3496679	0.038101506	0.008436171	1.862836709	0	0.042666401	27.52493933	0	0.787764679	11.24037111	1.96682486	0.012592255	0.007584948	0	0.009000003	0.031074035	0.013161621	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009603939	2.120697792	0	0	0	0	0.22	0.01384883	0.035048171	0
San Francisco (SF)	2035	T7 Single	2031	Aggregate	Diesel	13.97528164	922.877547	0.041577683	131.647153	0.033141499	0.008279536	1.862836709	0	0.041874211	27.52493933	0	0.743927014	11.33250426	1.981854616	0.012077295	0.007584948	0	0.009000003	0.031074035	0.012623376	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009425622	2.120697792	0	0	0	0	0.22	0.013840219	0.035026376	0
San Francisco (SF)	2035	T7 Single	2032	Aggregate	Diesel	11.61526522	797.4431151	0.035926583	109.4157984	0.027544869	0.008127229	1.862836709	0	0.041103911	27.52493933	0	0.662764903	11.16740759	1.954922264	0.011342847	0.007584948	0	0.009000003	0.031074035	0.011855721	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009252232	2.120697792	0	0	0	0	0.22	0.01385565	0.03506543	0
San Francisco (SF)	2035	T7 Single	2033	Aggregate	Diesel	9.781913202	700.6979165	0.031567997	92.14562236	0.02319719	0.007980183	1.862836709	0	0.040360214	27.52493933	0	0.600258671	10.7805799	1.891818755	0.01090155	0.007584948	0	0.009000003	0.031074035	0.01139447	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009084831	2.120697792	0	0	0	0	0.22	0.013891807	0.035156935	0
San Francisco (SF)	2035	T7 Single	2034	Aggregate	Diesel	8.176157388	611.2842382	0.027539712	77.0194026	0.019389242	0.007839328	1.862836709	0	0.039647835	27.52493933	0	0.524079135	10.19185825	1.795780122	0.010482835	0.007584948	0	0.009000003	0.031074035	0.010956823	0.007927905	0	0.03600001	0.088782956	0	0	0	0.008924479	2.120697792	0	0	0	0	0.22	0.013946836	0.035296199	0
San Francisco (SF)	2035	T7 Single	2035	Aggregate	Diesel	5.298624823	412.6600388	0.018591251	49.91304583	0.012565355	0.007705598	1.862836709	0	0.038971488	27.52493933	0	0.425306437	9.408408364	1.667975318	0.010095784	0.007584948	0	0.009000003	0.031074035	0.010552271	0.007927905	0	0.03600001	0.088782956	0	0	0	0.008772237	2.120697792	0	0	0	0	0.22	0.014020065	0.035481525	0
San Francisco (SF)	2035	T7 Single	2024	Aggregate	Electricity	0.909117351	36.24807722	0.001633056	8.563885443	0.002155914	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.014062041	0	0	0	0.03600001	0.040177261	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2025	Aggregate	Electricity	2.258885779	112.1865724	0.005054254	21.27870403	0.005356805	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.014062041	0	0	0	0.03600001	0.040177261	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2026	Aggregate	Electricity	2.602376827	135.6270463	0.0061103	24.51438971	0.006171372	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2027	Aggregate	Electricity	4.27521538	236.6766276	0.010662808	40.27252888	0.010138404	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2028	Aggregate	Electricity	6.482074593	377.0486691	0.01698688	61.06114267	0.015371831	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2029	Aggregate	Electricity	8.4273028	512.3482452	0.023082426	79.38519237	0.019984817	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2030	Aggregate	Electricity	10.0157506	634.8355315	0.02860075	94.3483707	0.023751721	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2031	Aggregate	Electricity	10.55682681	697.1350335	0.031407481	99.44530856	0.025034849	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2032	Aggregate	Electricity	10.93465023	750.7156639	0.033821408	103.0044052	0.025930833	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2033	Aggregate	Electricity	11.80792671	845.8252978	0.038106308	111.2306697	0.028001753	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2034	Aggregate	Electricity	13.05018299	975.687085	0.04395687	122.9327238	0.030947686	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2035	Aggregate	Electricity	11.59429372	902.9704609	0.040680824	109.2182469	0.027495136	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	T7 Single	2016	Aggregate	Natural Gas	0.710641841	21.43010847	0.000965474	6.694246146	0.001685242	0.015036674	0.529766074	0	10.51799171	37.73676384	0	0.630674988	12.2227199	0	0.001107716	0.021662093	0	0.009000003	0.028124083	0.001204742	0.023559502	0	0.03600001	0.080354522	0	0	0	1.074048154	37.84043387	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2017	Aggregate	Natural Gas	0.966344228	30.74536923	0.001385147	9.102962627	0.002291624	0.015191813	0.529766074	0	7.046543279	37.73676384	0	0.451204472	12.2227199	0	0.001590983	0.021662093	0	0.009000003	0.028124083	0.001730339	0.023559502	0	0.03600001	0.080354522	0	0	0	1.085129475	37.84043387	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2018	Aggregate	Natural Gas	4.193189891	135.3691012	0.006098679	39.49984877	0.009943885	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2019	Aggregate	Natural Gas	0.936236421	31.91050722	0.001437639	8.819347086	0.002220226	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2020	Aggregate	Natural Gas	0.72575043	22.59683869	0.001018038	6.836569052	0.001721071	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2021	Aggregate	Natural Gas	0.575825083	18.01799897	0.000811751	5.424272277	0.001365533	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2022	Aggregate	Natural Gas	0.678523808	23.43065005	0.001055603	6.391694276	0.001609076	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2023	Aggregate	Natural Gas	0.731165524	27.12516917	0.001222049	6.887579235	0.001733913	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2024	Aggregate	Natural Gas	0.739338909	29.47871783	0.001328082	6.964572519	0.001753296	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2025	Aggregate	Natural Gas	1.47922738	73.46517966	0.003309769	13.93432192	0.003507894	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2026	Aggregate	Natural Gas	1.418779614	73.9419774	0.00333125	13.36490397	0.003364546	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2027	Aggregate	Natural Gas	1.428291364	79.07044519	0.003562299	13.45450465	0.003387103	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2028	Aggregate	Natural Gas	1.318490698	76.69383556	0.003455228	12.42018237	0.003126718	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2029	Aggregate	Natural Gas	1.163518029	70.73751053	0.003186882	10.96033984	0.00275921	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2030	Aggregate	Natural Gas	0.988453853	62.65188221	0.002822606	9.311235295	0.002344056	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2031	Aggregate	Natural Gas	0.859778138	56.77666893	0.002557915	8.099110056	0.00203891	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2032	Aggregate	Natural Gas	0.714586751	49.05977384	0.002210252	6.731407197	0.001694597	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2033	Aggregate	Natural Gas	0.601796467	43.10787899	0.001942106	5.66892272	0.001427122	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2034	Aggregate	Natural Gas	0.503008208	37.60702915	0.00169428	4.73833732	0.001192852	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	T7 Single	2035	Aggregate	Natural Gas	0.325978531	25.38740105	0.001143759	3.070717765	0.000773038	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
						Total:	22.196	100.00%	3.972	100%																																
						Weighted Average Emissions Factors:					0.00677		0.00000	0.22173		0.00000	0.65815		2.13719	0.01018		0.00000	0.00900	0.02591	0.01064		0.00000	0.03600	0.07402		0.00000		0.05541		0.00000		0.00000		0.19579	0.00981		0.00000

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2035	T7 Tractor	2016	Aaverage	Diesel	5.176700915	291.8590282	0.018606567	75.2174643	0.024592693	0.030874888	3.45634269	0	0.088889711	51.07029647	0	1.431365375	40.84338337	4.379184731	0.031115948	0.014073256	0	0.009000003	0.027431181	0.032523873	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012380233	3.934783059	0	0	0	0	0	0.22	0.015329554	0.080175629	0
San Francisco (SF)	2017	T7 Tractor	2017	Aaverage	Diesel	7.475500707	421.4693075	0.026947456	108.6203766	0.035513927	0.01112792	3.45634269	0	0.05163218	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012366829	3.934783059	0	0	0	0	0	0.22	0.015937799	0.07786907	0
San Francisco (SF)	2018	Aggregate	2018	Aaverage	Diesel	5.648509781	327.2416021	0.02092282	82.07284711	0.026834092	0.01112792	3.45634269	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012366829	3.934783059	0	0	0	0	0	0.22	0.015571187	0.07786907	0
San Francisco (SF)	2019	Aaverage	2019	Aaverage	Diesel	8.413497506	501.4275298	0.032059731	122.2481188	0.03996958	0.011112335	3.45634269	0	0.051559876	51.07029647	0	1.429578682	40.84338337	4.379184731	0.025340515	0.014073256	0	0.009000003	0.027431181	0.026486301	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012650548	3.934783059	0	0	0	0	0	0.22	0.015571187	0.07786907	0
San Francisco (SF)	2035	T7 Tractor	2020	Aaverage	Diesel	8.60233089	527.9325407	0.03375438	124.9918678	0.040866661	0.011074513	3.45634269	0	0.051384389	51.07029647	0	1.425223214	40.84338337	4.379184731	0.025186709	0.014073256	0	0.009000003	0.027431181	0.03932504	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012607491	3.934783059	0	0	0	0	0	0.22	0.015571187	0.07786907	0
San Francisco (SF)	2021	Aggregate	2021	Aaverage	Diesel	8.746109431	553.2158689	0.035370918	127.08097	0.041549703	0.011014465	3.45634269	0	0.051105725	51.07029647	0	1.418249351	40.84338337	4.379184731	0.024942473	0.014073256	0	0.009000003	0.027431181	0.026070261	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012539118	3.934783059	0	0	0	0	0	0.22	0.015377367	0.068352215	0
San Francisco (SF)	2022	Aaverage	2022	Aaverage	Diesel	9.833486644	641.5759223	0.041028214	142.8805319	0.046715441	0.010932159	3.45634269	0	0.050731884	51.07029647	0	1.40857542	40.84338337	4.379184731	0.024607808	0.014073256	0	0.009000003	0.027431181	0.025720464	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012445431	3.934783059	0	0	0	0	0	0.22	0.015377367	0.068352215	0
San Francisco (SF)	2023	Aaverage	2023	Aaverage	Diesel	10.41341205	701.276411	0.044837581	151.3068771	0.049470474	0.010827627	3.45634269	0	0.050238867	51.07029647	0	1.390413878	40.84338337	4.379184731	0.024081122	0.014073256	0	0.009000003	0.027431181	0.025169963	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012336429	3.934783059	0	0	0	0	0	0.22	0.015377367	0.068352215	0
San Francisco (SF)	2024	Aggregate	2024	Aaverage	Diesel	10.82974795	753.2394856	0.048159812	157.3562378	0.05144834	0.010700858	3.45634269	0	0.049650673	51.07029647	0	1.373018845	40.84338337	4.379184731	0.0235656	0.014073256	0	0.009000003	0.027431181	0.024631131	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012182112	3.934783059	0	0	0	0	0	0.22	0.012399229	0.064283459	0
San Francisco (SF)	2025	Aaverage	2025	Aaverage	Diesel	11.2643176	809.5641031	0.051763104	163.667979	0.055311992	0.010555852	3.45634269	0	0.048893303	51.07029647	0	1.36267845	40.84338337	4.379184731	0.022964467	0.014073256	0	0.009000003	0.027431181	0.024028318	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01201248	3.934783059	0	0	0	0	0	0.22	0.012398235	0.06426794	0
San Francisco (SF)	2026	Aaverage	2026	Aaverage	Diesel	11.56085696	858.9490273	0.054938554	167.9792516	0.059521582	0.010380609	3.45634269	0	0.048164758	51.07029647	0	1.282593786	32.25817119	4.015700538	0.022270224	0.014073256	0	0.009000003	0.030316628	0.023377185	0.014709587	0	0.03600001	0.066604652	0	0	0	0.011817533	3.934783059	0	0	0	0	0	0.22	0.012391667	0.064244254	0
San Francisco (SF)	2027	Aaverage	2027	Aaverage	Diesel	11.42282281	877.6838305	0.056115108	165.9738155	0.05428583	0.010187129	3.45634269	0	0.047436705	51.07029647	0	1.259674418	32.59058672	4.029773634	0.021487079	0.014073256	0	0.009000003	0.030316628	0.022458629	0.014709587	0	0.03600001	0.066604652	0	0	0	0.011597271	3.934783059	0	0	0	0	0	0.22	0.011848384	0.062186333	0
San Francisco (SF)	2028	Aaverage	2028	Aaverage	Diesel	11.15956243	886.9556791	0.056709211	162.1484422	0.053015173	0.009971413	3.45634269	0	0.046266137	51.07029647	0	1.193062714	30.95794145	3.857179601	0.020571168	0.014073256	0	0.009000003	0.030316628	0.021501305	0.014709587	0	0.03600001	0.066604652	0	0	0	0.011351694	3.934783059	0	0	0	0	0	0.22	0.01183339	0.062107837	0
San Francisco (SF)	2029	Aaverage	2029	Aaverage	Diesel	10.76864665	885.5305765	0.056618096	156.4657914	0.051157204	0.009733459	3.45634269	0	0.045162062	51.07029647	0	1.152628184	30.2639407	3.285430424	0.019594399	0.014073256	0	0.009000003	0.030316628	0.020480371	0.014709587	0	0.03600001	0.066604652	0	0	0	0.011008083	3.934783059	0	0	0	0	0	0.22	0.011857557	0.062234479	0
San Francisco (SF)	2030	Aggregate	2030	Aaverage	Diesel	9.712775336	826.5279337	0.052845649	141.1296256	0.046141394	0.009471269	3.45634269	0	0.043954811	51.07029647	0	1.094188618	28.17543187	3.068934902	0.018583848	0.014073256	0	0.009000003	0.030316628	0.019345786	0.014709587	0	0.03600001	0.066604652	0	0	0	0.010784596	3.934783059	0	0	0	0	0	0.22	0.01193046	0.062617326	0
San Francisco (SF)	2031	Aggregate	2031	Aaverage	Diesel	8.45423643	744.5580567	0.047604748	122.83991	0.040161069	0.009190842	3.45634269	0	0.042643184	51.07029647	0	1.021161439	25.1354262	2.755219618	0.01733531	0.014073256	0	0.009000003	0.030316628	0.018119136	0.014709587	0	0.03600001	0.066604652	0	0	0	0.010463074	3.934783059	0	0	0	0	0	0.22	0.012030148	0.06317181	0
San Francisco (SF)	2032	Aaverage	2032	Aaverage	Diesel	6.526996601	594.9403925	0.038038655	94.83726062	0.031007475	0.008888178	3.45634269	0	0.041230781	51.07029647	0	0.898622194	21.5310204	2.382578592	0.015356289	0.014073256	0	0.009000003	0.030316628	0.016505942	0.014709587	0	0.03600001	0.066604652	0	0	0	0.010116237	3.934783059	0	0	0	0	0	0.22	0.012161664	0.061830583	0
San Francisco (SF)	2033	Aggregate	2033	Aaverage	Diesel	5.19121353	489.7440885	0.031312785	75.42833259	0.024661637	0.008559277	3.45634269	0	0.039714001	51.07029647	0	0.791620472	17.18200476	1.932956174	0.014056369	0.014073256	0	0.009000003	0.030316628	0.014691935	0.014709587	0	0.03600001	0.066604652	0	0	0	0.009744086	3.934783059	0	0	0	0	0	0.22	0.012313109	0.064625447	0
San Francisco (SF)	2034	Aggregate	2034	Aaverage	Diesel	4.599229074	449.0715028	0.028712246	66.82678844	0.021840327	0.00821014	3.45634269	0	0.038094045	51.07029647	0	0.688540655	13.78031346	1.581272761	0.012799068	0.014073256	0	0.009000003	0.030316628	0.013377785	0.014709587	0	0.03600001	0.066604652	0	0	0	0.009346619	3.934783059	0	0	0	0	0	0.22	0.012431566	0.065247169	0
San Francisco (SF)	2035	Aggregate	2035	Aaverage	Diesel	3.191330637	322.4814287	0.020618459	46.37007775	0.015160908	0.007838765	3.45634269	0	0.036370913	51.07029647	0	0.56298283	12.62229907	1.461547458	0.01158126	0.014073256	0	0.009000003	0.030316628	0.012304913	0.014709587	0	0.03600001	0.066604652	0	0	0	0.008923838	3.934783059	0	0	0	0	0	0.22	0.012471893	0.065458825	0
San Francisco (SF)	2035	T7 Tractor	2024	Aggregate	Electricity	0.202272646	14.0886325	0.000389505	2.939021551	0.00096092	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.01371559	0	0	0	0.03600001	0.039187401	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	Aggregate	Electricity	0.396582719	21.31566953	0.001362858	4.509146913	0.001408961	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.01371559	0	0	0	0.03600001	0.039187401	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2026	Aggregate	Electricity	0.43942049	32.64808168	0.002087418	6.384779718	0.002087533	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2027	Aggregate	Electricity	0.462872074	50.93125583	0.003256388	9.631531234	0.003148073	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2028	Aggregate	Electricity	0.479133852	69.87305886	0.004437468	12.77381487	0.004176457	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2029	Aggregate	Electricity	1.210506319	99.54440059	0.006364562	17.58805682	0.005750692	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2030	Aaverage	Electricity	1.68157407	143.0968898	0.009149174	24.43127124	0.007988569	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2031	Aggregate	Electricity	2.279397203	200.7449843	0.012835016	33.11964137	0.010828618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2032	Aaverage	Electricity	2.678732103	244.1683405	0.015611971	38.92197745	0.012725718	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2033	Aaverage	Electricity	2.910293961	246.258201	0.015744984	37.92775725	0.012405592	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2034	Aaverage	Electricity	2.645102958	258.2894493	0.016512953	38.43334597	0.012565958	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2035	Aaverage	Electricity	1.913934196	193.4013501	0.012385486	27.80948387	0.009802431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.031515814	0	0	0	0.03600001	0.041302326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2016	Aaverage	Natural Gas	10.6384607	599.6417757	0.038339247	154.5387653	0.059527154	0.014188062	0.98293806	0	10.32872907	70.01751009	0	0.597521041	22.67826721	0	0.000363438	0.040192259	0	0.009000003	0.027431181	0.001156586	0.043712749	0	0	0.03600001	0.078374803	0	0	0	0	1.013433002	70.20986143	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2017	Aaverage	Natural Gas	0.975830182	55.01656705	0.003517596	14.17881254	0.004635827	0.01444223	0.98293806	0	0.747984351	70.01751009	0	0.435726027	22.67826721	0	0.000327387	0.040192259	0	0.009000003	0.027431181	0.001661173	0.043712749	0	0	0.03600001	0.078374803	0	0	0	0	1.031587859	70.20986143	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2018	Aaverage	Natural Gas	0.073929706	4.283805452	0.000273845	1.074198832	0.000351214	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2019	Aaverage	Natural Gas	0.233800133	13.93401768	0.000890898	3.397115929	0.001110703	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2020	Aaverage	Natural Gas	0.730821313	44.85114064	0.002807644	10.61883368	0.003471876	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2021	Aaverage	Natural Gas	0.743036191	46.99911603	0.003004979	10.79631585	0.003529905	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2022	Aaverage	Natural Gas	0.835415453	54.5056462	0.003484923	12.13859854	0.003966766	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2023	Aggregate	Natural Gas	0.88468388	59.57794645	0.00389023	12.85445678	0.004202823	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2024	Aggregate	Natural Gas	0.920054195	63.99236171	0.004091474	13.36838745	0.004370855	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2025	Aaverage	Natural Gas	0.95685864	68.77748698	0.004397421	13.90460904	0.004541675	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0	0.03600001	0.078374803	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2026	Aggregate	Natural Gas	0.982166435	72.97304231	0.004665671	14.2708783	0.004665929	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2027	Aggregate	Natural Gas	0.970409579	74.56296381	0.004767326	14.10048708	0.004612219	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2028	Aaverage	Natural Gas	0.948073978	75.35238092	0.004817799	13.77551491	0.004509867	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2029	Aggregate	Natural Gas	0.914967798	75.23130962	0.004810058	13.29273851	0.004346121	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2030	Aaverage	Natural Gas	0.82510645	70.21869851	0.004589505	11.98958133	0.003920068	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2031	Aaverage	Natural Gas	0.718238921	63.25482053	0.004044318	10.43601153	0.003412102	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2032	Aaverage	Natural Gas	0.554508805	50.54387286	0.003231619	8.057012944	0.002634277	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2033	Aggregate	Natural Gas	0.441025756	41.60687145	0.002660215	6.408104241	0.002095159	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2034	Aaverage	Natural Gas	0.390753009	38.15140681	0.002439283	5.677350617	0.001856236	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2035	Aaverage	Natural Gas	0.271123567	27.3967956	0.001751667	3.938425434	0.001288013	0.014589653	0.69300716	0	3.657156771	159.0152004	0	0.163505843	21.02342258	0	0.000199137	0.079664657	0	0.009000003	0.030316628	0.002165761	0.086642583	0	0	0.03600001	0.066604652	0	0	0	0	1.04221183	49.35769397	0	0	0	0	0	1.06	0	0	0
						Total:	15,640	100.00%	3,059	100%																																		
						Weighted Average Emissions Factors:					0.00953		0.00000	0.67906		0.00000	0.99784		2.99345	0.01706		0.00000	0.00000	0.02758	0.01784		0.00000	0.03600	0.07880		0.00000		0.11469		0.00000		0.00000				0.28383	0.01028		0.00000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNE	PM2.5_RU	PM10_RUI	ROG_RUNI	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNE	PM10_PM	PM2.5_PM	Fuel Consu	Energy Consumption
2016+ Model Year Data use for SFG Controlled Scenario Operations:																				
San Francis	2025	T6TS	2016	5	Gasoline	29.0772	29.0772	0	0.11944	0.00624	0.00679	0.03951	0.05766	0.32311	0.0394	0.045	0.0615	0.02152	0.4633	0
San Francis	2025	T6TS	2017	5	Gasoline	99.122	99.122	0	0.16168	0.00671	0.0073	0.04745	0.06924	0.30351	0.03791	0.045	0.0615	0.02152	0.44579	0
San Francis	2025	T6TS	2018	5	Gasoline	65.8254	65.8254	0	0.14212	0.00699	0.0076	0.05734	0.08368	0.30349	0.03792	0.045	0.0615	0.02152	0.4458	0
San Francis	2025	T6TS	2019	5	Gasoline	21.3073	21.3073	0	0.13677	0.00717	0.0078	0.05203	0.07592	0.29174	0.03791	0.045	0.0615	0.02152	0.44579	0
San Francis	2025	T6TS	2020	5	Gasoline	26.0459	26.0459	0	0.13678	0.00717	0.0078	0.05067	0.07394	0.28835	0.03791	0.045	0.0615	0.02152	0.44579	0
San Francis	2025	T6TS	2021	5	Gasoline	32.859	32.859	0	0.13771	0.00717	0.0078	0.05253	0.07665	0.28924	0.03429	0.045	0.0615	0.02152	0.40318	0
San Francis	2025	T6TS	2022	5	Gasoline	39.7071	39.7071	0	0.14683	0.00717	0.0078	0.0581	0.08478	0.29834	0.03429	0.045	0.0615	0.02152	0.40318	0
San Francis	2025	T6TS	2023	5	Gasoline	41.6897	41.6897	0	0.16552	0.00717	0.0078	0.06651	0.09705	0.31949	0.03429	0.045	0.0615	0.02152	0.40319	0
San Francis	2025	T6TS	2024	5	Gasoline	39.4223	39.4223	0	0.18655	0.00717	0.0078	0.07628	0.1113	0.34195	0.03396	0.045	0.0615	0.02152	0.39935	0
San Francis	2025	T6TS	2025	5	Gasoline	34.8407	34.8407	0	0.13221	0.00717	0.0078	0.0727	0.10608	0.31778	0.03403	0.045	0.0615	0.02152	0.40013	0
San Francis	2025	T6TS	2024	5	Electricity	3.4068	0	3.4068	0	0	0	0	0	0	0	0	0.03075	0.01076	0	3.51531
San Francis	2025	T6TS	2025	5	Electricity	3.87427	0	3.87427	0	0	0	0	0	0	0	0	0.03075	0.01076	0	3.51531
Weighted A	2025	T6TS	2016+	5	Gasoline	429.897	429.897	0	0.15015	0.00697	0.00759	0.05676	0.08282	0.30799	0.03638	0.045	0.0615	0.02152	0.42769	0
Weighted A	2025	T6TS	2016+	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076	0	3.51531

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNI	PM2.5_RU	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM	Fuel Consu	Energy Cor
San Francis	2025	T6 instate	2016	10	Diesel	351.0426	351.0426	0	1.395162	0.003167	0.00331	0.03242	0.036907	0.159013	0.019735	0.22	0.061496	0.021524	0.20522	0
San Francis	2025	T6 instate	2017	10	Diesel	268.0294	268.0294	0	1.369159	0.003104	0.003245	0.031593	0.035966	0.154958	0.018989	0.22	0.061496	0.021524	0.197461	0
San Francis	2025	T6 instate	2018	10	Diesel	162.9041	162.9041	0	1.339456	0.003035	0.003173	0.030692	0.034941	0.150539	0.018989	0.22	0.061496	0.021524	0.197461	0
San Francis	2025	T6 instate	2019	10	Diesel	278.4379	278.4379	0	1.305226	0.002961	0.003095	0.029717	0.033831	0.145757	0.018989	0.22	0.061496	0.021524	0.197461	0
San Francis	2025	T6 instate	2020	10	Diesel	143.9709	143.9709	0	1.266015	0.002881	0.003011	0.028668	0.032636	0.140612	0.018989	0.22	0.061496	0.021524	0.197461	0
San Francis	2025	T6 instate	2021	10	Diesel	50.88468	50.88468	0	1.220138	0.002795	0.002922	0.027545	0.031358	0.135103	0.017174	0.22	0.061496	0.021524	0.178583	0
San Francis	2025	T6 instate	2022	10	Diesel	30.90155	30.90155	0	1.166857	0.002704	0.002826	0.026348	0.029995	0.12923	0.017174	0.22	0.061496	0.021524	0.178583	0
San Francis	2025	T6 instate	2023	10	Diesel	173.9129	173.9129	0	1.08639	0.002584	0.002701	0.025076	0.028547	0.122995	0.017174	0.22	0.061496	0.021524	0.178583	0
San Francis	2025	T6 instate	2024	10	Diesel	103.0677	103.0677	0	1.008105	0.002488	0.0026	0.023731	0.027016	0.116395	0.01701	0.22	0.061496	0.021524	0.176877	0
San Francis	2025	T6 instate	2025	10	Diesel	113.0492	113.0492	0	0.774357	0.002386	0.002494	0.022311	0.0254	0.109433	0.017043	0.22	0.061496	0.021524	0.177227	0
San Francis	2025	T6 instate	2026	10	Diesel	8.284113	8.284113	0	0.616176	0.002278	0.002381	0.020818	0.023699	0.102107	0.017041	0.22	0.061496	0.021524	0.177199	0
San Francis	2025	T6 instate	2024	10	Electricity	9.034598	0	9.034598	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
San Francis	2025	T6 instate	2025	10	Electricity	12.75123	0	12.75123	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
San Francis	2025	T6 instate	2026	10	Electricity	1.127072	0	1.127072	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
San Francis	2025	T6 instate	2020	10	Natural Ga	2.063589	2.063589	0	0.11747	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.271461	0
San Francis	2025	T6 instate	2021	10	Natural Ga	0.729349	0.729349	0	0.117429	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.245508	0
San Francis	2025	T6 instate	2022	10	Natural Ga	0.442923	0.442923	0	0.117442	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.245508	0
San Francis	2025	T6 instate	2023	10	Natural Ga	2.492759	2.492759	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.245508	0
San Francis	2025	T6 instate	2024	10	Natural Ga	1.477309	1.477309	0	0.117467	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.245508	0
San Francis	2025	T6 instate	2025	10	Natural Ga	1.620376	1.620376	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.245508	0
San Francis	2025	T6 instate	2026	10	Natural Ga	0.118739	0.118739	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.245508	0
Weighted .	2025	T6 instate	2016+	10	Diesel	1684.485	1684.485	0	1.249202	0.002908	0.003039	0.02907	0.033094	0.142582	0.018608	0.22	0.061496	0.021524	0.193496	0
Weighted .	2025	T6 instate	2016+	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
Weighted .	2025	T6 instate	2016+	10	Natural Ga	8.945045	8.945045	0	0.117465	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524	0.251495	0
San Francis	2025	T6TS	2024	10	Electricity	6.082643	0	6.082643	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
San Francis	2025	T6TS	2025	10	Electricity	6.917286	0	6.917286	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
San Francis	2025	T6TS	2016	10	Gasoline	51.91567	51.91567	0	0.103634	0.003928	0.004273	0.024875	0.036298	0.29442	0.031988	0.045	0.061496	0.021524	0.376103	0
San Francis	2025	T6TS	2017	10	Gasoline	176.9763	176.9763	0	0.140284	0.004221	0.004591	0.029873	0.04359	0.276557	0.030778	0.045	0.061496	0.021524	0.361885	0
San Francis	2025	T6TS	2018	10	Gasoline	117.5273	117.5273	0	0.123316	0.004397	0.004782	0.036101	0.052679	0.276537	0.030779	0.045	0.061496	0.021524	0.361888	0
San Francis	2025	T6TS	2019	10	Gasoline	38.04292	38.04292	0	0.11867	0.004514	0.004909	0.032757	0.047798	0.265837	0.030778	0.045	0.061496	0.021524	0.361885	0
San Francis	2025	T6TS	2020	10	Gasoline	46.50335	46.50335	0	0.118681	0.004514	0.004909	0.031902	0.046551	0.262742	0.030778	0.045	0.061496	0.021524	0.361884	0
San Francis	2025	T6TS	2021	10	Gasoline	58.66772	58.66772	0	0.119484	0.004514	0.004909	0.033072	0.048258	0.263553	0.027836	0.045	0.061496	0.021524	0.327292	0
San Francis	2025	T6TS	2022	10	Gasoline	70.89467	70.89467	0	0.127405	0.004514	0.004909	0.036577	0.053374	0.271853	0.027837	0.045	0.061496	0.021524	0.327295	0
San Francis	2025	T6TS	2023	10	Gasoline	74.43451	74.43451	0	0.143622	0.004514	0.004909	0.041872	0.0611	0.291123	0.027837	0.045	0.061496	0.021524	0.327302	0
San Francis	2025	T6TS	2024	10	Gasoline	70.38611	70.38611	0	0.161861	0.004514	0.004909	0.04802	0.070071	0.311584	0.027572	0.045	0.061496	0.021524	0.324183	0
San Francis	2025	T6TS	2025	10	Gasoline	62.20596	62.20596	0	0.114715	0.004514	0.004909	0.045767	0.066782	0.289567	0.027626	0.045	0.061496	0.021524	0.32482	0
Weighted .	2025	T6TS	2016+	10	Electricity	12.99993	0	12.99993	0	0	0	0	0	0	0	0	0.030748	0.010762	0	1.665122
Weighted .	2025	T6TS	2016+	10	Gasoline	767.5545	767.5545	0	0.130278	0.004389	0.004773	0.035734	0.052143	0.280645	0.029529	0.045	0.061496	0.021524	0.347193	0
San Francis	2025	T7 Single	2016	10	Diesel	14.96814	14.96814	0	6.097104	0.006275	0.006559	0.052495	0.059762	0.687712	0.027668	0.22	0.137085	0.04798	0.287715	0
San Francis	2025	T7 Single	2017	10	Diesel	14.93719	14.93719	0	5.903176	0.005545	0.005796	0.04719	0.053722	0.44441	0.02663	0.22	0.137085	0.04798	0.276919	0
San Francis	2025	T7 Single	2018	10	Diesel	19.30783	19.30783	0	5.694518	0.005311	0.005551	0.046323	0.052735	0.43624	0.02663	0.22	0.137085	0.04798	0.276919	0
San Francis	2025	T7 Single	2019	10	Diesel	42.44439	42.44439	0	5.469049	0.005079	0.005309	0.045463	0.051756	0.428147	0.02663	0.22	0.137085	0.04798	0.276919	0
San Francis	2025	T7 Single	2020	10	Diesel	12.4188	12.4188	0	5.223795	0.004851	0.00507	0.044617	0.050793	0.420176	0.02663	0.22	0.137085	0.04798	0.276919	0
San Francis	2025	T7 Single	2021	10	Diesel	8.314203	8.314203	0	4.954326	0.004627	0.004836	0.043788	0.04985	0.412375	0.023376	0.22	0.137085	0.04798	0.243075	0
San Francis	2025	T7 Single	2022	10	Diesel	10.40568	10.40568	0	4.65361	0.00441	0.004609	0.042983	0.048933	0.404789	0.023376	0.22	0.137085	0.04798	0.243075	0
San Francis	2025	T7 Single	2023	10	Diesel	10.44493	10.44493	0	4.133575	0.004109	0.004294	0.042205	0.048047	0.397465	0.023376	0.22	0.137085	0.04798	0.243075	0
San Francis	2025	T7 Single	2024	10	Diesel	10.05357	10.05357	0	3.738692	0.003935	0.004113	0.04146	0.047199	0.390449	0.023104	0.22	0.137085	0.04798	0.240253	0
San Francis	2025	T7 Single	2025	10	Diesel	15.31319	15.31319	0	2.752547	0.003774	0.003945	0.040753	0.046394	0.383789	0.023176	0.22	0.137085	0.04798	0.240996	0
San Francis	2025	T7 Single	2026	10	Diesel	1.003459	1.003459	0	1.834316	0.003624	0.003788	0.040088	0.045638	0.377529	0.023172	0.22	0.151225	0.052929	0.240953	0

San Francis	2025	T7 Single	2024	10	Electricity	0.893026	0	0.893026	0	0	0	0	0	0	0	0	0.068542	0.02399	0	2.798892
San Francis	2025	T7 Single	2025	10	Electricity	1.781243	0	1.781243	0	0	0	0	0	0	0	0	0.068542	0.02399	0	2.798892
San Francis	2025	T7 Single	2026	10	Electricity	0.14075	0	0.14075	0	0	0	0	0	0	0	0	0.075613	0.026464	0	2.798892
San Francis	2025	T7 Single	2016	10	Natural Ga	0.885669	0.885669	0	3.82542	0.004437	0.004826	0.095012	6.786603	23.09307	0	1.06	0.137085	0.04798	0.409304	0
San Francis	2025	T7 Single	2017	10	Natural Ga	1.205478	1.205478	0	1.827685	0.006373	0.006931	0.082435	5.888223	22.20168	0	1.06	0.137085	0.04798	0.405615	0
San Francis	2025	T7 Single	2018	10	Natural Ga	5.004147	5.004147	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.413526	0
San Francis	2025	T7 Single	2019	10	Natural Ga	1.107496	1.107496	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.413526	0
San Francis	2025	T7 Single	2020	10	Natural Ga	0.764022	0.764022	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.413526	0
San Francis	2025	T7 Single	2021	10	Natural Ga	0.511501	0.511501	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Single	2022	10	Natural Ga	0.640171	0.640171	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Single	2023	10	Natural Ga	0.642586	0.642586	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Single	2024	10	Natural Ga	0.618509	0.618509	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Single	2025	10	Natural Ga	0.942088	0.942088	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Single	2026	10	Natural Ga	0.061734	0.061734	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.151225	0.052929	0.362986	0
Weighted .	2025	T7 Single	2016+	10	Diesel	159.6114	159.6114	0	5.016935	0.001832	0.001916	0.018617	0.058252	0.298502	0.010168	0.099546	0.060428	0.02115	0.108002	0.049363
Weighted .	2025	T7 Single	2016+	10	Electricity	2.815019	0	2.815019	0	0	0	0	0	0	0	0	0.068896	0.024114	0	2.798892
Weighted .	2025	T7 Single	2016+	10	Natural Ga	12.3834	12.3834	0	0.809767	0.007843	0.00853	0.073574	5.255319	21.37813	0	1.06	0.137155	0.048004	0.39851	0
San Francis	2025	T7 Tractor	2016	10	Diesel	6.27648	6.27648	0	7.554571	0.008797	0.009195	0.061896	0.070464	0.810875	0.027425	0.22	0.137085	0.04798	0.285187	0
San Francis	2025	T7 Tractor	2017	10	Diesel	8.296098	8.296098	0	7.408077	0.007818	0.008172	0.055612	0.06331	0.523721	0.026396	0.22	0.137085	0.04798	0.274486	0
San Francis	2025	T7 Tractor	2018	10	Diesel	5.712127	5.712127	0	7.237134	0.0075	0.007839	0.054434	0.061969	0.512631	0.025187	0.22	0.137085	0.04798	0.261911	0
San Francis	2025	T7 Tractor	2019	10	Diesel	7.631115	7.631115	0	7.037975	0.00715	0.007473	0.053135	0.06049	0.500398	0.025187	0.22	0.137085	0.04798	0.261911	0
San Francis	2025	T7 Tractor	2020	10	Diesel	6.754699	6.754699	0	6.80534	0.006766	0.007072	0.051715	0.058873	0.487021	0.025187	0.22	0.137085	0.04798	0.261911	0
San Francis	2025	T7 Tractor	2021	10	Diesel	6.129964	6.129964	0	6.531583	0.00635	0.006637	0.050173	0.057118	0.472502	0.021638	0.22	0.137085	0.04798	0.225011	0
San Francis	2025	T7 Tractor	2022	10	Diesel	5.66622	5.66622	0	6.204922	0.005901	0.006168	0.04851	0.055225	0.456839	0.021638	0.22	0.137085	0.04798	0.225011	0
San Francis	2025	T7 Tractor	2023	10	Diesel	5.004979	5.004979	0	5.754584	0.005363	0.005606	0.046725	0.053193	0.440033	0.021638	0.22	0.137085	0.04798	0.225011	0
San Francis	2025	T7 Tractor	2024	10	Diesel	4.594406	4.594406	0	5.246547	0.004861	0.005081	0.044819	0.051024	0.422084	0.020609	0.22	0.137085	0.04798	0.214309	0
San Francis	2025	T7 Tractor	2025	10	Diesel	3.281249	3.281249	0	3.962771	0.004332	0.004528	0.042792	0.048716	0.402991	0.020633	0.22	0.137085	0.04798	0.214553	0
San Francis	2025	T7 Tractor	2026	10	Diesel	0.566105	0.566105	0	2.755319	0.003772	0.003943	0.040643	0.046269	0.382756	0.020629	0.22	0.151225	0.052929	0.214516	0
San Francis	2025	T7 Tractor	2024	10	Electricity	0.225636	0	0.225636	0	0	0	0	0	0	0	0	0.068542	0.02399	0	2.798892
San Francis	2025	T7 Tractor	2025	10	Electricity	0.236516	0	0.236516	0	0	0	0	0	0	0	0	0.068542	0.02399	0	2.798892
San Francis	2025	T7 Tractor	2026	10	Electricity	0.060002	0	0.060002	0	0	0	0	0	0	0	0	0.075613	0.026464	0	2.798892
San Francis	2025	T7 Tractor	2016	10	Natural Ga	12.8954	12.8954	0	3.83342	0.004437	0.004826	0.095012	6.786603	23.09307	0	1.06	0.137085	0.04798	0.409304	0
San Francis	2025	T7 Tractor	2017	10	Natural Ga	1.082935	1.082935	0	1.831507	0.006373	0.006931	0.082435	5.888223	22.20168	0	1.06	0.137085	0.04798	0.405615	0
San Francis	2025	T7 Tractor	2018	10	Natural Ga	0.074762	0.074762	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.413526	0
San Francis	2025	T7 Tractor	2019	10	Natural Ga	0.212059	0.212059	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.413526	0
San Francis	2025	T7 Tractor	2020	10	Natural Ga	0.573854	0.573854	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.413526	0
San Francis	2025	T7 Tractor	2021	10	Natural Ga	0.520778	0.520778	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Tractor	2022	10	Natural Ga	0.48138	0.48138	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Tractor	2023	10	Natural Ga	0.425204	0.425204	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.362986	0
San Francis	2025	T7 Tractor	2024	10	Natural Ga	0.390323	0.390323	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.353265	0
San Francis	2025	T7 Tractor	2025	10	Natural Ga	0.278762	0.278762	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798	0.353265	0
San Francis	2025	T7 Tractor	2026	10	Natural Ga	0.048094	0.048094	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.151225	0.052929	0.353265	0
Weighted .	2025	T7 Tractor	2016+	10	Diesel	59.91344	59.91344	0	6.552037	0.004019	0.004242	0.046069	1.489873	5.211679	0.011813	0.345642	0.103455	0.036209	0.210934	0.024393
Weighted .	2025	T7 Tractor	2016+	10	Electricity	0.522154	0	0.522154	0	0	0	0	0	0	0	0	0.069355	0.024274	0	2.798892
Weighted .	2025	T7 Tractor	2016+	10	Natural Ga	16.98355	16.98355	0	3.103883	0.005246	0.005705	0.089907	6.421927	22.68959	0	1.06	0.137125	0.047994	0.403024	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	CO RUNEX	CO IDLEX	CO STREX
San Francisco	2035	LDA	Aggregate	Aggregate	Gasoline	118894	4322271	4322271	0	554706		0.023900141	0	0.183305538	0.003809846	0	0.001121179	0.002000001	0.003250891	0.000880781	0	0.001219385	0.008000002	0.009288259	0.004777323	0	0.174595511	0.054597384	0.177403467	1.07013334	0.006971059	0	0.191160308	0.054597384	0.177403467	1.07013334	0.041357401	0.545896712	0	2.044930701
San Francisco	2035	LDA	Aanmeaste	Aanmeaste	Diesel	146.683	3734.19	3734.19	0	824.71		0.056764259	0	0	0.004413801	0	0	0.002000001	0.003323191	0.004613773	0	0	0.008000002	0.009494832	0.015381427	0	0	0	0	0	0.017530732	0	0	0	0	0	0.0031	0.337602712	0	0
San Francisco	2035	LDA	Aanmeaste	Aanmeaste	Electricity	14947.1	619433	0	619433	71326.7		0	0	0	0	0	0	0.002000001	0.003535924	0	0	0	0.008000002	0.004388353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LDA	Aggregate	Aggregate	Plug-in Hybrid	5340.05	206230	86699.9	119530	22081.1		0.003399966	0	0.116967433	0.000344326	0	0.001123037	0.002000001	0.003509789	0.000374486	0	0.001221405	0.008000002	0.00430511	0.001668178	0	0.17554467	0.039111884	0.064641944	0.61339977	0.002434201	0	0.192199534	0.039111884	0.064641944	0.61339977	0.01754874	0.219757088	0	1.369749453
San Francisco	2035	LDT1	Aanmeaste	Aanmeaste	Gasoline	10524	308863	308863	0	46853.7		0.035723243	0	0.228726494	0.003074518	0	0.001443568	0.002000001	0.004184043	0.001168637	0	0.001570012	0.008000002	0.011954409	0.008014573	0	0.236378144	0.096930938	0.338697322	1.967797709	0.031669846	0	0.258804315	0.096930938	0.338697322	1.967797709	0.039717836	0.697128886	0	2.514464335
San Francisco	2035	LDT1	Aanmeaste	Aanmeaste	Diesel	0.07765	2.79817	2.79817	0	0.37323		0.036459346	0	0	0.004469083	0	0	0.002000001	0.003988999	0.004671155	0	0	0.008000002	0.011397141	0.021827501	0	0	0	0	0	0.024849158	0	0	0	0	0	0.0031	0.216192256	0	0
San Francisco	2035	LDT1	Aggregate	Aggregate	Electricity	162.242	7175.03	0	7175.03	780.184		0	0	0	0	0	0	0.002000001	0.003533398	0	0	0	0.008000002	0.004383136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LDT1	Aggregate	Aggregate	Plug-in Hybrid	124.288	4789	1959.8	2829.2	513.93		0.001309596	0	0.116967433	0.000266621	0	0.000839179	0.002000001	0.003505777	0.000289974	0	0.000912684	0.008000002	0.0043022	0.001623838	0	0.17554467	0.024847743	0.02492132	0.312264732	0.002369501	0	0.192199534	0.024847743	0.02492132	0.312264732	0.017187615	0.212186358	0	1.369749453
San Francisco	2035	LDT2	Aanmeaste	Aanmeaste	Gasoline	73569	2198952	2198952	0	140744		0.030895942	0	0.227692396	0.000914506	0	0.001200694	0.002000001	0.004088413	0.000994608	0	0.001315	0.008000002	0.011681179	0.00644214	0	0.217567828	0.054318326	0.183063197	1.092287474	0.00942954	0	0.238209386	0.054318326	0.183063197	1.092287474	0.041227232	0.649018521	0	2.464919587
San Francisco	2035	LDT2	Aggregate	Aggregate	Diesel	297.557	9488.21	9488.21	0	1370.05		0.038537847	0	0	0.004895524	0	0	0.002000001	0.004149938	0.005110606	0	0	0.008000002	0.011756967	0.022546735	0	0	0	0	0	0.025667958	0	0	0	0	0	0.0031	0.239160134	0	0
San Francisco	2035	LDT2	Aggregate	Aggregate	Electricity	1984.98	60514.9	0	60514.9	9669.66		0	0	0	0	0	0	0.002000001	0.003534321	0	0	0	0.008000002	0.004383773	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LDT2	Aanmeaste	Aanmeaste	Plug-in Hybrid	1535.28	55420.8	23041.9	32378.9	6348.39		0.003362442	0	0.116967433	0.000311592	0	0.000979944	0.002000001	0.003507439	0.000338885	0	0.001065278	0.008000002	0.00430697	0.001649767	0	0.17554467	0.029353293	0.036920315	0.405562393	0.002497336	0	0.192199534	0.029363293	0.036920315	0.405562393	0.017459619	0.215554506	0	1.369749453
San Francisco	2035	UHD1	Aggregate	Aggregate	Gasoline	4476.75	159626	159626	0	66696.9		0.044316399	0.028776776	0.476483267	0.001187957	0	0.000119643	0.002000001	0.027300008	0.001292012	0	0.000130123	0.008000002	0.078000022	0.007788447	0.33034226	0.108280271	0.027255424	0.178174181	1.906516951	0.011364883	0.48203465	0.118553267	0.027255424	0.178174181	1.906516951	0.045	0.639021965	3.776607656	3.289601083
San Francisco	2035	UHD1	Aggregate	Aggregate	Diesel	2178.44	84230	84230	0	27402.1		0.343643841	1.075552276	0	0.017822341	0.026532139	0	0.003000001	0.027300008	0.018281188	0.027511527	0	0.012005003	0.078000022	0.092247161	0.109759705	0	0	0	0	0.105017259	0.124954127	0	0	0	0	0.214914989	0.225651193	0.909745076	0
San Francisco	2035	UHD1	Aanmeaste	Aanmeaste	Electricity	1417.93	75090.8	0	75090.8	19875.3		0	0	0	0	0	0	0.002000001	0.013650004	0	0	0	0.008000002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	UHD2	Aggregate	Aggregate	Gasoline	536.767	18530.9	18530.9	0	7997.04		0.044178062	0.027224282	0.46466523	0.001125638	0	0.000101964	0.002000001	0.031850009	0.001224234	0	0.000110805	0.008000002	0.091000026	0.006279991	0.112603407	0.100668961	0.028301118	0.188651881	2.08062408	0.009103748	0.456150158	0.110241738	0.028301118	0.188651881	2.08062408	0.045	0.613856469	3.77921945	3.259698591
San Francisco	2035	UHD2	Aggregate	Aggregate	Diesel	1170.13	42177.5	42177.5	0	14718.8		0.445008734	1.236712549	0	0.02123777	0.026395918	0	0.003000001	0.031850009	0.022198048	0.027588053	0	0.012005003	0.091000026	0.107025118	0.109759705	0	0	0	0	0.121840981	0.124954127	0	0	0	0	0.213587584	0.269901825	0.909745076	0
San Francisco	2035	UHD2	Aanmeaste	Aanmeaste	Electricity	354.609	18059.4	0	18059.4	4699.21		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	MDV	Aanmeaste	Aanmeaste	Gasoline	38163.1	1389130	1389130	0	178331		0.031203077	0	0.229611091	0.000846625	0	0.001114987	0.002000001	0.004107442	0.000920782	0	0.001212628	0.008000002	0.011735547	0.006606342	0	0.216508718	0.048952094	0.162181447	0.974889729	0.009639908	0	0.237049794	0.048952094	0.162181447	0.974889729	0.041296281	0.649834398	0	2.420329504
San Francisco	2035	MDV	Aggregate	Aggregate	Diesel	492.48	16765.1	16765.1	0	2252.5		0.020435881	0	0	0.002180367	0	0	0.002000001	0.004192094	0.002278953	0	0	0.008000002	0.011977411	0.010699703	0	0	0	0	0	0.0121809	0	0	0	0	0	0.0031	0.287282312	0	0
San Francisco	2035	MDV	Aanmeaste	Aanmeaste	Electricity	1871.13	56574.1	0	56574.1	9091.87		0	0	0	0	0	0	0.002000001	0.003535921	0	0	0	0.008000002	0.004388346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	MDV	Aanmeaste	Aanmeaste	Plug-in Hybrid	926.066	36357.8	15060.3	21297.5	3829.28		0.003350007	0	0.116967433	0.000307744	0	0.000972582	0.002000001	0.003508182	0.0003347	0	0.001057772	0.008000002	0.004309663	0.001643666	0	0.17554467	0.029136351	0.036308801	0.399775732	0.002398433	0	0.192199534	0.029136351	0.036308801	0.399775732	0.017397479	0.214759981	0	1.369749453

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNI	PM2.5_RU	PM10_RUI	ROG_RUNI	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06645	0.00822	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.24295	0.06049	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.003	0.00098	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.15091	0.01014	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.12943	1.00698	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.00254	0.00059	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.09234	0.00869	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.16004	0.01266	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.00276	0.00076	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.16389	0.00311	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.20206	0.05069	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.18325	0.00293	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.29945	0.05082	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.10933	0.00795	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.13747	0.01377	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274	0.00079	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.67385	0.0057	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.05694	0.00518	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.22548	0.04421	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.00157	0.00051	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.12711	0.00643	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.18661	0.70103	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.00133	0.0003	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879	0.00547	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.13444	0.01105	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.00145	0.00039	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.14624	0.00231	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.08635	0.04205	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.16066	0.00217	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.14197	0.04269	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.09311	0.00501	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.1178	0.01143	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00144	0.00041	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.49767	0.03989	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.30996	0.0037	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.58654	0.00359	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.74115	0.00739	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.44602	0.00712	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.33215	0.00813	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107	0.00522	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
3.07E+04	Carbon Dioxide, non-biogenic CO2 (6960)	2.56E+03	8.10E+06		CO2
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
4.74E-01	Methane (CH4) (6970)	3.95E-02	1.25E+02		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
5.76E-02	Nitrous Oxide (N2O) (2030)	4.80E-03	1.52E+01		N2O
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

	PM PROFILE			OG PROFILE				
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

SF Gateway

2035 Operational Emissions Summary - without Emissions Reduction Measures

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.002	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	34.78	1.812	1.087
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	5.12	66.82	43.851	12.261
TRUs	17.59	16.29	0.125	0.115
Total Proposed Daily Operational Emissions	***48.7***	***121.9***	***46.000***	***13.675***
Total Existing Daily Operational Emissions	***9.3***	***17.5***	***6.4***	***2.0***
Net New Daily Operational Emissions	**39.42**	**104.41**	**39.60**	**11.68**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.0002	0.0001	0.0001
Energy	0.00	0.00	0.000	0.000
Manufacturing &	0.39	4.59	0.239	0.144
Stationary Sources	0.04	0.100	0.005	0.005
Mobile	0.93	12.19	8.003	2.238
TRUs	3.20	2.96	0.023	0.021
Total Proposed Annual Operational Emissions	***8.50***	***19.85***	***8.27***	***2.41***
Total Existing Annual Operational Emissions	***1.70***	***3.20***	***1.20***	***0.40***
Net New Annual Operational Emissions	**6.80**	**16.65**	**7.07**	**2.01**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	8.7398	34.7837	1.8123	0.0000	1.0874	0.0000	0.39	1.15	4.59	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.10	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	3.3815	160.9079	56.0171	0.9676	42.3148	0.9179	11.1719	0.62	29.37	10.22	0.18	7.72	0.17	2.04
Mobile (activity within buildings)	1.7383	27.8329	10.7988	0.0362	0.5322	0.0337	0.1377	0.32	5.08	1.97	0.01	0.10	0.01	0.03
TRUs in-transit	14.8656	1.6178	13.7531	0.1053	0.0000	0.0969	0.0000	2.70	0.29	2.50	0.02	0.00	0.02	0.00
TRUs on-site	2.7243	0.2964	2.5402	0.0196	1.0000	0.0180	1.0000	0.50	0.05	0.46	0.00	1.00	0.00	1.00

Manufacturing and Maker Space Maximum Emissions Calculations

No Change from Iniital Operational Year Assumptions

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	35000										
TACs		2.96	2.41	9.68	1.81	1.1	0.391172	0.318732	1.278338	0.23922	0.143532
Manufacturing & Maker Space (Apparel)[1]	35000										
TACs		1.43	8.74	34.78	0.72	0.69	0.188288	1.15365	4.591448	0.094823	0.091366
Maximum											
TACs		**2.96**	**8.74**	**34.78**	**1.81**	**1.09**	**0.39**	**1.15**	**4.59**	**0.24**	**0.14**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	4.13E-03

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	1.33E-04	4.20E-01
Formaldehyde (124)	1.56E-03	4.94E+00
Glycols (131)	2.33E-02	7.39E+01
Isopropyl alcohol (157)	9.33E-03	2.96E+01
Toluene (293)	1.13E-04	3.57E-01
Ethyl Benzene	2.94E-05	9.32E-02
O-Xylene	1.32E-04	4.18E-01
M-Xylene	1.91E-04	6.04E-01
Chlorobenzene	2.24E-05	7.10E-02
Naphthalene	2.94E-05	9.32E-02

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	**g/s**
182.73192	3.63E-03

***Conditional formatting indicates worst-case scenario in orange.**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

No Change from Iniital Operational Year Assumptions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Data per 180710-SFG AECOM RFI Response_60-81-Revision3
2. HP from applicant response in 04072020 email
Note that KV Is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*1.128597*	*61.43808*	*3.102814*	*0.091206*	*12.36316*	*0.083892*	*3.141665*	*0.205969*	*11.21245*	*0.566264*	*0.016645*	*2.256276*	*0.01531*	*0.573354*
Visitor	*2.252947*	*99.46983*	*52.9143*	*0.876409*	*29.9516*	*0.83396*	*8.030273*	*0.411163*	*18.15324*	*9.65686*	*0.159945*	*5.466166*	*0.152198*	*1.465525*
Sub-Total	3.381544	160.9079	56.01712	0.967615	42.31475	0.917851	11.17194	0.617132	29.36569	10.22312	0.17659	7.722442	0.167508	2.038879
On-Site Vehicle Activity Within Buildings	1.74	27.83291	10.79876	0.036177	0.532213	0.033719	0.137655	0.317248	5.079507	1.970774	0.006602	0.097129	0.006154	0.025122
Gross Mobile Source Emissions from Proposed Project	**5.119888**	**188.7408**	**66.81588**	**1.003792**	**42.84696**	**0.951571**	**11.30959**	**0.93438**	**34.4452**	**12.1939**	**0.183192**	**7.819571**	**0.173662**	**2.064001**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1581	47054	1.12860	61.43808	3.10281	0.09121	12.36316	0.08389	3.14167	0.20597	11.21245	0.56626	0.01665	2.25628	0.01531	0.57335

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

Operational Days Per Year:

Autos/Pickups (on-site worker) 365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.00491959	0.1773792	0.52436376	2.020512678	0.023752411	0.183280786	0.000839962	0.001167972	0.119178666	0.00077262	0.00107391	0.03028511

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	26	106	132	9.11	1202

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips[1]	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
1. Based on page A-81 Daily Work Vehicle Trips Travel Demand Memo for Retail and QSR Land Uses
2. Based on Table 3.2 of Appendix F of Travel Demand Memo (page A-92).

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III.

	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[3]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Starts/Day[1]	VMT/Day[2]	Emissions (lbs/day) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Emissions (tons/year) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	962	31676	0.7197	40.9034	2.0474	0.0611	8.3227	0.0562	2.1149	0.1314	7.4649	0.3737	0.0112	1.5189	0.0103	0.3860
Maker and Manufacturing	45	1800	0.0371	2.2813	0.1124	0.0034	0.4729	0.0032	0.1202	0.0068	0.4163	0.0205	0.0006	0.0863	0.0006	0.0219
Parcel and Last Mile Delivery	607	24280	0.5007	30.7721	1.5167	0.0465	6.3794	0.0428	1.6211	0.0914	5.6159	0.2768	0.0085	1.1642	0.0078	0.2959
Wholesale and Storage	121	4840	0.0998	6.1341	0.3023	0.0093	1.2717	0.0085	0.3232	0.0182	1.1195	0.0552	0.0017	0.2321	0.0016	0.0590
General Retail / Café/Quick Service Restaurants[3]	189	756	0.0821	1.7158	0.1160	0.0019	0.1986	0.0017	0.0505	0.0150	0.3131	0.0212	0.0003	0.0363	0.0003	0.0092
												0.0000				
Vans	448	26880	0.8601	35.1055	3.3332	0.1277	7.9264	0.1203	2.0955	0.1570	6.4068	0.6083	0.0233	1.4466	0.0220	0.3824
Maker and Manufacturing	10	600	0.0192	0.7836	0.0744	0.0028	0.1769	0.0027	0.0468	0.0035	0.1430	0.0136	0.0005	0.0323	0.0005	0.0085
Parcel and Last Mile Delivery	401	24060	0.7698	31.4225	2.9835	0.1143	7.0948	0.1077	1.8756	0.1405	5.7346	0.5445	0.0209	1.2948	0.0197	0.3423
Wholesale and Storage	30	1800	0.0576	2.3508	0.2232	0.0085	0.5308	0.0081	0.1403	0.0105	0.4290	0.0407	0.0016	0.0969	0.0015	0.0256
General Retail / Café/Quick Service Restaurants[3]	7	420	0.0134	0.5485	0.0521	0.0020	0.1238	0.0019	0.0327	0.0025	0.1001	0.0095	0.0004	0.0226	0.0003	0.0060
										0.0000		0.0000				
Single Unit Trucks	281	22480	0.4047	6.4791	18.7598	0.1976	8.0594	0.1887	2.2158	0.0739	1.1824	3.4237	0.0361	1.4708	0.0344	0.4044
Maker and Manufacturing	11	880	0.0158	0.2536	0.7344	0.0077	0.3155	0.0074	0.0867	0.0029	0.0463	0.1340	0.0014	0.0576	0.0013	0.0158
Parcel and Last Mile Delivery	146	11680	0.2103	3.3664	9.7471	0.1027	4.1874	0.0981	1.1513	0.0384	0.6144	1.7788	0.0187	0.7642	0.0179	0.2101
Wholesale and Storage	121	9680	0.1743	2.7899	8.0781	0.0851	3.4704	0.0813	0.9542	0.0318	0.5092	1.4742	0.0155	0.6333	0.0148	0.1741
General Retail / Café/Quick Service Restaurants[3]	3	240	0.0043	0.0692	0.2003	0.0021	0.0860	0.0020	0.0237	0.0008	0.0126	0.0366	0.0004	0.0157	0.0004	0.0043
												0.0000				
Tractor Trailer Trucks	91	11830	0.2684	16.9818	28.7739	0.4900	5.6432	0.4687	1.6041	0.0490	3.0992	5.2512	0.0894	1.0299	0.0855	0.2927
Maker and Manufacturing	1	130	0.0029	0.1866	0.3162	0.0054	0.0620	0.0052	0.0176	0.0005	0.0341	0.0577	0.0010	0.0113	0.0009	0.0032
Parcel and Last Mile Delivery	60	7800	0.1770	11.1968	18.9718	0.3231	3.7208	0.3090	1.0576	0.0323	2.0434	3.4623	0.0590	0.6790	0.0564	0.1930
Wholesale and Storage	30	3900	0.0885	5.5984	9.4859	0.1616	1.8604	0.1545	0.5288	0.0161	1.0217	1.7312	0.0295	0.3395	0.0282	0.0965
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Total	1782	92866	2.2529	99.4698	52.9143	0.8764	29.9516	0.8340	8.0303	0.4112	18.1532	9.6569	0.1599	5.4662	0.1522	1.4655

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

Operational Days Per Year:		Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX) ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	365	Autos/Pickups (visiting worker)	0.004919587	0.177379203	0.524363763	2.020512678	0.023752411	0.183280786	0.000839962	0.001167972	0.119178666	0.000772621	0.001073907	0.030285107
Vans	365	Vans	0.012158893	0.141267359	0.558437217	2.037477843	0.052420813	0.229596807	0.002142688	0.000686362	0.133754921	0.002020116	0.000631103	0.035360136
Single Unit Trucks	365	Single Unit Trucks	0.007782294	0.030727247	0.123263656	0.597564646	0.365945397	1.006562005	0.003985993	6.39015E-05	0.162618379	0.003807167	5.87551E-05	0.044710321
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.010291536	0	0.651125026	0	1.080353116	2.978268506	0.018789194	0	0.21637519	0.017970072	0	0.06150389

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

VMT Estimates for Proposed Visitor Trips - Supllemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I. **Net Visitor VMT by Vehicle Type and Land Use[1]**

Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total Visitor VMT by Land Use
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
General Retail / Café/Quick Service Restaurants[2]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**31676**	**26880**	**22480**	**11830**	**92,866**

Table II. **Total Daily Visitior Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	90	20	22	2	134
Parcel and Last Mile Delivery	1,214	802	292	120	2428
Wholesale and Storage	242	60	242	60	604
General Retail / Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[1]	**1924**	**896**	**562**	**182**	3564

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III. **Total Daily Auto/Pickup Vehicle Trips by Land Use[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	178
Parcel and Last Mile Delivery	3354
Wholesale and Storage	1,044
General Retail	156
Quick Service Restaurant	354
Total Vehicle Trips[1]	**5086**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11
Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V. **Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]**

	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:
1. Page A-93, Appendis F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.0745	13.7957	1.1668	0.0192	0.3867	0.0177	0.0983	0.1961	2.5177	0.2129	0.0035	0.0706	0.0032	0.0179
Vans	0.1654	2.7051	0.2742	0.0042	0.0779	0.0039	0.0206	0.0302	0.4937	0.0500	0.0008	0.0142	0.0007	0.0038
Single Unit Trucks	0.1626	8.5676	6.7606	0.0111	0.0458	0.0106	0.0126	0.0662	1.5636	1.2338	0.0020	0.0084	0.0019	0.0023
Tractor Trailer Trucks	0.1359	2.7646	2.5972	0.0016	0.0219	0.0015	0.0062	0.0248	0.5045	0.4740	0.0003	0.0040	0.0003	0.0011
Total	1.74	27.83	10.80	0.04	0.53	0.03	0.14	0.32	5.08	1.97	0.01	0.10	0.01	0.03

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.0745	13.7957	1.1668	0.0192	0.3867	0.0177	0.0983	0.1961	2.5177	0.2129	0.0035	0.0706	0.0032	0.0179
Vans	0.1654	2.7051	0.2742	0.0042	0.0779	0.0039	0.0206	0.0302	0.4937	0.0500	0.0008	0.0142	0.0007	0.0038
Single Unit Trucks - Idling	0.2944	7.9101	5.6143	0.0033	0.0000	0.0032	0.0000	0.0537	1.4436	1.0246	0.0006	0.0000	0.0006	0.0000
Single Unit Trucks	0.0682	0.6575	1.1463	0.0078	0.0458	0.0074	0.0126	0.0124	0.1200	0.2092	0.0014	0.0084	0.0014	0.0023
Tractor Trailer Trucks - Idling	0.1282	2.3338	1.3289	0.0008	0.0000	0.0008	0.0000	0.0234	0.4259	0.2425	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks	0.0076	0.4308	1.2682	0.0008	0.0219	0.0008	0.0062	0.0014	0.0786	0.2314	0.0001	0.0040	0.0001	0.0011
Total	1.74	27.83	10.80	0.04	0.53	0.03	0.14	0.32	5.08	1.97	0.01	0.10	0.01	0.03

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2543	184.43		1.0065	11.6026	1.0438	0.0085	0.0485	0.0078	0.0123	0.1837	2.1175	0.1905	0.0015	0.0088	0.0014	0.0022
Autos/Pickups - 10mph			1287.16	0.0680	2.1930	0.1230	0.0108	0.3382	0.0099	0.0859	0.0124	0.4002	0.0224	0.0020	0.0617	0.0018	0.0157
Vans - 5mph	448	68.10		0.1484	2.1986	0.2401	0.0019	0.0201	0.0017	0.0053	0.0271	0.4012	0.0438	0.0003	0.0037	0.0003	0.0010
Vans - 10mph			195.97	0.0171	0.5065	0.0342	0.0023	0.0578	0.0021	0.0153	0.0031	0.0924	0.0062	0.0004	0.0105	0.0004	0.0028
Single Unit Trucks - idling				0.2944	7.9101	5.6143	0.0033	0.0000	0.0032	0.0000	0.0537	1.4436	1.0246	0.0006	0.0000	0.0006	0.0000
Single Unit Trucks - 5mph	281	37.89		0.0351	0.4507	0.8133	0.0026	0.0136	0.0025	0.0037	0.0064	0.0822	0.1484	0.0005	0.0025	0.0005	0.0007
Single Unit Trucks - 10mph			89.83	0.0331	0.2068	0.3329	0.0052	0.0322	0.0049	0.0089	0.0060	0.0377	0.0608	0.0009	0.0059	0.0009	0.0016
Tractor Trailer Trucks - idling				0.1282	2.3338	1.3289	0.0008	0.0000	0.0008	0.0000	0.0234	0.4259	0.2425	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	91	12.85		0.0021	0.1206	0.7852	0.0002	0.0061	0.0002	0.0017	0.0004	0.0220	0.1433	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.07	0.0055	0.3102	0.4830	0.0006	0.0158	0.0006	0.0045	0.0010	0.0566	0.0881	0.0001	0.0029	0.0001	0.0008
Total	3363	303.28	1606.02	1.74	27.83	10.80	0.04	0.53	0.03	0.14	0.32	5.08	1.97	0.01	0.10	0.01	0.03

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)										
Operational Days Per Year:	Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups 365	Autos/Pickups	5	0.029653049	0.177379203	0.676172538	2.020512678	0.040015802	0.183280786	0.004727251	0.001167972	0.119178666	0.004349256	0.001073907	0.030285107
Vans 365	Autos/Pickups	10	0.023951976	0.177379203	0.772812712	2.020512678	0.04333483	0.183280786	0.003791868	0.001167972	0.119178666	0.003489068	0.001073907	0.030285107
Single Unit Trucks 365	Vans	5	0.058791572	0.141267359	1.24019504	2.037477843	0.088567751	0.229596807	0.008084807	0.000686382	0.133754921	0.0074378	0.000631103	0.035360136
Tractor Trailer Trucks 365	Vans	10	0.039499645	0.141267359	1.172414351	2.037477843	0.079057831	0.229596807	0.005371288	0.000686382	0.133754921	0.004942254	0.000631103	0.035360136
	Single Unit Trucks	5	0.192047485	0.030727247	0.963295312	0.597564646	2.271367996	1.006562005	0.030932078	6.39015E-05	0.162618379	0.029540918	5.87551E-05	0.044710321
	Sinale Unit Trucks	10	0.16701127	0.030727247	1.044283493	0.597564646	1.681231252	1.006562005	0.026015214	6.39015E-05	0.162618379	0.02483922	5.87551E-05	0.044710321
	Tractor Trailer Trucks	5	0.075421922	0	4.255299455	0	6.625359092	2.978268506	0.008001897	0	0.21637519	0.007621912	0	0.06150389
	Tractor Trailer Trucks	10	0.075421922	0	4.255299455	0	6.625359092	2.978268506	0.008001897	0	0.21637519	0.007621912	0	0.06150389

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	562	0.1	133.54	3587.96	2546.63	1.51	1.45
Tractor Trailer Trucks	182	0.1	58.17	1058.61	602.80	0.37	0.35
Total			191.72	4646.57	3149.42	1.88	1.80

Emissions for truck idling using EMFAC 2011 idling emission rates provided in g/hr-vehicle (https://www.arb.ca.gov/msei/emfac2011_idling_emission_rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	Aggregated	GAS	1.026924334	15.28158349	0.073607166	0	0
T6 instate small	Aggregated	DSL	0.177846431	7.33168412	7.438616902	0.004426877	0.004235373
T7 Single	Aggregated	DSL	0.402262122	76.60753376	11.49994738	0.042309603	0.038902119
T7 tractor	Aggregated	DSL	2.876605073	52.34894089	29.80869042	0.118273027	0.017247736

*Source: EMFAC 2017

Vehicle Category	Idle--hour factor
T6TS	0.098
T6 instate small	0.098
T7 Single	0.92
T7 tractor	0.75

	Emission Factors (g/vehicle/idle-hr)				
	ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
	10.47881973	155.9345254	0.751093527	0	0
	1.814759501	74.81110327	75.9042541	0.045172219	0.043218089
	0.193111338	7.969232187	8.085453154	0.004819823	0.004603666
Weighted Average:	2.851488444	76.61121335	54.37634472	0.03229421	0.03089718
	3.835473431	69.79858785	39.74492057	0.024364037	0.022996981

*Source: Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf)

Single Unit Trucks		% Population
T6TS	GAS	14.83%
T6 instate	DSL	69.86%
T7 Single	DSL	15.31%
		100.00%

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Total Internal Building VMT Estimate

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.64	8.29	15.12	3.48	**66.53**
2nd	47.40	21.84	11.56	4.76	**85.02**
3rd	46.46	30.93	11.21	4.62	**93.22**
4th/Roof	50.44	0.00	0.00	0.00	**50.44**
Total	**184.48**	**68.10**	**37.89**	**12.85**	**303.28**

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	56.41	7.83	21.52	4.95	**288.28**
2nd	143.66	95.65	34.47	14.27	**379.04**
3rd	139.38	92.79	33.64	13.88	**847.65**
4th/Roof	947.68	0.00	0.00	0.00	**1606.02**
Total	**1287.16**	**196.07**	**89.88**	**33.07**	**0.00**

On-Site Mobile

Total Daily Internal Building Vehicle Activity

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	80.40	63792.45	8810.68	24338.84	8597.97	**154647.26**
2nd	126.20	77078.87	51311.69	18690.27	7656.43	**150939.03**
3rd	126.20	74722.58	49776.38	18043.73	7427.33	**81171.78**
4th/Roof	25.40	81171.72	0.00	0.00	0.00	**488978.88**
Total	**357.80**	**888816.68**	**109898.74**	**60888.84**	**30881.78**	**878817.68**

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.50	90776.03	12110.62	34633.32	7905.86	**145486.09**
2nd	378.60	231236.62	153933.06	55800.82	22969.27	**463941.77**
3rd	378.60	224317.73	149329.13	54151.19	22282.00	**450080.05**
4th/Roof	481.00	152514.56	0.00	0.00	0.00	**1888140.88**
Total	**1366.70**	**8071470.88**	**816874.81**	**144635.88**	**88317.14**	**8584638.47**

	Total Daily Vehicle Activity (Trips) per Floor				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	712	98	272	62	**1141**
2nd	611	407	147	61	**1225**
3rd	592	394	143	59	**1188**
4th/Roof	3171	0	0	0	**3171**
Total	**5086**	**898**	**562**	**182**	**6726**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	174.4	178	170.4	171.7	178.7	170.7

[1]Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

	Total Daily Vehicle Trips by Land Use and Vehicle Type				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3162	-	-	-	-
Visiting Workers Maker and Manufacturing	90	20	22	2	134
Visiting Workers Parcel and Last Mile Delivery	1,214	802	292	120	2428
Visiting Workers Wholesale and Storage	242	60	242	60	604
One Workers General Retail /Café/Quick Service Restaurants	374	14	6	0	388
Total Vehicle Trips[1]	**5086**	**896**	**562**	**182**	**6726**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

	% Vehicle Activity Per Floor			
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
1st/Ground	14%	11%	48%	34%
2nd	12%	45%	26%	33%
3rd	12%	44%	25%	32%
4th/Roof	62%	0%	0%	0%
Total	100%	100%	100%	100%

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pick	355	305	295	1581
Total Daily Van Per Le	47	201	195	0
Total Daily MT Per Le	135	73	71	0
Total Daily HT Per Le	31	30	29	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

(GSF/GSF/GSF)	L1	L2	L3	L4	Project Total	Source: July 2019 Project Description - Table 3
PDR Uses						
Manufacturing & Maker Space	35,000	-	-	-	35000	
Parcel Delivery/Last Mile		381,000	369,600	8,800	759400	
Wholesale and Storage	372,400	-	-	-	372400	
Retail	8,400	-	-	-	8400	
Logistics Yard	-	72,400	73,400	-	145800	
Vehicle Circulation	13,800	112,800	95,400	17,600	239600	
Parking	111,800	-	-	487,600	599400	
Total					2160000	

Step 2 - Estimated % Use per Floor

Sq Ft Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Parcel Delivery/Last Mile	0.0%	50.2%	48.7%	0.0%	Utilize Level 2 and 3 Logistics Yard and Parking
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Retail Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitize Ground Level Logistics and Parking

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Van	MT	HT	Source: Dec 10 2021 Traffic Demand Memo - Table 11 and page A-79 for worker trip data
PDR	4576	882	556	182	
On-site Worker	3030	0	0	0	
Visiting Worker	1546	882	556	182	
Manufacturing & Maker Space	*90*	*20*	*22*	*2*	
Parcel Delivery/Last Mile	*1214*	*802*	*292*	*120*	
Wholesale and Storage	*242*	*60*	*242*	*60*	
Retail/QSR	510	14	6	0	
On-site Worker	132	0	0	0	
Visiting Worker/Consumer	378	14	6	0	

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & van)	206	506	491	1515
PDR Auto/Pickup	*166*	*305*	*293*	*1515*
PDR Van	*40*	*201*	*192*	*0*
PDR MT	132	73	71	0
PDR HT	31	30	29	0
Retail Auto	196	0	0	66
Retail Auto/Pickup	*189*	*0*	*0*	*66*
Retail Van	*7*	*0*	*0*	*0*
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	402	506	491	1581
Total Daily Auto/Pickup Per Level	*355*	*305*	*295*	*1581*
Total Daily Van Per Level	*47*	*201*	*195*	*0*
Total Daily MT Per Level	135	73	71	0
Total Daily HT Per Level	31	30	29	0

Mobile Trip Data (per Adavant December 10, 2021, Trip Generation Memorandum)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	3354	0	802	292	120	4568
Wholesale and Storage	1044	0	60	242	60	1406
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5086	0	896	562	182	6726
% of Total Trips	76%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		40	840	300	1180	75	1105	15
SD2	6		48	1308	504	1860	126	1734	21
SD3	2		44	1016	384	1444	96	1348	48
SD4	7		42	1176	434	1652	108	1544	15
East Bay	28		337	8134	3029	11500	755	10745	27
North Bay	28		166	3496	1332	4994	332	4662	12
South Bay	22		518	13217	4967	18702	1239	17463	56
Out of Region	65		129	3229	1162	4520	290	4230	4
			1324	32416	12112	45852	3021	42831	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-9105	4840	-2465	4000	-6465	200	24280	30920
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-6015	1800	-3615	4610	-8225	154	24060	26460
SU Trucks	40	-7.5	880	-2190	9680	8370	5293	3077	132	11680	22240
Tractor Trailers	65	7.5	130	900	3900	4930	888	4042	14	7800	11830
Total Non-Commuter VMT	N/A	N/A	3410	-16410	20220	7220	16127	-8291		67820	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	88	2140	802	0	26	106	0	0	3162
Non-work	134	2428	604	0	132	266	0	0	3564
Total	222	4568	1406	0	158	372	0	0	6726

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	Emissions (lb/day) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	Emissions (tons/year) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	4.7	0.176	0.019	0.167	0.001	0.001	0.023	0.003	0.022	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	7,475	47	159.0	5.983	0.651	5.689	0.044	0.041	1.092	0.119	1.038	0.008	0.007
Wholesale and Storage	17.2	0.56	4,356	47	92.7	3.487	0.379	3.315	0.026	0.024	0.636	0.069	0.605	0.005	0.004
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	0.7	0.025	0.003	0.022	0.000	0.000	0.003	0.000	0.003	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	4,992	47	106.2	3.843	0.419	3.373	0.025	0.023	0.701	0.076	0.616	0.005	0.004
Wholesale and Storage	33.8	0.38	1,755	47	37.3	1.351	0.147	1.186	0.009	0.008	0.247	0.027	0.216	0.002	0.001
Total Off-Site Emissions						**14.866**	**1.618**	**13.753**	**0.105**	**0.097**	**2.703**	**0.294**	**2.500**	**0.019**	**0.018**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	38	5	7.6	0.285	0.031	0.271	0.002	0.002	0.052	0.006	0.049	0.000	0.000
10mph	17.2	0.56	90	10	9.0	0.338	0.037	0.321	0.003	0.002	0.062	0.007	0.059	0.000	0.000
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	2.6	0.093	0.010	0.082	0.001	0.001	0.017	0.002	0.015	0.000	0.000
10mph	33.8	0.38	33	10	3.3	0.120	0.013	0.105	0.001	0.001	0.022	0.002	0.019	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	37.7	1.417	0.154	1.347	0.011	0.010	0.259	0.028	0.246	0.002	0.002
Tractor Trailer Truck	33.8	0.38	NA	NA	13.0	0.472	0.051	0.414	0.003	0.003	0.086	0.009	0.076	0.001	0.001
Total On-Site Emissions						**2.724**	**0.296**	**2.540**	**0.020**	**0.018**	**0.497**	**0.054**	**0.464**	**0.004**	**0.003**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	11	25%	2.75	0.25	0.6875
Parcel and Last Mile Delivery	146	64%	93.44	0.25	23.36
Wholesale and Storage	121	45%	54.45	0.25	13.6125
Total	278	-	150.64	0.25	37.66

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	25%	0.25	0.25	0.0625
Parcel and Last Mile Delivery	60	64%	38.4	0.25	9.6
Wholesale and Storage	30	45%	13.5	0.25	3.375
Total	91	-	52.15	0.25	13.0375

Table III.

		Total TRU VMT	
Land Use	% Refrigeration R	TRU VMT on Single-Unit Trucks	TRU VMT on Tractor Trailer Trucks
Maker and Manufacturing	25%	220	32.5
Parcel and Last Mile Delivery	64%	7475.2	4992
Wholesale and Storage	45%	4356	1755
Total		12051.2	6779.5

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
Total Visitor VMT by Vehicle Type	**30920**	**26460**	**22240**	**11830**	**91,450**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.3) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2035
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity hpr	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2035	TRU - Instate Trailer	Aggregated	25	Diesel	0.00068548	0.0069996	0.00098641	0.00076138	0.00665524	0.000051882	4.7733E-05	1670.46	2.38377E-08	34612.57	52751.32	0.477444286	29.38	1308232.736
San Francisco (SF)	2035	TRU - Instate Trailer	Aggregated	50	Diesel	0.000738788	0.007530967	0.00106446	0.000820332	0.00661042	4.87813E-05	4.48781E-05	2058.51528	2.93998E-08	42651.58	57735.54	0.522555714	32.230452	1951461.252

	Emission Rates g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.77	1.684486111	0.19	0.01	0.01	422804.69
Trailer TRU	1.28	1.121651204	0.14	0.01	0.01	349287.37

Truck TRU - Fuel use (gallons/hr): 110486.86
Trailer TRU - Fuel use (gallons/hr): 110486.86

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	118894	4322271	54.05%	554,706	52.58%	4.78E-03	0.00E+00	1.75E-01	5.46E-01	0.00E+00	2.04E+00	2.39E-02	0.00E+00	1.83E-01	8.81E-04	0.00E+00	1.22E-03	8.00E-03	9.29E-03	8.10E-04	0.00E+00	1.12E-03	2.00E-03	3.25E-03
LDA	Diesel	147	3734	0.05%	625	0.06%	1.54E-02	0.00E+00	0.00E+00	3.38E-01	0.00E+00	0.00E+00	5.68E-02	0.00E+00	0.00E+00	4.61E-03	0.00E+00	0.00E+00	8.00E-03	9.49E-03	4.41E-03	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	14947	619433	7.75%	71,327	6.76%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.39E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03
LDA	Plug-in Hybrid	5340	206230	2.58%	22,081	2.09%	1.67E-03	0.00E+00	1.76E-01	2.18E-01	0.00E+00	1.37E+00	3.40E-03	0.00E+00	1.17E-01	3.74E-04	0.00E+00	1.22E-03	8.00E-03	4.31E-03	3.44E-04	0.00E+00	1.12E-03	2.00E-03	1.51E-03
LDT1	Gasoline	10524	308863	3.86%	46,854	4.44%	8.01E-03	0.00E+00	2.36E-01	6.97E-01	0.00E+00	2.51E+00	3.57E-02	0.00E+00	2.29E-01	1.17E-03	0.00E+00	1.57E-03	8.00E-03	1.20E-02	1.07E-03	0.00E+00	1.44E-03	2.00E-03	4.18E-03
LDT1	Diesel	0	3	0.00%	0	0.00%	2.18E-02	0.00E+00	0.00E+00	2.16E-01	0.00E+00	0.00E+00	3.65E-02	0.00E+00	0.00E+00	4.67E-03	0.00E+00	0.00E+00	8.00E-03	1.14E-02	4.47E-03	0.00E+00	0.00E+00	2.00E-03	3.99E-03
LDT1	Electricity	162	7175	0.09%	790	0.07%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybrid	124	4789	0.06%	514	0.05%	1.62E-03	0.00E+00	1.76E-01	2.12E-01	0.00E+00	1.37E+00	3.31E-03	0.00E+00	1.17E-01	2.90E-04	0.00E+00	9.13E-04	8.00E-03	4.30E-03	2.67E-04	0.00E+00	8.39E-04	2.00E-03	1.51E-03
LDT2	Gasoline	73569	2398952	30.00%	340,744	32.30%	6.46E-03	0.00E+00	2.18E-01	6.49E-01	0.00E+00	2.46E+00	3.09E-02	0.00E+00	2.28E-01	9.95E-04	0.00E+00	1.31E-03	8.00E-03	1.17E-02	9.15E-04	0.00E+00	1.21E-03	2.00E-03	4.09E-03
LDT2	Diesel	298	9488	0.12%	1,370	0.13%	2.25E-02	0.00E+00	0.00E+00	2.39E-01	0.00E+00	0.00E+00	3.85E-02	0.00E+00	0.00E+00	5.11E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	4.89E-03	0.00E+00	0.00E+00	2.00E-03	4.11E-03
LDT2	Electricity	1985	60515	0.76%	9,670	0.92%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybrid	1535	55421	0.69%	6,348	0.60%	1.65E-03	0.00E+00	1.76E-01	2.16E-01	0.00E+00	1.37E+00	3.36E-03	0.00E+00	1.17E-01	3.39E-04	0.00E+00	1.07E-03	8.00E-03	4.31E-03	3.12E-04	0.00E+00	9.80E-04	2.00E-03	1.51E-03
	Total:		7,996,874	100.00%	1,055,029	100.00%																			
				Weighted Average Emission Factors*:			0.00492		0.17738	0.52436		2.02051	0.02375		0.18328	0.00084		0.00117	0.00800	0.00953	0.00077		0.00107	0.00200	0.00333
Vans																									
LHD1	Gasoline	4477	159626	8.42%	66,697	19.92%	7.79E-03	3.30E-01	1.08E-01	6.39E-01	3.78E+00	3.29E+00	4.43E-02	2.88E-02	4.76E-01	1.29E-03	0.00E+00	1.30E-04	8.00E-03	7.80E-02	1.19E-03	0.00E+00	1.20E-04	2.00E-03	2.73E-02
LHD1	Diesel	2178	84230	4.44%	27,402	8.18%	9.22E-02	1.10E-01	0.00E+00	2.26E-01	9.10E-01	0.00E+00	3.44E-01	1.08E+00	0.00E+00	1.86E-02	2.75E-02	0.00E+00	1.20E-02	7.80E-02	1.78E-02	2.63E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	1418	75091	3.96%	19,875	5.93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	537	18531	0.98%	7,997	2.39%	6.28E-03	3.13E-01	1.01E-01	6.14E-01	3.78E+00	3.26E+00	4.42E-02	2.72E-02	4.65E-01	1.22E-03	0.00E+00	1.11E-04	8.00E-03	9.10E-02	1.13E-03	0.00E+00	1.02E-04	2.00E-03	3.19E-02
LHD2	Diesel	1170	42177	2.22%	14,719	4.40%	1.07E-01	1.10E-01	0.00E+00	2.70E-01	9.10E-01	0.00E+00	4.45E-01	1.24E+00	0.00E+00	2.22E-02	2.76E-02	0.00E+00	1.20E-02	9.10E-02	2.12E-02	2.64E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	355	18059	0.95%	4,699	1.40%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	38163	1389130	73.25%	178,331	53.25%	6.61E-03	0.00E+00	2.17E-01	6.50E-01	0.00E+00	2.42E+00	3.12E-02	0.00E+00	2.30E-01	9.21E-04	0.00E+00	1.21E-03	8.00E-03	1.17E-02	8.47E-04	0.00E+00	1.11E-03	2.00E-03	4.11E-03
MDV	Diesel	492	16765	0.88%	2,252	0.67%	1.07E-02	0.00E+00	0.00E+00	2.87E-01	0.00E+00	0.00E+00	2.04E-02	0.00E+00	0.00E+00	2.28E-03	0.00E+00	0.00E+00	8.00E-03	1.20E-02	2.18E-03	0.00E+00	0.00E+00	2.00E-03	4.19E-03
MDV	Electricity	1871	56574	2.98%	9,092	2.71%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.39E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03
MDV	Plug-in Hybrid	926	36358	1.92%	3,829	1.14%	1.64E-03	0.00E+00	1.76E-01	2.15E-01	0.00E+00	1.37E+00	3.35E-03	0.00E+00	1.17E-01	3.35E-04	0.00E+00	1.06E-03	8.00E-03	4.31E-03	3.08E-04	0.00E+00	9.73E-04	2.00E-03	1.51E-03
	Total:		1,896,542	100.00%	334,894	100.00%																			
				Weighted Average Emission Factors*:			0.01216		0.14127	0.55844		2.03748	0.05242		0.22960	0.00214		0.00069	0.00827	0.02383	0.00202		0.00063	0.00207	0.00834
Single Unit Trucks																									
T6TS	Gasoline	382	16544	10.69%	7,634	14.97%	2.00E-02	1.03E+00	2.05E-01	3.57E-01	1.53E+01	3.99E+00	1.44E-01	7.36E-02	3.28E-01	1.38E-03	0.00E+00	4.27E-04	1.20E-02	4.50E-02	1.27E-03	0.00E+00	3.92E-04	3.00E-03	1.58E-02
T6TS	Electricity	77	5923	3.83%	1,535	3.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2198	77929	50.33%	28,240	55.38%	8.53E-03	1.78E-01	0.00E+00	5.70E-02	7.33E+00	0.00E+00	4.43E-01	7.44E+00	1.36E+00	3.82E-03	4.43E-03	0.00E+00	1.20E-02	4.60E-02	3.66E-03	4.24E-03	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	673	29176	18.84%	8,619	16.90%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.05E-03
T6 instate small	Natural Gas	21	823	0.53%	271	0.53%	1.10E-02	1.72E-01	0.00E+00	3.15E+00	3.81E+01	0.00E+00	6.07E-02	5.16E+00	0.00E+00	1.72E-03	2.08E-02	0.00E+00	1.20E-02	4.60E-02	1.58E-03	1.91E-02	0.00E+00	3.00E-03	1.61E-02
T7 Single	Diesel	379	17077	11.03%	3,571	7.00%	1.07E-02	1.86E+00	0.00E+00	5.94E-02	2.74E+01	0.00E+00	1.14E+00	1.70E+01	2.89E+00	1.71E-02	8.91E-03	0.00E+00	3.60E-02	8.50E-02	1.64E-02	8.53E-03	0.00E+00	9.00E-03	2.97E-02
T7 Single	Electricity	95	6277	4.05%	893	1.75%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.43E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.55E-02
T7 Single	Natural Gas	24	1075	0.69%	226	0.44%	1.52E-02	4.02E-01	0.00E+00	4.77E+00	7.66E+01	0.00E+00	2.18E-01	1.15E+01	0.00E+00	2.14E-03	4.23E-02	0.00E+00	3.60E-02	8.49E-02	1.96E-03	3.89E-02	0.00E+00	9.00E-03	2.97E-02
	Total:		154,824	100.00%	50,988	100.00%																			
				Weighted Average Emission Factors*:			0.00778		0.03073	0.12326		0.59756	0.36595		1.00656	0.00399		0.00006	0.01579	0.04518	0.00381		0.00006	0.00395	0.01581
Tractor Trailer Trucks																									
T7 tractor	Diesel	192	13734	80.92%	2,788	81.74%	1.10E-02	3.46E+00	0.00E+00	5.51E-02	5.10E+01	0.00E+00	1.30E+00	3.42E+01	3.68E+00	0.02301	1.48E-02	0.00E+00	3.60E-02	8.26E-02	2.20E-02	1.42E-02	0.00E+00	9.00E-03	2.89E-02
T7 tractor	Electricity	18	1609	9.48%	266	7.80%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.32E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.51E-02
T7 tractor	Natural Gas	25	1630	9.60%	357	10.46%	1.44E-02	8.34E-01	0.00E+00	6.32E+00	1.15E+02	0.00E+00	3.37E-01	2.18E+01	0.00E+00	0.0018	6.56E-02	0.00E+00	3.60E-02	8.14E-02	1.62E-03	6.03E-02	0.00E+00	9.00E-03	2.85E-02
	Total:		16,972		3,411	100.00%																			
				Weighted Average Emission Factors*:			0.01029		0.00000	0.65113		0.00000	1.08035		2.97827	0.01879		0.00000	0.03600	0.07872	0.01797		0.00000	0.00900	0.02755
Buses																									
UBUS	Gasoline	137	6760	8.64%	548	13.46%	3.60E-03	0.00E+00	1.02E-01	5.88E-01	0.00E+00	6.00E+00	1.89E-02	0.00E+00	3.02E-01	1.30E-03	0.00E+00	1.57E-04	8.02E-03	9.11E-02	1.20E-03	0.00E+00	1.44E-04	2.01E-03	3.19E-02
UBUS	Diesel	158	12467	15.93%	631	15.52%	6.62E-02	0.00E+00	0.00E+00	7.54E-02	0.00E+00	0.00E+00	3.62E-01	0.00E+00	0.00E+00	6.95E-03	0.00E+00	0.00E+00	3.13E-02	1.10E-01	6.65E-03	0.00E+00	0.00E+00	7.82E-03	3.85E-02
UBUS	Electricity	659	54018	69.00%	2,634	64.75%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.59E-02	5.50E-02	0.00E+00	0.00E+00	0.00E+00	8.98E-03	1.93E-02
UBUS	Natural Gas	64	5038	6.43%	255	6.27%	5.94E-02	0.00E+00	0.00E+00	4.69E+01	0.00E+00	0.00E+00	5.72E-02	0.00E+00	0.00E+00	3.85E-04	0.00E+00	0.00E+00	3.13E-02	1.10E-01	3.68E-04	0.00E+00	0.00E+00	7.82E-03	3.85E-02
	Total:		78,283		4,069	100.00%																			
				Weighted Average Emission Factors*:			0.01467		0.01378	3.07825		5.99607	0.06293		0.30176	0.00124		0.00016	0.03249	0.07039	0.00119		0.00014	0.00812	0.02464

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Vehicle Category	Fuel	Population	% Population	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	381.5464518	10.69%	1.026924334	15.28158349	0.073607166	0	0
T6TS	Electricity	76.70573965	3.83%	0	0	0	0	0
T6 instate small	Diesel	2197.958525	50.33%	0.177846431	7.33168412	7.438616902	0.004426877	0.004235373
T6 instate small	Electricity	672.5297221	18.84%	0	0	0	0	0
T6 instate small	Natural G	21.0500028	0.53%	0.171787684	38.08248103	5.159448425	0.020801616	0.019126318
T7 Single	Diesel	379.1291865	11.03%	1.86438058	27.41391702	16.96491188	0.008913218	0.008527636
T7 Single	Electricity	94.75255472	4.05%	0	0	0	0	0
T7 Single	Natural G	23.98099253	0.69%	0.402262122	76.60753376	11.49994738	0.042309603	0.038902119
		Total:	100.00%					
		Weighted Average Emission Factors*:		0.40859	9.08146	5.73051	0.00362	0.00344
Tractor Trailer Trucks								
T7 tractor	Diesel	191.900433	80.92%	3.455961385	51.00150688	34.24664804	0.014797805	0.014157658
T7 tractor	Electricity	18.31554242	9.48%	0	0	0	0	0
T7 tractor	Natural G	24.55312244	9.60%	0.834190574	115.3645697	21.83507299	0.065586819	0.060304659
		Total:	100.00%					
		Weighted Average Emission Factors*:		2.87661	52.34894	29.80869	0.01827	0.01725

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
			Weighted Average Emission Factors*:					0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
			Weighted Average Emission Factors*:					0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1544878	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281077917	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			3,645	100%							
			Weighted Average Emission Factors*:					0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
			*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.											
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
			*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.											

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
			Total:			70,774	100%							
			Weighted Average Emission Factors*:					0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
			Weighted Average Emission Factors*:					0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482354	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99992888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			4,287	100%							
			Weighted Average Emission Factors*:					0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NHS RUNEX	CO RUNEX	CO IDLEX	CO STREX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco	2035	LDA	Aggregate	Aggregate	Gasoline	118894	4322271	4322271	0	554706		0.023900141	0	0.183303538	0.003809846	0	0.001121179	0.002000001	0.002850781	0.003880781	0	0.001219385	0.003800002	0.009288259	0.004777323	0	0.174595511	0.054597384	0.177403467	1.07013334	0.006971059	0	0.191160108	0.054597384	0.177403467	1.07013334	0.041357401	0.545806712	0	2.044930701	0.002431377	0	0.000564631
San Francisco	2035	LDA	Aeneracels	Aeneracels	Diesel	146.693	3734.19	3734.19	0	624.71		0.056764259	0	0	0.004413801	0	0	0.002000001	0.003323191	0.004613373	0	0	0.003800002	0.009494832	0.015381427	0	0	0	0	0	0.017530732	0	0	0	0	0	0.0031	0.337602712	0	0	0.002090954	0	0
San Francisco	2035	LDA	Aeneracels	Aeneracels	Electricity	14947.1	619433	0	619433	71326.7		0	0	0	0	0	0	0.002000001	0.002535924	0	0	0	0.003800002	0.004383853	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LDA	Aeneracels	Aeneracels	Plug-in Hy	5340.05	200230	86699.9	113530	22081.1		0.003399966	0	0.116967433	0.000344326	0	0.001123037	0.002000001	0.003506789	0.003974466	0	0.001224405	0.003800002	0.00433511	0.001668178	0	0.175544867	0.039111884	0.064641944	0.61389977	0.002434201	0	0.192199534	0.039111884	0.064641944	0.61389977	0.01754874	0.217957088	0	1.369749453	0.001137767	0	0.000570183
San Francisco	2035	LDT1	Aeneracels	Aeneracels	Gasoline	10524	308863	308863	0	46853.7		0.035723243	0	0.228726494	0.001074518	0	0.001443568	0.002000001	0.004184043	0.001168637	0	0.001570012	0.003800002	0.011954409	0.008014573	0	0.236378144	0.096930938	0.338697322	1.967797709	0.039717836	0	0.258804315	0.096930938	0.338697322	1.967797709	0.039717836	0.667128886	0	2.514464335	0.002938046	0	0.000691591
San Francisco	2035	LDT1	Aeneracels	Aeneracels	Diesel	0.07765	2.79817	2.79817	0	0.37323		0.036459346	0	0	0.004469083	0	0	0.002000001	0.003988999	0.004671155	0	0	0.003800002	0.011597141	0.021827501	0	0	0	0	0	0.024849158	0	0	0	0	0	0.0031	0.216392256	0	0	0.003568811	0	0
San Francisco	2035	LDT1	Aggregate	Aggregate	Electricity	162.242	7175.03	0	7175.03	790.184		0	0	0	0	0	0	0.002000001	0.003533398	0	0	0	0.003800002	0.004381136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LDT1	Aggregate	Aggregate	Plug-in Hy	124.288	4789	1959.8	2829.2	513.93		0.003309596	0	0.116967433	0.000266621	0	0.000839179	0.002000001	0.001505777	0.000389974	0	0.000912684	0.003800002	0.00430222	0.001623838	0	0.175544867	0.024847743	0.02492132	0.312264732	0.002369501	0	0.192199534	0.024847743	0.02492132	0.312264732	0.017187615	0.212186358	0	1.369749453	0.00130225	0	0.000633845
San Francisco	2035	LDT2	Aeneracels	Aeneracels	Gasoline	73569	2398952	2398952	0	340744		0.036899942	0	0.227692396	0.000914506	0	0.001200994	0.002000001	0.004084413	0.000994608	0	0.003315	0.003800002	0.01168179	0.00944214	0	0.217567828	0.054183626	0.183083197	1.092287474	0.00942954	0	0.238209386	0.054183626	0.183083197	1.092287474	0.04122732	0.649031621	0	2.464919587	0.002987214	0	0.000700213
San Francisco	2035	LDT2	Aggregate	Aggregate	Diesel	297.557	9488.21	9488.21	0	1370.05		0.038537847	0	0	0.004889524	0	0	0.002000001	0.004114938	0.005110606	0	0	0.003800002	0.011756967	0.022546735	0	0	0	0	0	0.025667958	0	0	0	0	0	0.0031	0.239160134	0	0	0.002771327	0	0
San Francisco	2035	LDT2	Aggregate	Aggregate	Electricity	1984.98	60514.9	0	60514.9	9869.66		0	0	0	0	0	0	0.002000001	0.001534321	0	0	0	0.003800002	0.004383773	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LDT2	Aeneracels	Aeneracels	Plug-in Hy	1535.28	55420.8	23041.9	32378.9	6348.39		0.003362442	0	0.116967433	0.000311592	0	0.000979944	0.002000001	0.001507439	0.000338885	0	0.001065778	0.003800002	0.00433897	0.001649767	0	0.175544867	0.029163293	0.036920315	0.405562393	0.002407186	0	0.192199534	0.029163293	0.036920315	0.405562393	0.017459619	0.215554506	0	1.369749453	0.001323008	0	0.000677105
San Francisco	2035	LHD1	Aggregate	Aggregate	Gasoline	4476.75	159626	159626	0	66896.9		0.044316399	0.028776776	0.476483267	0.001187957	0	0.000119643	0.002000001	0.027300008	0.001292012	0	0.000130123	0.003800002	0.078000022	0.007788447	0.33014226	0.108280271	0.027255424	0.178174181	1.908516951	0.011368483	0.48203465	0.118553267	0.027255424	0.178174181	1.908516951	0.045	0.639021965	3.776607656	1.289603083	0.007702953	0.001101657	0.000245435
San Francisco	2035	LHD1	Aggregate	Aggregate	Diesel	2178.44	84230	84230	0	27402.1		0.343660841	1.079552276	0	0.017822341	0.02632139	0	0.002000001	0.027300008	0.018620188	0.027515527	0	0.012000003	0.078000022	0.092247161	0.109759705	0	0	0	0	0.105017259	0.124954127	0	0	0	0	0.045	0.214934889	0.225853193	0.930745076	0	0.005767429	0.001113652	0	0
San Francisco	2035	LHD1	Aeneracels	Aeneracels	Electricity	1417.93	75090.8	0	75090.8	19875.3		0	0	0	0	0	0	0.002000001	0.001365004	0	0	0	0.003800002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	LHD2	Aggregate	Aggregate	Gasoline	536.767	18530.9	18530.9	0	7997.04		0.044178062	0.027242482	0.46466523	0.001126638	0	0.000101964	0.002000001	0.003850009	0.001232434	0	0.000108905	0.003800002	0.091000026	0.006279991	0.312603407	0.100688961	0.028301118	0.188651881	2.08062408	0.010631738	0.028301118	0.188651881	2.08062408	0.045	0.613856469	3.779219145	1.259698501	0.008734199	0.001277005	0.000238222	0
San Francisco	2035	LHD2	Aggregate	Aggregate	Diesel	1170.13	42177.5	42177.5	0	14718.8		0.445308734	1.238712549	0	0.02123777	0.02639518	0	0.002000001	0.031850009	0.022198048	0.027588653	0	0.012000003	0.091000026	0.107025118	0.109759705	0	0	0	0	0.121840981	0.124954127	0	0	0	0	0.045	0.213587584	0.265901825	0.930745076	0	0.006820988	0.001832177	0	0
San Francisco	2035	LHD2	Aeneracels	Aeneracels	Electricity	354.609	18059.4	0	18059.4	4699.21		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.003800002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	MDV	Aeneracels	Aeneracels	Gasoline	18163.1	1389130	1389130	0	178331		0.031202077	0	0.229611091	0.000846625	0	0.001114967	0.002000001	0.004107442	0.000920782	0	0.001212628	0.003800002	0.011735547	0.006805342	0	0.216508718	0.048952094	0.162181447	0.974889729	0.009639958	0	0.237040794	0.048952094	0.162181447	0.974889729	0.041296281	0.649834398	0	2.420329504	0.003577831	0	0.000834088
San Francisco	2035	MDV	Aggregate	Aggregate	Diesel	492.48	16765.1	16765.1	0	2252.5		0.020435881	0	0	0.002180367	0	0	0.002000001	0.004192094	0.002278953	0	0	0.003800002	0.011977411	0.010699703	0	0	0	0	0	0.01218809	0	0	0	0	0	0.0031	0.287282312	0	0	0.003595752	0	0
San Francisco	2035	MDV	Aeneracels	Aeneracels	Electricity	1871.33	56574.1	0	56574.1	9091.87		0	0	0	0	0	0	0.002000001	0.001535921	0	0	0	0.003800002	0.004383846	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	MDV	Aeneracels	Aeneracels	Plug-in Hy	926.066	36357.8	15060.3	21297.5	3829.28		0.003350007	0	0.116967433	0.000307744	0	0.000972582	0.002000001	0.001508382	0.00031947	0	0.001057772	0.003800002	0.004309863	0.001643666	0	0.175544867	0.029116351	0.036308801	0.399775732	0.002398433	0	0.192199534	0.029116351	0.036308801	0.399775732	0.017397479	0.214759981	0	1.369749453	0.00131812	0	0.000820727
San Francisco	2035	T6 Instate small	Aggregate	Aggregate	Diesel	2197.96	77929.4	77929.4	0	28239.7		0.443059505	7.438616902	1.362820085	0.009658744	0.004235373	0	0.003000001	0.016112122	0.003824177	0.004426877	0	0.012000003	0.040034634	0.00853481	0.177846431	0	0	0	0	0.009716231	0.302466424	0	0	0	0	0.045	0.219503909	0.656991212	7.33168412	0	0.010229281	0.018545983	0	0
San Francisco	2035	T6 Instate small	Aeneracels	Aeneracels	Electricity	672.53	29175.8	0	29175.8	8619.22		0	0	0	0	0	0	0.003000001	0.008045757	0	0	0	0.012000003	0.022987878	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	T6 Instate small	Aeneracels	Aeneracels	Natural Ga	21.05	823.279	823.279	0	270.652		0.060695654	5.159448425	0	0.001580077	0.001926318	0	0.003000001	0.016097604	0.001718478	0.020801616	0	0.012000003	0.045993154	0.010962695	0.171787684	0	0	0	0	0.783049671	12.27054887	0	0	0	0	1.06	3.145171578	38.08248103	0	0	0	0	0
San Francisco	2035	T6TS	Aggregate	Aggregate	Gasoline	181.546	10543.7	10543.7	0	7631.98		0.144223874	0.079607166	0.328195579	0.001269536	0	0.000392431	0.003000001	0.013756104	0.001380736	0	0.000428825	0.012000003	0.04501744	0.020017585	1.026924334	0.205230435	0.02473096	0.243753587	2.566872882	0.029209613	1.498485577	0.224701493	0.02473096	0.243753587	2.566872882	0.045	0.157496701	15.28158349	1.991195614	0.016324035	0.005003275	0.000408016	0
San Francisco	2035	T6TS	Aeneracels	Aeneracels	Electricity	76.7057	5923.03	0	5923.03	1534.73		0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	T7 Single	Aeneracels	Aeneracels	Diesel	375.129	17076.7	17076.7	0	3571.4		1.139518673	16.96491188	2.89289317	0.016398868	0.008527636	0	0.009000003	0.029744805	0.01713199	0.008913218	0	0.03600001	0.084981156	0.010728957	1.86438058	0	0	0	0	0.012214101	2.122455371	0	0	0	0	0.219972201	0.059401687	27.41391702	0	0.014648926	0.039114743	0	0
San Francisco	2035	T7 Single	Aggregate	Aggregate	Electricity	94.7526	6277.08	0	6277.08	892.569		0	0	0	0	0	0	0.009000003	0.015502138	0	0	0	0.03600001	0.04429324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	T7 Single	Aeneracels	Aeneracels	Natural Ga	23.981	1075.24	1075.24	0	225.901		0.218263896	11.49994738	0	0.001964806	0.038902119	0	0.009000003	0.029706415	0.002136905	0.042309603	0	0.03600001	0.08487547	0.015223926	0.402262122	0	0	0	0	1.0874233	28.73300871	0	0	0	0	1.06	4.76625358	76.60753376	0	0	0	0	0
San Francisco	2035	T7 Tractor	Aeneracels	Aeneracels	Diesel	191.9	13733.7	13733.7	0	2788.31		1.295127582	34.24664804	3.680607905	0.022015464	0.014157658	0	0.009000003	0.028808103	0.023010906	0.014797805	0	0.03600001	0.082566009	0.011005714	3.455961385	0	0	0	0	0.012529167	3.934348964	0	0	0	0	0.219998l	0.055127671	51.00150688	0	0.013075165	0.069254726	0	0
San Francisco	2035	T7 Tractor	Aggregate	Aggregate	Electricity	18.3155	1608.67	0	1608.67	266.125		0	0	0	0	0	0	0.009000003	0.011524135	0	0	0	0.03600001	0.043211814	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	T7 Tractor	Aggregate	Aggregate	Natural Ga	24.5531	1630.03	1630.03	0	356.757		0.336982607	21.83507299	0	0.001620502	0.060304659	0	0.009000003	0.028481127	0.001762444	0.065586819	0	0.03600001	0.081374649	0.014410959	0.834190574	0	0	0	0	1.030782779	59.58504096	0	0	0	0	1.06	6.315247772	115.3645897	0	0	0	0	0
San Francisco	2035	UBUS	Aeneracels	Aeneracels	Gasoline	136.894	6759.82	6759.82	0	547.576		0.018874662	0	0.301761375	0.001197791	0	0.000144211	0.002000563	0.031887597	0.001302707	0	0.000158843	0.008022611	0.09110742	0.003603753	0	0.102351142	0.027498822	0.111466494	0.419183955	0.005258588	0	0.112061922	0.027498822	0.111466494	0.419183955	0.045	0.588131764	0	1.996072611	0.008450389	0	0.000351963
San Francisco	2035	UBUS	Aggregate	Aggregate	Diesel	157.859	12467.2	12467.2	0	631.437		0.361781629	0	0	0.006648859	0	0	0.002823907	0.038456779	0.006947401	0	0	0.031295628	0.109876511	0.066154133	0	0	0	0	0	0.07531145	0	0	0	0	0	0.22	0.075441334	0	0	0.010954876	0	0
San Francisco	2035	UBUS	Aggregate	Aggregate	Electricity	658.609	54018.4	0	54018.4	2634.44		0	0	0	0	0	0	0.002823916	0.038250006	0	0	0	0.035931664	0.055000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2035	UBUS	Aeneracels	Aeneracels	Natural Ga	63.7845	5037.5	5037.5	0	255.138		0.057220776	0	0	0.00036805	0	0	0.002823907	0.038456779	0.000384691	0	0	0.031295628	0.109876511	0.059377888	0	0	0	0	0	4.196666836	0	0	0	0	0	0.97	46.86015271	0	0	0	0	0

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUNEX	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	SOx_RUNEX	NH3_RUNEX	PM10_PMBW	PM2.5_PMBW
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.639801	8739.639801	0	0.06644666	0.008217386	0.008937157	0.053252822	0.077706393	1.243654057	0.006407956	0.036297666	0.005934447	0.002077056
San Franci	2025	LDA	Aggregate	5	Diesel	25.38011785	25.38011785	0	0.242947064	0.060487048	0.063222004	0.28036965	0.319182207	4.577890502	0.0056644	0.0031	0.006082721	0.002128952
San Franci	2025	LDA	Aggregate	5	Electricity	11804.15664	0	11804.15664	0	0	0	0	0	0	0	0	0.001328455	0.000464959
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	160.5402144	1215.899454	0.002995733	0.000975218	0.001060639	0.003083172	0.004498957	0.227121668	0.000942963	0.004649882	0.001327743	0.00046471
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.5079324	753.5079324	0	0.150908984	0.010142381	0.011030765	0.109044032	0.159116796	1.972378353	0.00763848	0.035111814	0.008465677	0.002962987
San Franci	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.134420127	0	1.129429317	1.006979635	1.052510786	1.271040834	1.446995485	4.646631021	0.010032718	0.0031	0.009735317	0.003407361
San Franci	2025	LDT1	Aggregate	5	Electricity	42.79927237	0	42.79927237	0	0	0	0	0	0	0	0	0.001330607	0.000465712
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.812624128	7.411069909	0.002538045	0.00058547	0.000636752	0.002612124	0.003811605	0.19242198	0.000798897	0.004150229	0.001322982	0.000463044
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.509779	4343.509779	0	0.092343235	0.008688678	0.00944973	0.059178577	0.08635324	1.350612031	0.00795176	0.037420442	0.008153693	0.002853793
San Franci	2025	LDT2	Aggregate	5	Diesel	21.17206242	21.17206242	0	0.160039934	0.012660791	0.013233255	0.271791869	0.309416972	2.861570884	0.007533639	0.0031	0.0083074	0.00290759
San Franci	2025	LDT2	Aggregate	5	Electricity	422.1930384	0	422.1930384	0	0	0	0	0	0	0	0	0.001323608	0.000463263
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	21.4995052	178.5733874	0.002760048	0.000759009	0.000825491	0.002840608	0.004145008	0.209253207	0.000868777	0.00450717	0.001325334	0.000463867
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.57561	5987.57561	0	0.163885328	0.003111213	0.003383728	0.09119699	0.133074434	2.182537662	0.014892352	0.044945055	0.078000022	0.027300008
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.529271	1550.529271	0	1.202058493	0.050687102	0.052978948	0.249377579	0.283899794	0.746203493	0.010879352	0.197938322	0.078000022	0.027300008
San Franci	2025	LHD1	Aggregate	5	Electricity	80.58261108	0	80.58261108	0	0	0	0	0	0	0	0	0.039000011	0.013650004
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.2679754	722.2679754	0	0.183254222	0.002930739	0.003187446	0.068388351	0.099792121	1.679265545	0.016812128	0.044983621	0.091000026	0.031850009
San Franci	2025	LHD2	Aggregate	5	Diesel	872.5903988	872.5903988	0	1.299445569	0.050815815	0.05311348	0.240395622	0.273674433	0.745223206	0.013080335	0.200558839	0.091000026	0.031850009
San Franci	2025	LHD2	Aggregate	5	Electricity	17.36091405	0	17.36091405	0	0	0	0	0	0	0	0	0.045500013	0.015925005
San Franci	2025	MDV	Aggregate	5	Gasoline	2032.004843	2032.004843	0	0.109334957	0.007947495	0.008643608	0.070020657	0.102165031	1.390117487	0.009478538	0.037871122	0.008114629	0.00284012
San Franci	2025	MDV	Aggregate	5	Diesel	35.31338882	35.31338882	0	0.137473529	0.013771799	0.014394498	0.199240937	0.226822561	4.061952141	0.009210864	0.0031	0.008407202	0.002942521
San Franci	2025	MDV	Aggregate	5	Electricity	450.0220744	0	450.0220744	0	0	0	0	0	0	0	0	0.001323447	0.000463206
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	12.4961622	104.4493632	0.00274454	0.000792405	0.000861813	0.002824646	0.004121717	0.20807742	0.000863895	0.004487891	0.001325461	0.000463911
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.1544878	810.1544878	0	0.673849856	0.005698018	0.006197115	0.302121193	0.440854536	2.402500187	0.038792537	0.044991097	0.061495877	0.021523557
San Franci	2025	T6TS	Aggregate	5	Electricity	7.281077917	0	7.281077917	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.20688	28295.20688	0	0.056936086	0.005178359	0.005631938	0.033777583	0.04928817	1.130735574	0.005205436	0.036297666	0.007339337	0.002568768
San Franci	2025	LDA	Aggregate	10	Diesel	82.16994083	82.16994083	0	0.225477885	0.044214919	0.046214122	0.206120062	0.234653987	3.412073895	0.00471898	0.0031	0.007522712	0.002632949
San Franci	2025	LDA	Aggregate	10	Electricity	18884.46515	0	18884.46515	0	0	0	0	0	0	0	0	0.0023506	0.00082271
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	519.7603888	4861.64681	0.001571889	0.000508124	0.000552631	0.001224104	0.001786209	0.113580579	0.000549004	0.003850549	0.002349291	0.000822252
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.535647	2439.535647	0	0.127105592	0.006429829	0.006993025	0.070280885	0.102553703	1.77275398	0.006204844	0.035111814	0.010532756	0.003686465
San Franci	2025	LDT1	Aggregate	10	Diesel	0.435194742	0.435194742	0	1.186607791	0.701031401	0.73272893	0.885063016	1.007585401	3.301696117	0.008445206	0.0031	0.012112407	0.004239342
San Franci	2025	LDT1	Aggregate	10	Electricity	68.47091172	0	68.47091172	0	0	0	0	0	0	0	0	0.002354408	0.000824043
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	2.630928545	29.632388	0.001327133	0.000303997	0.000330624	0.001033501	0.001508082	0.095895184	0.00046352	0.003424911	0.002340902	0.000819316
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.42255	14062.42255	0	0.07879064	0.005473985	0.005953458	0.037634146	0.054915658	1.226757895	0.006458749	0.037420442	0.010144595	0.003550608
San Franci	2025	LDT2	Aggregate	10	Diesel	68.54606138	68.54606138	0	0.134436438	0.011048481	0.011548044	0.203187476	0.231315432	2.141054569	0.006341565	0.0031	0.010335833	0.003617541
San Franci	2025	LDT2	Aggregate	10	Electricity	675.4306945	0	675.4306945	0	0	0	0	0	0	0	0	0.002342023	0.000819708
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	69.60618074	714.0070147	0.001445642	0.000394766	0.000429344	0.001125789	0.001642748	0.104458268	0.00050491	0.003725716	0.00234505	0.000820767
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.76457	13095.76457	0	0.146244745	0.002310545	0.002512928	0.06223305	0.090810321	1.701207424	0.01270639	0.044945055	0.078000022	0.027300008
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.830906	3968.830906	0	1.086348373	0.042054042	0.04395554	0.211476352	0.240751766	0.6048385	0.009464418	0.197938322	0.078000022	0.027300008
San Franci	2025	LHD1	Aggregate	10	Electricity	185.3866055	0	185.3866055	0	0	0	0	0	0	0	0	0.039000011	0.013650004
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.713055	1579.713055	0	0.160656361	0.002170053	0.002360131	0.045738635	0.066741708	1.357863216	0.01433836	0.044983621	0.091000026	0.031850009
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.536514	2233.536514	0	1.141968008	0.042692187	0.044622538	0.208022651	0.236819957	0.612235084	0.011405167	0.200558839	0.091000026	0.031850009
San Franci	2025	LHD2	Aggregate	10	Electricity	41.96931284	0	41.96931284	0	0	0	0	0	0	0	0	0.045500013	0.015925005
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.760535	6578.760535	0	0.0931103	0.005011149	0.005450069	0.04463595	0.065126498	1.258739112	0.007698089	0.037871122	0.010095992	0.003533597
San Franci	2025	MDV	Aggregate	10	Diesel	114.3296137	114.3296137	0	0.11779779	0.011431576	0.011948461	0.148634791	0.169210828	3.03847519	0.007822266	0.0031	0.010460003	0.003661001
San Franci	2025	MDV	Aggregate	10	Electricity	719.9519998	0	719.9519998	0	0	0	0	0	0	0	0	0.002341738	0.000819608
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	40.45721595	417.6298556	0.00143735	0.000412087	0.000448183	0.001119332	0.001633326	0.103859138	0.000502014	0.003709345	0.002345262	0.000820842
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	2535.606712	0	2.497668002	0.039888068	0.041691629	0.172548192	0.196432982	0.387595682	0.018832163	0.215368856	0.061495877	0.021523557
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	0	22.91289675	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	11.29555486	0	0.309957451	0.003696949	0.00402077	0.03629014	2.592152847	7.617796827	0	1.06	0.061495877	0.021523557
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.482354	1446.482354	0	0.586535243	0.003591998	0.003906625	0.191398523	0.279288275	2.120297567	0.031491387	0.044991097	0.061495877	0.021523557
San Franci	2025	T6TS	Aggregate	10	Electricity	12.99992888	0	12.99992888	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.3560355	239.3560355	0	5.741149077	0.007393932	0.007728253	0.067350005	0.076672854	0.647096954	0.026897591	0.219870805	0.137175535	0.048011437
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0	2.815018601	0	0	0	0	0	0	0	0	0.068895779	0.024113523
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	15.69475867	0	1.446023995	0.007124619	0.007748673	0.078097554	5.578396745	21.73995533	0	1.06	0.137141137	0.047999398
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	92.10940499	0	7.332150843	0.008126013	0.008493436	0.073038828	0.083149146	0.745965733	0.025662703	0.219983645	0.137175407	0.048011392
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0	0.522153817	0	0	0	0	0	0	0	0	0.069354736	0.024274158
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	17.64099572	0	3.13107158	0.005215433	0.005672259	0.090097242	6.435517297	22.70463004	0	1.06	0.137123085	0.04799308

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

		PM PROFILE			OG PROFILE			
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylidenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

SF Gateway

2050 Operational Emissions Summary - with Emissions Controls

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	10.00	1.812	1.087
Stationary Sources	1.46	0.42	0.211	0.211
Mobile	3.29	42.63	43.068	11.833
TRUs	0.00	0.00	0.000	0.000
Total Proposed Daily Operational Emissions	***29.3***	***53.0***	***45.093***	***13.132***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	0.81	14.54	6.15	1.79
Total Existing Daily Operational Emissions	***9.30***	***17.50***	***6.40***	***2.00***
Net New Daily Operational Emissions	**20.00**	**35.55**	**38.69**	**11.13**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.39	1.32	0.239	0.144
Stationary Sources	0.04	0.01	0.005	0.005
Mobile	0.60	7.78	7.860	2.160
TRUs	0.00	0.00	0.000	0.000
Total Proposed Annual Operational Emissions	***4.97***	***9.11***	***8.10***	***2.31***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.15	2.65	1.12	0.33
Total Existing Annual Operational Emissions	***1.70***	***3.20***	***1.20***	***0.40***
Net New Annual Operational Emissions	**3.27**	**5.91**	**6.90**	**1.91**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	2.4146	10.0000	1.8123	0.0000	1.0874	0.0000	0.39	0.32	1.32	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	0.4224	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.01	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	2.2858	134.6638	38.2313	0.7184	41.7960	0.6820	10.9911	0.42	24.58	6.98	0.13	7.63	0.12	2.01
Mobile (activity within buildings)	1.0014	21.5253	4.3938	0.0251	0.5288	0.0236	0.1364	0.18	3.93	0.80	0.00	0.10	0.00	0.02
TRUs in-transit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRUs on-site	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	0.81	28.54	14.54	0.20	5.95	0.19	1.60	0.15	5.21	2.65	0.04	1.09	0.03	0.29

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	35000										
TACs		2.96	2.41	10.00	1.81	1.1	0.391172	0.318732	1.32	0.23922	0.143532

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	**4.13E-03**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
200KV Backup Generator	220	0.74	1	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	0.422367586	0.211183793	0	0.21118	0	0.03659	0.09239	0.01056	0.00528	0	0.00528	0
Total						1.46370224	3.695716379	0.422367586	0.211183793	0	0.21118	0	0.03659	0.09239	0.01056	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440
200KV	2 per building	220

1. Data per 180710-SFG AECOM RFI Response_60-81-Revision3
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.359621617	1

Emission Factors	Diesel Emergency Generator Emission Factors for Tier4 final						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	0.294	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	0.294	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
Nox	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	Tier 4 emissions factors from: EPA 40 CFR Part 1039 - https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1039#sp40.36.1039.b	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for Diesel TRU in-transit operations	Emissions (lb/day) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	Emissions (tons/year) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	7,475	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wholesale and Storage	17.2	0.56	4,356	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	4,992	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wholesale and Storage	33.8	0.38	1,755	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Off-Site Emissions						**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	38	5	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10mph	17.2	0.56	90	10	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10mph	33.8	0.38	33	10	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tractor Trailer Truck	33.8	0.38	NA	NA	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total On-Site Emissions						**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with Diesel TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	11	0%	0	0.25	0
Parcel and Last Mile Delivery	146	0%	0	0.25	0
Wholesale and Storage	121	0%	0	0.25	0
Total	278	0%	0	0.25	0

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	0%	0	0.25	0
Parcel and Last Mile Delivery	60	0%	0	0.25	0
Wholesale and Storage	30	0%	0	0.25	0
Total	91	0%	0	0.25	0

Table III.

		Total TRU VMT	
Land Use	**% Refrigeration Re**	**TRU VMT on Single-Unit Trucks**	**TRU VMT on Tractor Trailer Trucks**
Maker and Manufacturing	25%	220	32.5
Parcel and Last Mile Delivery	64%	7475.2	4992
Wholesale and Storage	45%	4356	1755
Total		12051.2	6779.5

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
Total Visitor VMT by Vehicle Type	**30920**	**26460**	**22240**	**11830**	**91,450**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity hpr	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

	Emission Rates g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Truck TRU - Fuel use (gallons/hr): 94269.91
Trailer TRU - Fuel use (gallons/hr): 94269.91

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*0.802832*	*55.43645*	*2.51329*	*0.0615*	*12.35545*	*0.05657*	*3.138968*	*0.146517*	*10.11715*	*0.458675*	*0.011224*	*2.254869*	*0.010324*	*0.572862*
Visitor	*1.48292*	*79.22739*	*35.71799*	*0.65693*	*29.44053*	*0.625458*	*7.852136*	*0.270633*	*14.459*	*6.518533*	*0.11989*	*5.372896*	*0.114146*	*1.433015*
Sub-Total	2.285752	134.6638	38.23128	0.71843	41.79597	0.682028	10.9911	0.41715	24.57615	6.977208	0.131113	7.627765	0.12447	2.005877
On-Site Vehicle Activity Within Buildings	1.00	21.52532	4.393845	0.025071	0.528789	0.023558	0.136439	0.182764	3.928372	0.801877	0.004575	0.096504	0.004299	0.0249
Gross Mobile Source Emissions from Proposed Project	**3.287199**	**156.1892**	**42.62512**	**0.743501**	**42.32476**	**0.705586**	**11.12754**	**0.599914**	**28.50452**	**7.779085**	**0.135689**	**7.72427**	**0.128769**	**2.030777**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1581	47054	0.80283197	55.4364485	2.51328951	0.061499747	12.35544873	0.056570019	3.138968003	0.146516834	10.11715185	0.45867533	0.0112237	2.25486939	0.01032403	0.57286166

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

Operational Days Per Year:

Autos/Pickups (on-site worker) 365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.00360212	0.12312735	0.47912214	1.645121245	0.018912761	0.158183357	0.000568669	0.000719579	0.119104375	0.00052309	0.00066163	0.03025911

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[1]	26	106	132	9.11	1202

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips[1]	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
1. Based on page A-81 Daily Work Vehicle Trips Travel Demand Memo for Retail and QSR Land Uses
2. Based on Table 3.2 of Appendix F of Travel Demand Memo (page A-92).

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III.

	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[3]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups	0.7703	11.6917	1.0261	0.0167	0.3865	0.0154	0.0962	0.1406	2.1337	0.1873	0.0031	0.0705	0.0028	0.0179
Vans	0.1241	2.2781	0.2115	0.0040	0.0765	0.0037	0.0201	0.0226	0.4158	0.0386	0.0007	0.0140	0.0007	0.0037
Single Unit Trucks	0.0926	6.2629	1.9338	0.0037	0.0438	0.0039	0.0119	0.0169	1.1430	0.3529	0.0007	0.0080	0.0007	0.0022
Tractor Trailer Trucks	0.0144	1.2925	1.2224	0.0006	0.0220	0.0006	0.0062	0.0026	0.2359	0.2231	0.0001	0.0040	0.0001	0.0011
Total	1.00	21.53	4.39	0.03	0.53	0.02	0.14	0.18	3.93	0.80	0.00	0.10	0.00	0.02

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups	0.7703	11.6917	1.0261	0.0167	0.3865	0.0154	0.0962	0.1406	2.1337	0.1873	0.0031	0.0705	0.0028	0.0179
Vans	0.1241	2.2781	0.2115	0.0040	0.0765	0.0037	0.0201	0.0226	0.4158	0.0386	0.0007	0.0140	0.0007	0.0037
Sinele Unit Trucks - Idling	0.0765	6.0441	1.2737	0.0026	0.0000	0.0028	0.0000	0.0140	1.1030	0.2325	0.0005	0.0000	0.0005	0.0000
Single Unit Trucks	0.0161	0.2189	0.6601	0.0011	0.0438	0.0011	0.0119	0.0029	0.0399	0.1205	0.0002	0.0080	0.0002	0.0022
Tractor Trailer Trucks - Idling	0.0088	0.3786	0.1223	0.0002	0.0000	0.0002	0.0000	0.0016	0.0691	0.0223	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks	0.0056	0.9139	1.1001	0.0005	0.0220	0.0004	0.0062	0.0010	0.1668	0.2008	0.0001	0.0040	0.0001	0.0011
Total	1.00	21.53	4.39	0.03	0.53	0.02	0.14	0.18	3.93	0.80	0.00	0.10	0.00	0.02

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)						Emissions (tons/year)						
Vehicle Category	**Starts/Day[1]**	**5pmh VMT/Day[2]**	**10pmh VMT/Day[2]**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups - 5mph	2543	184.15		0.7023	9.4976	0.9031	0.0060	0.0484	0.0055	0.0123	0.1282	1.7333	0.1648	0.0011	0.0088	0.0010	0.0022
Autos/Pickups - 10mph			1287.80	0.0680	2.1961	0.1230	0.0108	0.1082	0.0099	0.0859	0.0124	0.4004	0.0225	0.0020	0.0617	0.0018	0.0157
Vans - 5mph	448	67.54		0.1069	1.7697	0.1772	0.0016	0.0196	0.0015	0.0051	0.0195	0.3230	0.0323	0.0003	0.0036	0.0003	0.0009
Vans - 10mph			196.71	0.0171	0.5084	0.0343	0.0023	0.0570	0.0021	0.0150	0.0031	0.0928	0.0063	0.0004	0.0104	0.0004	0.0027
Single Unit Trucks - Idling				0.0765	6.0441	1.2737	0.0026	0.0000	0.0028	0.0000	0.0140	1.1030	0.2325	0.0005	0.0000	0.0005	0.0000
Single Unit Trucks - 5mph	281	37.93		0.0101	0.1519	0.4267	0.0004	0.0130	0.0003	0.0035	0.0018	0.0277	0.0779	0.0001	0.0024	0.0001	0.0006
Single Unit Trucks - 10mph			90.08	0.0060	0.0670	0.2334	0.0008	0.0308	0.0007	0.0084	0.0011	0.0122	0.0426	0.0001	0.0056	0.0001	0.0015
Tractor Trailer Trucks - Idling				0.0088	0.3786	0.1223	0.0002	0.0000	0.0002	0.0000	0.0016	0.0691	0.0223	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks - 5mph	91	12.86		0.0016	0.2555	0.6799	0.0001	0.0061	0.0001	0.0017	0.0003	0.0466	0.1241	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.14	0.0040	0.6584	0.4202	0.0003	0.0158	0.0003	0.0045	0.0007	0.1202	0.0767	0.0001	0.0029	0.0001	0.0008
Total	3363	302.48	1607.74	1.00	21.53	4.39	0.03	0.53	0.02	0.14	0.18	3.93	0.80	0.00	0.10	0.00	0.02

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

Operational Days Per Year:

		Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
Vehicle Category	**Speed Bin**	**ROG RunEx**	**ROG StrEx**	**CO RunEx**	**CO StrEx**	**NOx RunEx**	**NOx StrEx**	**PM_{10} RunEx**	**PM10 StrEx**	**$PM_{2.5}$ BW, TW, roadway dust**	**$PM_{2.5}$ RunEx**	**PM2.5 StrEx**	**PM_{10} BW, TW, roadway dust**
Autos/Pickups	365												
Vans	365												
Single Unit Trucks	365												
Tractor Trailer Trucks	365												
		Autos/Pickups	5	0.029653049	0.12312705	0.676172538	1.645121245	0.040015802	0.158183357	0.004727251	0.000719579	0.119104375	0.004349256	0.000661626	0.090259105
		Autos/Pickups	10	0.023951976	0.12312705	0.772812712	1.645121245	0.04333483	0.158183357	0.003791868	0.000719579	0.119104375	0.003489068	0.000661626	0.090259105
		Vans	5	0.054791572	0.099403774	1.24039504	1.604810657	0.088567751	0.166091895	0.008084607	0.000445465	0.131156483	0.0074378	0.000409588	0.03452837
		Vans	10	0.039499645	0.099403774	1.172414351	1.604810657	0.079057831	0.166091895	0.005371288	0.000445465	0.131156483	0.004942254	0.000409588	0.03452837
		Single Unit Trucks	5	0.033317574	0.011836185	0.351476568	0.197697055	1.333195299	0.508805149	0.004188334	3.350E-05	0.155183334	0.003952729	3.08094E-05	0.042113746
		Single Unit Trucks	10	0.030168346	0.011836185	0.337171767	0.197697055	1.175116485	0.508805149	0.003800652	3.350E-05	0.155183334	0.003583198	3.08094E-05	0.042113746
		Tractor Trailer Trucks	5	0.055375293	0	9.010685385	0	5.751420196	2.576098519	0.004534009	0	0.216556573	0.004261253	0	0.061567374
		Tractor Trailer Trucks	10	0.055375293	0	9.010685385	0	5.751420196	2.576098519	0.004534009	0	0.216556573	0.004261253	0	0.061567374

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	**Number of Vehicle Trips per Day**	**Idling Duration per Day**	**ROG**	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Sinele Unit Trucks	562	0.033	34.70	2741.54	577.75	1.19	1.29
Tractor Trailer Trucks	182	0.033	4.01	171.75	55.47	0.08	0.09
Total			38.70	2913.28	633.22	1.27	1.37

Emissions for truck idling usine EMFAC 2011 idline emission rates onovided in e/hr-vehicle (https://www.arb.ca.eov/msei/emfac2011 idline emission rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	**Model Year**	**Fuel**	**ROG IDLEX**	**CO IDLEX**	**NOx IDLEX**	**PM10 IDLEX**	**PM2 5 IDLEX**
T6TS	Aeeregated	GAS	1.02243997	15.20959731	0.082814274	0	0
T6 instate small	Aeeregated	DSL	0.110829519	17.05769598	1.990934088	0.008213464	0.008080512
T7 Single	Aggregated	DSL	0.824475382	36.2087962	10.71749013	0.016427454	0.017754367
T7 tractor	Aeeregated	DSL	0.964040085	41.33248774	13.34999008	0.019458238	0.021043622

*Source: EMFAC 2017

				Emission Factors (g/vehicle/idle-hr)				
Vehicle Cateeory	**idle--hour factor**	**Trips per Floor**	**ROG IDLEX**	**CO IDLEX**	**NOx IDLEX**	**PM10 IDLEX**	**PM2 5 IDLEX**
T6TS	0.098	22.68448824	10.43306091	155.1999726	0.845247696	0	0
T6 instate small	0.098	174.3969572	1.130811415	174.0603998	40.71432763	0.083835555	0.090882892
T7 Sinele	0.79	40.91138379	0.140279872	21.59229035	5.050638086	0.010396752	0.011274974
Single Unit Truck Weighted Average			1.852081147	146.3453764	30.84082253	0.063119112	0.068662251
T7 tractor	1.48		0.660301428	28.30992311	9.143828821	0.013327581	0.014413469

*Source: For T6TS and T instate small. Table 4.4-9 EMFAC2017 Idle Hours for Selected Cateeories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.eov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf): for T7 Sinele and T7 Tractor. idle-hour factors uodated to EMFAC2021 documentation Table 4.4-2.5. as uodated data was orovided for EMFAC2021 for these vehicle cateeories.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Total Internal Buildine VMT Estimate

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.53	5.23	15.05	3.45	**63.25**
2nd	47.76	31.55	11.62	4.78	**88.71**
3rd	46.33	30.61	11.28	4.63	**92.85**
4th/Roof	30.52	0.15	0.05	0.08	**30.97**
Total	**164.16**	**67.54**	**37.98**	**13.08**	**809.46**

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	92.25	7.45	21.39	4.93	**287.14**
2nd	143.28	94.66	34.87	14.33	**378.55**
3rd	139.00	91.83	33.83	13.90	**665.64**
4th/Roof	949.26	2.78	0.86	0.98	**1007.74**
Total	**1307.80**	**198.71**	**90.98**	**34.14**	**0.05**

Total Daily Internal Building Vehicle Activity

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	80.60	63616.00	8422.30	24192.00	5555.20	**156037.18**
2nd	146.20	76965.67	50729.46	18765.04	7687.00	**149458.19**
3rd	146.20	74345.73	49269.08	18165.36	7457.00	**81648.36**
4th/Roof	25.00	49307.24	237.96	0.00	0.00	**499796.82**
Total		**867.80**	**588854.78**	**128999.86**	**81048.40**	**20699.20**	**871808.08**

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.50	96525.00	11985.00	34425.00	7905.00	**144840.00**
2nd	378.60	230397.01	152338.39	56115.12	23061.01	**468111.53**
3rd	378.60	229807.20	147780.23	54436.08	22270.00	**448894.57**
4th/Roof	681.00	1527998.68	4470.15	0.00	0.00	**1888188.98**
Total	**1565.70**	**2072827.96**	**816573.57**	**144979.20**	**53897.00**	**2867295.08**

	Total Daily Vehicle Activity (Trips) per Floor					
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	710	94	270	62	**1136**
2nd	699	462	168	91	**1353**
3rd	591	390	144	59	**1184**
4th/Roof	3188	50	0	0	**3185**
Total	**5088**	**996**	**582**	**182**	**6726**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramps Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	87.5	87.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	176.4	178	170.4	171.7	178.7	170.7

[1] Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

	Total Daily Vehicle Trips by Land Use and Vehicle Type				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3102	-	-	-	-
Visiting Workers Maker and Manufacturing	90	20	22	2	134
Visitine Workers Parcel and Last Mile Delivery	1,214	802	292	120	2428
Visiting Workers Wholesale and Storage	240	60	240	60	604
Iciting Workers General Retail / Café/Quick Service Restaurants	376	14	6	0	396
Total Vehicle Trips[2]	**5088**	**896**	**562**	**182**	6726

Source: Adavant ICW 2021, SF Gateway Final Travel Demand Memo - Adavant ICW 2021 12 10

	% Vehicle Activity Per Floor			
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
1st/Ground	14%	10%	48%	34%
2nd	12%	45%	26%	33%
3rd	12%	44%	26%	32%
4th/Roof	62%	1%	0%	0%
Total	100%	100%	100%	100%

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pickup P	355	305	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	tons
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total
PDR Uses					
Manufacturing & Maker Space	35,000	-	-	-	35000
Parcel Delivery /Last Mile	-	381,000	369,600	8,800	759400
Wholesale and Storage	372,400	-	-	-	372400
Retail	8,400	-	-	-	8400
Logistics Yard	-	72,400	73,400	-	145800
Vehicle Circulation	13,800	112,800	93,400	17,600	237600
Parking	111,800	-	-	487,600	599400
Total					2160000

Source: July 2019 Project Description - Table 3

Step 2 - Estimated % Use per Floor

Split Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Parcel Delivery /Last Mile	0.0%	50.17%	48.67%	1.2%	Utilize Level 2 and 3 Logistics Yard and Parking and small area of L4 parking (assume autos/pickups and vans only)
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Retail					
Retail Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitze Ground Level Logistics and Parking

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Vans	MT	HT	Source: Dec 10 2021 Traffic Demand Memo - Table 11 and asaw A-79 for worker trip data
PDR	4576	882	556	182	
On-site Worker	3030	0	0	0	
Visiting Worker	1546	882	556	182	
Manufacturing & Maker Space	90	20	22	2	
Parcel Delivery/Last Mile	1214	802	292	120	
Wholesale and Storage	240	60	240	60	
Retail/QSR	510	14	6	0	
On-site Worker	132	0	0	0	
Visiting Worker/Consumer	378	14	6	0	

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickups & vans)	206	504	491	1527
PDR Auto/Pickup	166	303	295	1522
PDR Van	40	201	195	5
PDR MT	132	74	72	0
PDR HT	30	30	30	0
Retail Auto	176	0	0	66
Retail Auto/Pickup	189	0	0	66
Retail Van	0	0	0	0
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	402	504	491	1593
Total Daily Auto /Pickup Per Level	355	305	295	1588
Total Daily Van Per Level	47	201	195	5
Total Daily MT Per Level	135	74	72	0
Total Daily HT Per Level	31	30	30	0

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**Starts/Day[1]**	**VMT/Day[2]**	**ROG**	**CO**	**NO_X**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_X**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups (visiting worker)	962	31676	0.5127	36.9479	1.6562	0.0412	8.3175	0.0379	2.1131	0.0936	6.7430	0.3023	0.0075	1.5179	0.0069	0.3856
Maker and Manufacturing	45	1800	0.0265	2.0645	0.0907	0.0023	0.4726	0.0021	0.1201	0.0048	0.3768	0.0166	0.0004	0.0863	0.0004	0.0219
Parcel and Last Mile Delivery	607	24280	0.3576	27.8481	1.2240	0.0314	6.3754	0.0289	1.6197	0.0653	5.0823	0.2234	0.0057	1.1635	0.0053	0.2956
Wholesale and Storage	121	4840	0.0713	5.5513	0.2440	0.0063	1.2709	0.0058	0.3229	0.0130	1.0131	0.0445	0.0011	0.2319	0.0011	0.0589
General Retail / Café/Quick Service Restaurants[3]	189	756	0.0573	1.4840	0.0974	0.0012	0.1985	0.0011	0.0504	0.0105	0.2708	0.0178	0.0002	0.0362	0.0002	0.0092
												0.0000				
Vans	448	26880	0.5875	31.6919	1.8785	0.0841	7.7842	0.0793	2.0462	0.1072	5.7838	0.3428	0.0154	1.4206	0.0145	0.3734
Maker and Manufacturing	10	600	0.0131	0.7074	0.0419	0.0019	0.1738	0.0018	0.0457	0.0024	0.1291	0.0077	0.0003	0.0317	0.0003	0.0083
Parcel and Last Mile Delivery	401	24060	0.5258	28.3671	1.6814	0.0753	6.9676	0.0710	1.8315	0.0960	5.1770	0.3069	0.0137	1.2716	0.0130	0.3342
Wholesale and Storage	30	1800	0.0393	2.1222	0.1258	0.0056	0.5213	0.0053	0.1370	0.0072	0.3873	0.0230	0.0010	0.0951	0.0010	0.0250
General Retail / Café/Quick Service Restaurants[3]	7	420	0.0092	0.4952	0.0294	0.0013	0.1216	0.0012	0.0320	0.0017	0.0904	0.0054	0.0002	0.0222	0.0002	0.0058
										0.0000		0.0000				
Single Unit Trucks	281	22480	0.1562	2.9264	8.1455	0.0972	7.6909	0.0928	2.0872	0.0285	0.5341	1.4865	0.0177	1.4036	0.0169	0.3809
Maker and Manufacturing	11	880	0.0061	0.1146	0.3189	0.0038	0.3011	0.0036	0.0817	0.0011	0.0209	0.0582	0.0007	0.0549	0.0007	0.0149
Parcel and Last Mile Delivery	146	11680	0.0812	1.5205	4.2322	0.0505	3.9960	0.0482	1.0844	0.0148	0.2775	0.7724	0.0092	0.7293	0.0088	0.1979
Wholesale and Storage	121	9680	0.0673	1.2601	3.5075	0.0418	3.3117	0.0400	0.8987	0.0123	0.2300	0.6401	0.0076	0.6044	0.0073	0.1640
General Retail / Café/Quick Service Restaurants[3]	3	240	0.0017	0.0312	0.0870	0.0010	0.0821	0.0010	0.0223	0.0003	0.0057	0.0159	0.0002	0.0150	0.0002	0.0041
												0.0000				
Tractor Trailer Trucks	91	11830	0.2266	7.6612	24.0378	0.4344	5.6479	0.4154	1.6057	0.0414	1.3982	4.3869	0.0793	1.0307	0.0758	0.2930
Maker and Manufacturing	1	130	0.0025	0.0842	0.2642	0.0048	0.0621	0.0046	0.0176	0.0005	0.0154	0.0482	0.0009	0.0113	0.0008	0.0032
Parcel and Last Mile Delivery	60	7800	0.1494	5.0514	15.8491	0.2864	3.7239	0.2739	1.0587	0.0273	0.9219	2.8925	0.0523	0.6796	0.0500	0.1932
Wholesale and Storage	30	3900	0.0747	2.5257	7.9245	0.1432	1.8620	0.1370	0.5294	0.0136	0.4609	1.4462	0.0261	0.3398	0.0250	0.0966
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Total	1782	92866	1.4829	79.2274	35.7180	0.6569	29.4405	0.6255	7.8521	0.2706	14.4590	6.5185	0.1199	5.3729	0.1141	1.4330

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
Operational Days Per Year:		**Vehicle Category**	**ROG RunEx**	**ROG StrEx**	**CO RunEx**	**CO StrEx**	**NOx RunEx**	**NOx StrEx**	**PM_{10} RunEx**	**PM10 StrEx**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ RunEx**	**PM2.5 StrEx**	**$PM_{2.5}$ BW, TW, roadway dust**
Autos/Pickups (visiting worker)	365	Autos/Pickups (visiting worker)	0.003602119	0.12312735	0.479122144	1.645121245	0.018912761	0.158183357	0.000568669	0.000719579	0.119104375	0.000523095	0.000661626	0.03025911
Vans	365	Vans	0.008256376	0.099403774	0.508044986	1.604810657	0.028931285	0.166091895	0.001412392	0.000445465	0.131356483	0.001330981	0.000409588	0.03452837
Single Unit Trucks	365	Single Unit Trucks	0.003003619	0.011836185	0.056575977	0.197697055	0.157995796	0.508805149	0.001960474	3.3508E-05	0.155183334	0.001872166	3.08094E-05	0.04211375
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.008688109	0	0.293751192	0	0.901853454	2.576098519	0.016654916	0	0.216556573	0.01592914	0	0.06156737

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I. **Net Visitor VMT by Vehicle Type and Land Use[1]**

Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	24280	24060	11680	7800	**67,820**
Wholesale and Storage	4840	1800	9680	3900	**20,220**
General Retail / Café/Quick Service Restaurants[2]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**31676**	**26880**	**22480**	**11830**	**92,866**

Table II. **Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[3]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	90	20	22	2	134
Parcel and Last Mile Delivery	1,214	802	292	120	2428
Wholesale and Storage	242	60	242	60	604
General Retail / Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[4]	**1924**	**896**	**562**	**182**	3564

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III. **Total Daily Auto/Pickup Vehicle Trips by Land Use[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	178
Parcel and Last Mile Delivery	3354
Wholesale and Storage	1,044
General Retail	156
Quick Service Restaurant	354
Total Vehicle Trips[3]	**5086**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[3]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V. **Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]**

Parcel & Last Mile Delivery Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
	20	30	40	65

Notes:
1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Mobile Trip Data (per Adavant December 10, 2021, Trip Generation Memorandum)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	3354	0	802	292	120	4568
Wholesale and Storage	1044	0	60	242	60	1406
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5086	0	896	562	182	6726
% of Total Trips	76%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		40	840	300	1180	75	1105	15
SD2	6		48	1308	504	1860	126	1734	21
SD3	2		44	1016	384	1444	96	1348	48
SD4	7		42	1176	434	1652	108	1544	15
East Bay	28		337	8134	3029	11500	755	10745	27
North Bay	28		166	3496	1332	4994	332	4662	12
South Bay	22		518	13217	4967	18702	1239	17463	56
Out of Region	65		129	3229	1162	4520	290	4230	4
			1324	32416	12112	45852	3021	42831	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-9105	4840	-2465	4000	-6465	200	24280	30920
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-6015	1800	-3615	4610	-8225	154	24060	26460
SU Trucks	40	-7.5	880	-2190	9680	8370	5293	3077	132	11680	22240
Tractor Trailers	65	7.5	130	900	3900	4930	888	4042	14	7800	11830
Total Non-Commuter VMT	N/A	N/A	3410	-16410	20220	7220	16127	-8291		67820	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	88	2140	802	0	26	106	0	0	3162
Non-work	134	2428	604	0	132	266	0	0	3564
Total	222	4568	1406	0	158	372	0	0	6726

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e. Miscellaneous Process Methodology 7.9. Entrained Road Travel, Paved Road Dust. Available: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

SFG Operational Emission Factors in Year 2025

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.
Average Fleet Mix for Autos/Pickups and Vans; Model Year 2016+ for SU and TT Trucks

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Autos / Pickups (Average Fleet Mix in 2050)																																					
LDA	Gasoline	1.28E+05	4.73E+06	53.74%	6.00E+05	0.518280965	3.50E-03	0.00E+00	1.17E-01	5.03E-01	0.00E+00	1.63E+00	2.03E-02	0.00E+00	1.57E-01	6.28E-04	0.00E+00	7.75E-04	8.00E-03	9.28E-03	5.78E-04	0.00E+00	7.13E-04	2.00E-03	3.25E-03	3.24E-02	1.26E-01	7.63E-01	5.10E-03	0.00E+00	1.28E-01	3.24E-02	1.26E-01	7.63E-01	4.20E-02	2.35E-03	0.00E+00	5.26E-04
LDA	Diesel	8.14E+01	2.75E+03	0.03%	3.68E+02	0.000318042	6.87E-03	0.00E+00	0.00E+00	2.21E-01	0.00E+00	0.00E+00	1.17E-02	0.00E+00	0.00E+00	9.70E-04	0.00E+00	0.00E+00	8.00E-03	9.29E-03	9.28E-04	0.00E+00	0.00E+00	2.00E-03	3.25E-03	0.00E+00	0.00E+00	7.82E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	1.87E-03	0.00E+00	0.00E+00
LDA	Electricity	1.79E+04	7.19E+05	8.16%	8.45E+04	0.07301975	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.39E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDA	Plug-in Hybr	6.03E+03	2.27E+05	2.58%	2.49E+04	0.021548003	1.62E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.56E-04	0.00E+00	8.09E-04	8.00E-03	4.31E-03	2.36E-04	0.00E+00	7.44E-04	2.00E-03	1.51E-03	3.61E-02	6.96E-02	7.42E-01	2.36E-03	0.00E+00	1.92E-01	3.61E-02	6.96E-02	7.42E-01	1.71E-02	1.30E-03	0.00E+00	5.48E-04
LDT1	Gasoline	9.70E+03	3.03E+05	3.43%	4.41E+04	0.038099184	3.87E-03	0.00E+00	1.27E-01	5.47E-01	0.00E+00	1.72E+00	2.22E-02	0.00E+00	1.75E-01	6.64E-04	0.00E+00	8.39E-04	8.00E-03	1.17E-02	6.10E-04	0.00E+00	7.71E-04	2.00E-03	4.11E-03	4.64E-02	2.07E-01	1.24E+00	5.64E-03	0.00E+00	1.39E-01	4.64E-02	2.07E-01	1.24E+00	4.18E-02	2.71E-03	0.00E+00	6.12E-04
LDT1	Diesel	1.13E-01	3.64E+00	0.00%	5.21E-01	4.49811E-07	2.23E-02	0.00E+00	0.00E+00	2.35E-01	0.00E+00	0.00E+00	3.71E-02	0.00E+00	0.00E+00	4.98E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	4.76E-03	0.00E+00	0.00E+00	2.00E-03	4.10E-03	0.00E+00	0.00E+00	2.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	3.50E-03	0.00E+00	0.00E+00
LDT1	Electricity	3.07E+02	1.19E+04	0.13%	1.43E+03	0.001236262	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	Plug-in Hybr	2.33E+02	7.72E+03	0.09%	9.63E+02	0.000832412	1.61E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.55E-04	0.00E+00	7.93E-04	8.00E-03	4.32E-03	2.35E-04	0.00E+00	7.29E-04	2.00E-03	1.51E-03	3.87E-02	8.04E-02	8.66E-01	2.36E-03	0.00E+00	1.92E-01	3.87E-02	8.04E-02	8.66E-01	1.71E-02	1.29E-03	0.00E+00	6.29E-04
LDT2	Gasoline	8.12E+04	2.63E+06	29.86%	3.75E+05	0.324009379	5.05E-03	0.00E+00	1.61E-01	6.11E-01	0.00E+00	2.13E+00	2.37E-02	0.00E+00	2.05E-01	6.47E-04	0.00E+00	8.06E-04	8.00E-03	1.17E-02	5.95E-04	0.00E+00	7.41E-04	2.00E-03	4.08E-03	3.87E-02	1.67E-01	1.00E+00	7.36E-03	0.00E+00	1.76E-01	3.87E-02	1.67E-01	1.00E+00	4.19E-02	2.82E-03	0.00E+00	6.46E-04
LDT2	Diesel	3.16E+02	1.02E+04	0.12%	1.45E+03	0.00125616	2.23E-02	0.00E+00	0.00E+00	2.34E-01	0.00E+00	0.00E+00	3.72E-02	0.00E+00	0.00E+00	4.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	4.74E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03	0.00E+00	0.00E+00	2.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	2.60E-03	0.00E+00	0.00E+00
LDT2	Electricity	3.31E+03	8.97E+04	1.02%	1.55E+04	0.013380318	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	Plug-in Hybr	2.24E+03	7.38E+04	0.84%	9.28E+03	0.008019074	1.62E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.58E-04	0.00E+00	8.06E-04	8.00E-03	4.32E-03	2.37E-04	0.00E+00	7.41E-04	2.00E-03	1.51E-03	3.82E-02	7.90E-02	8.41E-01	2.36E-03	0.00E+00	1.92E-01	3.82E-02	7.90E-02	8.41E-01	1.71E-02	1.30E-03	0.00E+00	6.61E-04
		Total:	8,811,066	100.00%	1,157,485	100.00%																																
				Weighted Average Emission Factors*:			0.00360		0.12313	0.47912		1.64512	0.01891		0.15818	0.00057		0.00072	0.00800	0.00945	0.00052		0.00066	0.00200	0.00331														
Vans (Average Fleet Mix in 2050)																																						
LHD1	Gasoline	3.22E+03	1.15E+05	0.051265275	4.80E+04	0.118398122	3.70E-03	2.75E-01	8.20E-02	5.95E-01	3.78E+00	3.36E+00	1.40E-02	2.40E-02	3.91E-01	1.26E-03	0.00E+00	9.64E-05	8.00E-03	7.80E-02	1.16E-03	0.00E+00	8.86E-05	2.00E-03	2.73E-02	1.96E-02	2.00E-01	2.15E+00	5.40E-03	4.01E-01	8.98E-02	1.96E-02	2.00E-01	2.15E+00	4.50E-02	7.35E-03	1.06E-03	2.32E-04
LHD1	Diesel	2.01E+03	7.21E+04	0.032175249	2.53E+04	0.062391261	8.25E-02	1.10E-01	0.00E+00	2.03E-01	9.10E-01	0.00E+00	1.91E-01	8.24E-01	0.00E+00	1.68E-02	2.76E-02	0.00E+00	1.20E-02	7.80E-02	1.61E-02	2.64E-02	0.00E+00	3.00E-03	2.73E-02	0.00E+00	0.00E+00	0.00E+00	9.39E-02	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-01	5.67E-03	1.07E-03	0.00E+00
LHD1	Electricity	4.44E+03	1.85E+05	0.082503498	6.22E+04	0.153501111	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHD2	Gasoline	3.78E+02	1.31E+04	0.005868531	5.63E+03	0.013879064	3.33E-03	2.31E-01	6.91E-02	6.01E-01	3.78E+00	3.38E+00	1.84E-02	2.01E-02	3.24E-01	1.27E-03	0.00E+00	9.74E-05	8.00E-03	9.10E-02	1.17E-03	0.00E+00	8.96E-05	2.00E-03	3.19E-02	1.96E-02	2.08E-01	2.25E+00	4.86E-03	3.37E-01	7.57E-02	1.96E-02	2.08E-01	2.25E+00	4.50E-02	8.28E-03	1.21E-03	2.28E-04
LHD2	Diesel	1.01E+03	3.42E+04	0.015257451	1.27E+04	0.031405297	9.94E-02	1.10E-01	0.00E+00	2.49E-01	9.10E-01	0.00E+00	2.63E-01	9.34E-01	0.00E+00	2.08E-02	2.76E-02	0.00E+00	1.20E-02	9.10E-02	1.99E-02	2.64E-02	0.00E+00	3.00E-03	3.19E-02	0.00E+00	0.00E+00	0.00E+00	1.13E-01	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-01	6.63E-03	1.76E-03	0.00E+00
LHD2	Electricity	1.11E+03	4.48E+04	0.019997752	1.47E+04	0.0362904	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	Gasoline	4.65E+04	1.63E+06	0.726246317	2.14E+05	0.528682843	5.21E-03	0.00E+00	1.63E-01	6.29E-01	0.00E+00	2.16E+00	2.45E-02	0.00E+00	2.15E-01	6.43E-04	0.00E+00	7.96E-04	8.00E-03	1.18E-02	5.91E-04	0.00E+00	7.32E-04	2.00E-03	4.15E-03	3.90E-02	1.76E-01	1.04E+00	7.60E-03	0.00E+00	1.78E-01	3.90E-02	1.76E-01	1.04E+00	4.19E-02	3.42E-03	0.00E+00	7.82E-04
MDV	Diesel	5.15E+02	1.77E+04	0.007883726	2.35E+03	0.005797611	7.55E-03	0.00E+00	0.00E+00	2.49E-01	0.00E+00	0.00E+00	1.18E-02	0.00E+00	0.00E+00	9.91E-04	0.00E+00	0.00E+00	8.00E-03	1.19E-02	9.48E-04	0.00E+00	0.00E+00	2.00E-03	4.15E-03	0.00E+00	0.00E+00	0.00E+00	8.59E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-03	3.35E-03	0.00E+00	0.00E+00
MDV	Electricity	3.05E+03	8.14E+04	0.036356116	1.42E+04	0.035040875	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	Plug-in Hybr	1.43E+03	5.03E+04	0.022446084	5.92E+03	0.014613416	1.62E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.58E-04	0.00E+00	8.09E-04	8.00E-03	4.32E-03	2.37E-04	0.00E+00	7.44E-04	2.00E-03	1.51E-03	4.00E-02	8.66E-02	9.18E-01	2.36E-03	0.00E+00	1.92E-01	4.00E-02	8.66E-02	9.18E-01	1.71E-02	1.30E-03	0.00E+00	8.03E-04
		Total:	2,239,769	100.00%	405,377	100.00%																																
				Weighted Average Emission Factors*:			0.00826		0.09940	0.50804		1.60481	0.02893		0.16609	0.00141		0.00045	0.00819	0.02151	0.00133		0.00041	0.00205	0.00753														

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Single Unit Trucks (2016+ Model Year)																																						
T6TS	Electricity	0.2674676	4.9029324	2.61889E-05	5.351490953	8.92736E-05	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	0.3679919	7.35241648	3.92728E-05	7.362781759	0.000122826	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	0.4912567	10.6797267	5.70456E-05	9.829064914	0.000163968	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	0.8565147	20.2225282	0.000108018	17.13714519	0.000285882	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	1.458199	37.3074812	0.000199277	29.17564483	0.000486708	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	2.2284398	61.6606775	0.000329359	44.5866241	0.000743794	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	3.1565192	94.1823535	0.000503073	63.15563599	0.001053562	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	3.8921855	124.97285	0.00066754	77.87484759	0.001299108	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	4.775914	164.571284	0.000879054	95.55648716	0.001594073	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	5.7544634	212.389658	0.001134475	115.1353041	0.001920687	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	6.6991055	264.147765	0.00141094	134.0357029	0.002235983	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	7.8133483	328.511621	0.001754739	156.3294727	0.002607888	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	8.4028313	375.837627	0.00200753	168.1238478	0.002804642	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	9.0243195	428.456952	0.002288595	180.558584	0.003012078	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	9.5665507	481.198508	0.002570313	191.4075459	0.00319306	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	10.052888	534.642533	0.002855783	201.1381743	0.003355386	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	10.490015	588.844568	0.003145302	209.8842183	0.003501288	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	11.003419	650.605436	0.003475197	220.1564032	0.003672649	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	11.473357	713.437813	0.003810815	229.5589282	0.003829501	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	11.628816	759.207831	0.004055295	232.6693544	0.00388139	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	11.913412	815.371525	0.004355292	238.3635438	0.00397638	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	12.261182	878.160903	0.00469068	245.3217312	0.004092456	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	12.857739	962.415258	0.005140723	257.2576421	0.004291571	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	13.402921	1046.9432	0.005592228	268.1656406	0.004473539	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	14.103909	1148.16066	0.006132879	282.1910046	0.00470751	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	14.441495	1223.68078	0.006536268	288.9454357	0.004820187	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Electricity	12.931361	1138.8752	0.006083281	258.7306801	0.004316145	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02250872	0	0	0	0.003000001	0.007878052	0	0	0	0	0	0	0	0	0	0	0	0	0
T6TS	Gasoline	1.3603698	13.0985425	6.99656E-05	27.21827992	0.000454055	0	1.028580008	0.17834692	0.1804093	15.30093521	3.503310215	0	0.08955589	0.50675928	0.001306415	0	0.000449664	0.012000003	0.04501744	0.0012012	0	0.000413449	0.003000001	0.015756104	0.041027	0.536376	5.687938	0	1.500902	0.195267	0.041027	0.536376	5.687938	0.045	0.018205	0.005312	0.000422
T6TS	Gasoline	4.8794542	49.9844802	0.000266991	97.62811999	0.001628632	0.001389594	1.028580008	0.19818038	0.0943908	15.30093521	2.984995374	0.206649653	0.08955589	0	0.001403701	0	0.000484921	0.012000003	0.04501744	0.001290651	0	0.000445867	0.003000001	0.015756104	0.041027	0.536376	5.687938	0.002028	1.500902	0.216983	0.041027	0.536376	5.687938	0.045	0.017516	0.005122	0.0004
T6TS	Gasoline	3.4582225	38.0478559	0.000203232	69.1921166	0.001154263	0.022561387	1.028580008	0.20086187	0.1476713	15.30093521	3.540956962	0.15900992	0.08955589	0	0.001462073	0	0.000506075	0.012000003	0.04501744	0.001344322	0	0.000465317	0.003000001	0.015756104	0.035915	0.536038	5.641109	0.032922	1.500902	0.219918	0.035915	0.536038	5.641109	0.045	0.017518	0.005122	0.000409
T6TS	Gasoline	1.2260559	14.5943422	7.79554E-05	24.53092744	0.000409225	0.013599134	1.028580008	0.20274444	0.0953653	15.30093521	3.299411834	0.11350824	0.08955589	0.78612687	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.035915	0.536038	5.641109	0.019844	1.500902	0.22198	0.035915	0.536038	5.641109	0.045	0.017516	0.005122	0.000406
T6TS	Gasoline	1.6462579	21.2920375	0.000113731	32.9383287	0.000549477	0.013121709	1.028580008	0.24162675	0.101167	15.30093521	3.594829221	0.170449255	0.08955589	0.81157989	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.030809	0.53572	5.597207	0.019147	1.500902	0.264551	0.030809	0.53572	5.597207	0.045	0.017516	0.005122	0.000411
T6TS	Gasoline	2.23344	31.4746878	0.000168121	44.68666752	0.000745463	0.007308167	1.028580008	0.23345289	0.1340212	15.30093521	3.470918478	0.169825555	0.08955589	1.22787247	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.030809	0.53572	5.597207	0.010664	1.500902	0.255602	0.030809	0.53572	5.597207	0.045	0.015842	0.004659	0.000376
T6TS	Gasoline	2.9561525	45.4659437	0.000242856	59.14669931	0.000986685	0.019417992	1.028580008	0.22780456	0.1437009	15.30093521	3.537388115	0.163513214	0.08955589	0.77547611	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.028335	1.500902	0.249417	0.025703	0.535403	5.510248	0.045	0.015843	0.004659	0.000377
T6TS	Gasoline	3.3316791	55.9605748	0.000298912	66.66023464	0.001112026	0.027116506	1.028580008	0.1557189	0.1292821	15.30093521	3.119170725	0.166460006	0.08955589	0.58450431	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.039568	1.500902	0.170493	0.025703	0.535403	5.510248	0.045	0.015843	0.004659	0.000368
T6TS	Gasoline	3.5673556	65.3929901	0.000349295	71.37565156	0.001190688	0.001537754	1.028580008	0.23327751	0.2165826	15.30093521	3.227143083	0.167684546	0.08955589	0.45291337	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.002244	1.500902	0.25541	0.025703	0.535403	5.510248	0.045	0.015553	0.004579	0.000367
T6TS	Gasoline	3.9488118	78.8966003	0.000421425	79.00782705	0.001318008	0.020701171	1.028580008	0.21471515	0.2539739	15.30093521	3.256690283	0.133403401	0.04453936	0.36347513	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.030207	1.500902	0.235086	0.025703	0.535403	5.510248	0.045	0.01555	0.004578	0.000366
T6TS	Gasoline	4.3849478	95.3270246	0.000509188	87.73403464	0.001463579	0	1.028580008	0.20936134	0.221873	15.30093521	3.089985463	0.129132876	0.04479251	0.5599463	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0	1.500902	0.229224	0.025703	0.535403	5.510248	0.045	0.015543	0.004577	0.000363
T6TS	Gasoline	4.669621	110.250936	0.000588903	93.4297766	0.001558595	0.00377723	1.028580008	0.18058609	0.19611	15.30093521	4.12602882	0.128548666	0.04575166	0.29037192	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.005512	1.500902	0.197719	0.025703	0.535403	5.510248	0.045	0.015383	0.004532	0.000376
T6TS	Gasoline	4.8138908	123.161617	0.000657866	96.31632808	0.001606749	0.005141378	1.028580008	0.2047745	0.2367977	15.30093521	3.701342363	0.067332706	0.03680738	0.02991198	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.007502	1.500902	0.224202	0.025703	0.535403	5.510248	0.045	0.015338	0.00452	0.000369
T6TS	Gasoline	4.960381	137.25318	0.000733135	99.24730287	0.001655643	0.013402417	1.028580008	0.19952411	0.1839498	15.30093521	3.450584139	0.070465175	0.03926492	0.36079577	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.019557	1.500902	0.218454	0.025703	0.535403	5.510248	0.045	0.01528	0.004504	0.000363
T6TS	Gasoline	4.9896827	148.879202	0.000795236	99.83357105	0.001665423	0.015389088	1.028580008	0.17470731	0.1936759	15.30093521	3.800542175	0.076848688	0.04234432	0.32838057	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.025703	0.535403	5.510248	0.022456	1.500902	0.191283	0.025703	0.535403	5.510248	0.045	0.015209	0.004484	0.000367
T6TS	Gasoline	5.2394292	168.231037	0.000898603	104.8304998	0.001748782	0.001985935	1.028580008	0.20472625	0.2054897	15.30093521	3.969017296	0.076478213	0.04419597	0.40752073	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.0121	0.186098	1.834243	0.002898	1.500902	0.224149	0.0121	0.186098	1.834243	0.045	0.015166	0.004472	0.00037
T6TS	Gasoline	5.4953049	189.360484	0.001011466	109.9500606	0.001834187	0.002949147	1.028580008	0.19540608	0.2368862	15.30093521	3.834815652	0.079013245	0.04631582	0	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.0121	0.186098	1.834243	0.004303	1.500902	0.213945	0.0121	0.186098	1.834243	0.045	0.015118	0.004459	0.000366
T6TS	Gasoline	5.6692741	209.245432	0.001117681	113.4308359	0.001892253	0.022268349	1.028580008	0.19015227	0.2136771	15.30093521	3.562910938	0.080063905	0.04876671	0.27957027	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.0121	0.186098	1.834243	0.032494	1.500902	0.208193	0.0121	0.186098	1.834243	0.045	0.015062	0.004443	0.000361
T6TS	Gasoline	5.6500004	222.781233	0.001189982	113.0452084	0.00188582	0.003311038	1.028580008	0.18294952	0.1647723	15.30093521	2.94890464	0.080440599	0.05163274	0.1491385	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.0121	0.186098	1.834243	0.004831	1.500902	0.200307	0.0121	0.186098	1.834243	0.045	0.014994	0.004425	0.000349
T6TS	Gasoline	5.6295421	236.693661	0.001264295	112.6358793	0.001878991	0	1.028580008	0.18263869	0.1748187	15.30093521	3.743786742	0.082767499	0.05502914	0.27935524	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.0121	0.186098	1.834243	0	1.500902	0.199966	0.0121	0.186098	1.834243	0.045	0.014915	0.004403	0.00036
T6TS	Gasoline	6.0542665	270.792198	0.001446432	121.1337638	0.002020753	0.01388215	1.028580008	0.19256614	0.2307649	15.30093521	3.22633619	0.078359718	0.05502914	0.2616717	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.007077	0.074933	0.67926	0.020257	1.500902	0.210836	0.007077	0.074933	0.67926	0.045	0.014917	0.004403	0.000353
T6TS	Gasoline	6.5020507	308.704588	0.00164894	130.0930305	0.002170212	0.005066179	1.028580008	0.17615655	0.2006398	15.30093521	3.307747514	0.075705487	0.05502914	0.2228673	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.007077	0.074933	0.67926	0.007393	1.500902	0.192869	0.007077	0.074933	0.67926	0.045	0.014916	0.004403	0.000353
T6TS	Gasoline	6.89273	346.705046	0.001851919	137.9097419	0.00230061	0.009562324	1.028580008	0.18849256	0.1650562	15.30093521	3.337712872	0.070573262	0.05502914	0.25595632	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.007077	0.074933	0.67926	0.013953	1.500902	0.206376	0.007077	0.074933	0.67926	0.045	0.014915	0.004403	0.000354
T6TS	Gasoline	7.2431373	385.211635	0.002057601	144.9206904	0.002417567	0.013334577	1.028580008	0.19815071	0.164915	15.30093521	3.386370506	0.067029939	0.05502914	0.10239279	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.007077	0.074933	0.67926	0.019458	1.500902	0.21695	0.007077	0.074933	0.67926	0.045	0.014916	0.004403	0.000355
T6TS	Gasoline	7.5580889	424.264372	0.0022662	151.2222427	0.002522689	0.00066245	1.028580008	0.14789214	0.3105769	15.30093521	3.347157699	0.064200864	0.05502914	1.33444321	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.007077	0.074933	0.67926	0.000967	1.500902	0.161923	0.007077	0.074933	0.67926	0.045	0.014917	0.004403	0.000353
T6TS	Gasoline	7.927998	468.763273	0.00250389	158.6233844	0.002646155	0.011914795	1.028580008	0.22917362	0.0836056	15.30093521	3.911300226	0.060111944	0.05502914	0	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004913	0.03954	0.30493	0.017386	1.500902	0.250916	0.004913	0.03954	0.30493	0.045	0.014914	0.004403	0.000364
T6TS	Gasoline	8.26659	514.0342	0.002745704	165.3979334	0.002759168	0.047558646	1.028580008	0.1730057	0.0986511	15.30093521	3.482650323	0.057272225	0.05502914	0	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004913	0.03954	0.30493	0.069397	1.500902	0.189419	0.004913	0.03954	0.30493	0.045	0.014916	0.004403	0.000356
T6TS	Gasoline	8.3785988	547.011642	0.002921853	167.6390054	0.002796553	0.032607192	1.028580008	0.16946587	0.0901102	15.30093521	3.29832887	0.054121898	0.05502914	2.16751502	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004327	0.03954	0.299945	0.04758	1.500902	0.185544	0.004327	0.03954	0.299945	0.045	0.014915	0.004403	0.000353
T6TS	Gasoline	8.5153299	582.801772	0.003113025	170.3747204	0.002842191	0.000437943	1.028580008	0.25108551	0.1314198	15.30093521	3.27902648	0.050909301	0.05475212	3.19364027	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004327	0.03954	0.299945	0.000639	1.500902	0.274907	0.004327	0.03954	0.299945	0.045	0.014921	0.004405	0.000355
T6TS	Gasoline	8.45806	605.776636	0.003235745	169.2288652	0.002823075	0.009680432	1.028580008	0.16224817	0.1527567	15.30093521	3.287545034	0.047828184	0.05349361	0.2196952	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.003591	0.03954	0.29496	0.014126	1.500902	0.177641	0.003591	0.03954	0.29496	0.045	0.014951	0.004413	0.000353
T6TS	Gasoline	8.3753822	626.906144	0.003348608	167.5746462	0.00279548	0.01037492	1.028580008	0.15264019	0.1553535	15.30093521	3.29015361	0.046348377	0.05136572	0.21105088	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.003591	0.03954	0.29496	0.015139	1.500902	0.167122	0.003591	0.03954	0.29496	0.045	0.015	0.004427	0.000354
T6TS	Gasoline	8.1109319	633.569733	0.003384201	162.2835251	0.002707213	0.010458957	1.028580008	0.14841895	0.1514886	15.30093521	3.290155041	0.046784582	0.04844846	0.1978436	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0.015262	1.500902	0.1625	0.004542	0.03954	0.287482	0.045	0.015067	0.004445	0.000355
T6TS	Gasoline	7.8444302	638.59363	0.003411036	156.9513601	0.002618262	0	1.028580008	0.18613667	0.1772437	15.30093521	0	0.049052327	0.04482889	0.23296778	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0	1.500902	0.203796	0.004542	0.03954	0.287482	0.045	0.015151	0.004468	0.000306
T6TS	Gasoline	7.344887	622.359181	0.00332432	146.9564998	0.002451528	0	1.028580008	0.1823626	0.1740488	15.30093521	0	0.050476408	0.04064352	0.21129266	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0	1.500902	0.199664	0.004542	0.03954	0.287482	0.045	0.015248	0.004495	0.000308
T6TS	Gasoline	6.021031	530.276944	0.002832465	120.4687874	0.00200966	0	1.028580008	0	0	15.30093521	0	0.042062564	0.03612837	0	0.001500987	0	0.000520178	0.012000003	0.04501744	0.001380102	0	0.000478284	0.003000001	0.015756104	0.004542	0.03954	0.287482	0	1.500902	0	0.004542	0.03954	0.287482	0.045	0.01535	0.004524	0.000304
T6 instate small	Diesel	8.7277266	237.308345	0.001267578	113.5149059	0.001893655	0.00667037	0.172215813	0	0.0553516	7.292452178	0	0.420216093	9.96842209	1.73306933	0.002834342	0.002488191	0	0.012000003	0.046378521	0.00271173	0.00238055	0	0.003000001	0.016232482	0	0	0	0.007594	0.196055	0	0	0	0	0.22	0.011654	0.020417	0
T6 instate small	Diesel	8.1524506	219.773058	0.001173914	104.3382588	0.001740571	0.006625292	0.173172228	0	0.0544554	7.332951428	0	0.412099661	10.0237826	1.75054066	0.002944575	0.002502009	0	0.012000003	0.046171977	0.002817194	0.00239377	0	0.003000001	0.016160192	0	0	0	0.007542	0.197143	0	0	0	0	0.22	0.011189	0.019755	0
T6 instate small	Diesel	6.1639133	164.412105	0.000878204	77.36368833	0.001290581	0.006570726	0.174310299	0	0.0533705	7.381142853	0	0.402274859	10.0896579	1.77208433	0.003078009	0.002518452	0	0.012000003	0.045921959	0.002944856	0.00240951	0	0.003000001	0.016072686	0	0	0	0.00748	0.198439	0	0	0	0	0.22	0.011159	0.019884	0
T6 instate small	Diesel	12.661402	342.142221	0.001827546	162.9712525	0.002718686	0.006641462	0.172835816	0	0.0547768	7.318706087	0	0.415011026	10.0043099	1.7443309	0.002905034	0.002497149	0	0.012000003	0.046246064	0.002779364	0.00238912	0	0.003000001	0.016186123	0	0	0	0.007561	0.19676	0	0	0	0	0.22	0.011198	0.019716	0
T6 instate small	Diesel	8.1018867	219.252741	0.001171134	104.4854776	0.001743026	0.006646705	0.17272107	0	0.0548811	7.31384718	0	0.415955115	9.997668	1.74222894	0.002892212	0.002495491	0	0.012000003	0.046270089	0.002767096	0.00238754	0	0.003000001	0.016194531	0	0	0	0.007567	0.19663	0	0	0	0	0.22	0.0112	0.019703	0
T6 instate small	Diesel	3.0902966	88.3629182	0.000471989	44.048216	0.000734812	0.006925324	0.166475522	0	0.0604205	7.049380428	0	0.466121556	9.63615501	1.63891495	0.002210882	0.002405255	0	0.012000003	0.047546707	0.00211524	0.0023012	0	0.003000001	0.016641347	0	0	0	0.007884	0.18952	0	0	0	0	0.22	0.010265	0.017175	0
T6 instate small	Diesel	2.3679432	66.3600281	0.000354461	32.58619517	0.000543603	0.006828086	0.168740967	0	0.0584872	7.145310327	0	0.448613445	9.76728645	1.67403454	0.002448666	0.002437986	0	0.012000003	0.047101167	0.002342738	0.00233252	0	0.003000001	0.016485408	0	0	0	0.007773	0.192099	0	0	0	0	0.22	0.010218	0.017409	0
T6 instate small	Diesel	17.448194	470.911071	0.002515363	224.0826883	0.003738147	0.006635189	0.172968141	0	0.0546521	7.324309367	0	0.407581987	10.0119693	1.74676502	0.002886095	0.002499061	0	0.012000003	0.046217323	0.002761244	0.00239095	0	0.003000001	0.016176063	0	0	0	0.007554	0.196911	0	0	0	0	0.22	0.010124	0.017845	0
T6 instate small	Diesel	12.794337	346.523871	0.001850951	165.388531	0.002759011	0.006653424	0.172581826	0	0.0550147	7.307950927	0	0.411112555	9.98960812	1.73968911	0.002843804	0.002493479	0	0.012000003	0.046300878	0.002720782	0.00238561	0	0.003000001	0.016205307	0	0	0	0.007574	0.196471	0	0	0	0	0.22	0.009947	0.017479	0
T6 instate small	Diesel	24.152626	650.636788	0.003475364	309.0704821	0.005155913	0.006625084	0.173180667	0	0.0544512	7.333308751	0	0.365886719	4.98542981	1.40319967	0.002915434	0.002502131	0	0.012000003	0.046171024	0.002789314	0.00239389	0	0.003000001	0.016159858	0	0	0	0.007542	0.197153	0	0	0	0	0.22	0.009931	0.017534	0
T6 instate small	Diesel	28.209268	759.912095	0.004059056	360.8465894	0.006019642	0.006623983	0.17320268	0	0.0544293	7.33424092	0	0.365906991	5.01440284	1.40548203	0.002917737	0.002502449	0	0.012000003	0.046165979	0.002791517	0.00239419	0	0.003000001	0.016158093	0	0	0	0.007541	0.197178	0	0	0	0	0.22	0.009927	0.017531	0
T6 instate small	Diesel	32.235171	867.879722	0.004635764	411.9632982	0.006872371	0.006621408	0.173257172	0	0.0543781	7.33654836	0	0.366486799	5.12338879	1.41370559	0.002924656	0.002503237	0	0.012000003	0.046154179	0.002798136	0.00239495	0	0.003000001	0.016153963	0	0	0	0.007538	0.19724	0	0	0	0	0.22	0.009824	0.017356	0
T6 instate small	Diesel	35.41488	953.263673	0.00509184	452.4061961	0.007547039	0.006620212	0.173282323	0	0.0543544	7.337613363	0	0.318971208	4.12238303	0.75722545	0.002838159	0.0025036	0	0.012000003	0.046148701	0.002715382	0.0023953	0	0.003000001	0.016152045	0	0	0	0.007537	0.197269	0	0	0	0	0.22	0.009793	0.017306	0
T6 instate small	Diesel	37.784981	1017.03076	0.005432451	482.6535546	0.008051625	0.00662004	0.173285905	0	0.0543509	7.337765064	0	0.323245961	4.39771573	0.8036298	0.002844083	0.002503652	0	0.012000003	0.046147914	0.002721049	0.00239534	0	0.003000001	0.01615177	0	0	0	0.007536	0.197273	0	0	0	0	0.22	0.009757	0.017242	0
T6 instate small	Diesel	39.545883	1064.81623	0.005687696	505.4593632	0.008432072	0.006621763	0.173249531	0	0.0543852	7.336224794	0	0.328874704	4.74161731	0.86140723	0.002846974	0.002503126	0	0.012000003	0.046155805	0.002723815	0.00239484	0	0.003000001	0.016154532	0	0	0	0.007538	0.197231	0	0	0	0	0.22	0.009712	0.017158	0
T6 instate small	Diesel	41.401583	1115.3906	0.005957838	529.7650117	0.008837539	0.006622761	0.173184308	0	0.0544297	7.333462932	0	0.332488047	4.94709716	0.89571515	0.00284305	0.002502184	0	0.012000003	0.046170085	0.002720061	0.00239394	0	0.003000001	0.01615953	0	0	0	0.00754	0.197157	0	0	0	0	0.22	0.009686	0.017104	0
T6 instate small	Diesel	43.752108	1231.01455	0.006575442	561.0397944	0.009359264	0.006601192	0.173058309	0	0.0541819	7.32812754	0	0.318953075	5.18061222	0.9344272	0.002707513	0.002500363	0	0.012000003	0.046142303	0.002590387	0.0023922	0	0.003000001	0.016149806	0	0	0	0.007515	0.197014	0	0	0	0	0.22	0.009652	0.017036	0
T6 instate small	Diesel	46.347607	1355.3771	0.007239722	594.8508284	0.0099233	0.006564206	0.173005832	0	0.053784	7.325905417	0	0.322012095	5.45309971	0.98002185	0.002730178	0.002499605	0	0.012000003	0.046104984	0.002612072	0.00239147	0	0.003000001	0.016136745	0	0	0	0.007473	0.196954	0	0	0	0	0.22	0.009612	0.016967	0
T6 instate small	Diesel	48.419709	1470.44581	0.007854359	621.7610228	0.010372216	0.006514929	0.172975831	0	0.0532979	7.324635001	0	0.325577158	5.77257779	1.0336179	0.002748396	0.002499172	0	0.012000003	0.046072294	0.002629502	0.00239106	0	0.003000001	0.016125303	0	0	0	0.007417	0.19692	0	0	0	0	0.22	0.009567	0.016889	0
T6 instate small	Diesel	48.366546	1521.54237	0.008127291	621.8990626	0.010374519	0.006456041	0.172897749	0	0.0527771	7.32132866	0	0.33024584	6.14952065	1.09659667	0.002756602	0.002498044	0	0.012000003	0.04605667	0.002637352	0.00238998	0	0.003000001	0.016119834	0	0	0	0.00735	0.196831	0	0	0	0	0.22	0.009515	0.016793	0
T6 instate small	Diesel	53.012481	1724.70295	0.009212469	682.4189874	0.011384112	0.006384613	0.172829845	0	0.0521634	7.318453268	0	0.327460453	6.14710548	1.09581293	0.002739021	0.002497063	0	0.012000003	0.046044592	0.002620532	0.00238904	0	0.003000001	0.016115607	0	0	0	0.007268	0.196754	0	0	0	0	0.22	0.009514	0.016786	0
T6 instate small	Diesel	57.933316	1947.28722	0.010401399	746.0681755	0.012445907	0.0062991	0.172805679	0	0.0514259	7.317429934	0	0.32402409	6.14624593	1.09553444	0.002718515	0.002496713	0	0.012000003	0.046028688	0.002600913	0.00238871	0	0.003000001	0.016110041	0	0	0	0.007171	0.196726	0	0	0	0	0.22	0.009512	0.016784	0
T6 instate small	Diesel	62.8707	2181.55765	0.01165275	809.6064583	0.013505853	0.006200161	0.172809015	0	0.0505778	7.317571223	0	0.320023436	6.14636461	1.09557287	0.002696892	0.002496762	0	0.012000003	0.04601192	0.002580225	0.00238875	0	0.003000001	0.016104172	0	0	0	0.007058	0.19673	0	0	0	0	0.22	0.009511	0.016784	0
T6 instate small	Diesel	66.87826	2392.8415	0.012781319	861.1881137	0.014366338	0.006088985	0.172810735	0	0.0496427	7.317644067	0	0.315579893	6.14642579	1.09559269	0.00267008	0.002496786	0	0.012000003	0.046000021	0.002554574	0.00238878	0	0.003000001	0.016100007	0	0	0	0.006932	0.196732	0	0	0	0	0.22	0.009509	0.016785	0
T6 instate small	Diesel	72.691979	2681.53521	0.014323371	935.3224588	0.015603047	0.005963538	0.172856859	0	0.0485803	7.319597147	0	0.310403264	6.14806628	1.0961245	0.002641976	0.002497453	0	0.012000003	0.04598289	0.002527685	0.00238941	0	0.003000001	0.016094012	0	0	0	0.006789	0.196784	0	0	0	0	0.22	0.009508	0.016789	0
T6 instate small	Diesel	77.801695	2959.06247	0.015805778	999.5593974	0.016674647	0.005823901	0.172946132	0	0.047392	7.323377402	0	0.30436525	6.15124149	1.09715618	0.002611832	0.002498743	0	0.012000003	0.045960509	0.002498845	0.00239065	0	0.003000001	0.016086178	0	0	0	0.00663	0.196886	0	0	0	0	0.22	0.009505	0.016798	0
T6 instate small	Diesel	82.273498	3219.1376	0.017194964	1056.410981	0.017623045	0.005674018	0.172979691	0	0.0461564	7.324798453	0	0.298034329	6.15243509	1.09754482	0.002570665	0.002499228	0	0.012000003	0.045953285	0.002459459	0.00239111	0	0.003000001	0.01608365	0	0	0	0.006459	0.196924	0	0	0	0	0.22	0.009505	0.016801	0
T6 instate small	Diesel	84.428305	3392.90905	0.018123161	1084.047382	0.018084076	0.005512691	0.172981426	0	0.0448495	7.324871916	0	0.291115283	6.1524968	1.09756492	0.00252106	0.002499253	0	0.012000003	0.045955846	0.002412	0.00239114	0	0.003000001	0.016084546	0	0	0	0.006276	0.196926	0	0	0	0	0.22	0.009505	0.016801	0
T6 instate small	Diesel	86.434661	3566.02708	0.019047868	1109.367397	0.018506464	0.005337734	0.17300492	0	0.043428	7.325866765	0	0.28262136	6.12235636	1.09262529	0.002467228	0.002499592	0	0.012000003	0.045956758	0.002360497	0.00239146	0	0.003000001	0.016084865	0	0	0	0.006077	0.196953	0	0	0	0	0.22	0.009509	0.016811	0
T6 instate small	Diesel	85.267676	3605.55646	0.019259013	1094.666076	0.018261217	0.005151292	0.17298999	0	0.0419345	7.325234585	0	0.271423178	5.98111406	1.0687784	0.002401895	0.002499376	0	0.012000003	0.045968405	0.00229799	0.00239125	0	0.003000001	0.016088942	0	0	0	0.005864	0.196936	0	0	0	0	0.22	0.009529	0.016842	0
T6 instate small	Diesel	83.123947	3600.29833	0.019230927	1067.246386	0.017803801	0.00495148	0.172984372	0	0.0403315	7.324996675	0	0.257279814	5.74300852	1.02868836	0.002331168	0.002499295	0	0.012000003	0.045980635	0.002230323	0.00239118	0	0.003000001	0.016093222	0	0	0	0.005637	0.19693	0	0	0	0	0.22	0.009561	0.016897	0
T6 instate small	Diesel	79.611687	3529.00241	0.018850101	1022.336623	0.017054617	0.004738716	0.172973684	0	0.0386273	7.324544115	0	0.240136376	5.416506	0.9737034	0.002255471	0.002499141	0	0.012000003	0.045996285	0.002157901	0.00239103	0	0.003000001	0.0160987	0	0	0	0.005395	0.196917	0	0	0	0	0.22	0.009606	0.016972	0
T6 instate small	Diesel	75.86031	3439.17294	0.018370279	974.314295	0.016253508	0.004512681	0.172964517	0	0.0368156	7.324155931	0	0.219622123	5.01157549	0.90553768	0.002177024	0.002499008	0	0.012000003	0.046013851	0.002082847	0.0023909	0	0.003000001	0.016104848	0	0	0	0.005137	0.196907	0	0	0	0	0.22	0.009661	0.017065	0
T6 instate small	Diesel	68.516533	3174.76623	0.016957955	880.1064808	0.014681934	0.004273288	0.172956981	0	0.0348946	7.323836808	0	0.195010675	4.54348046	0.82675952	0.002097484	0.002498899	0	0.012000003	0.046033184	0.002006748	0.0023908	0	0.003000001	0.016111614	0	0	0	0.004865	0.196898	0	0	0	0	0.22	0.009725	0.017174	0
T6 instate small	Diesel	44.781448	2119.79291	0.011322835	575.1708749	0.009594999	0.004020117	0.172962573	0	0.032856	7.324073596	0	0.164358149	4.03886837	0.74189555	0.00201929	0.00249898	0	0.012000003	0.046051636	0.001931936	0.00239088	0	0.003000001	0.016118073	0	0	0	0.004577	0.196905	0	0	0	0	0.22	0.009793	0.017292	0
T6 instate small	Electricity	0.9730232	26.353517	0.000140767	12.57797753	0.000209826	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023150439	0	0	0	0.003000001	0.008102654	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	2.2830577	61.5022694	0.000328513	29.21528014	0.000487369	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023085512	0	0	0	0.003000001	0.008079929	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	3.2056539	86.3551362	0.000461264	41.00600134	0.000684062	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023082989	0	0	0	0.003000001	0.008079046	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	5.9974117	161.470586	0.000862492	76.64651405	0.001278617	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023077089	0	0	0	0.003000001	0.008076981	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	10.881457	292.896583	0.001564502	139.0048027	0.002318878	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02307435	0	0	0	0.003000001	0.008076023	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	17.218123	463.447647	0.002475497	219.9389269	0.003669021	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023073957	0	0	0	0.003000001	0.008075885	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	25.375669	683.267688	0.003649662	324.3414604	0.005410663	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023077903	0	0	0	0.003000001	0.008077266	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	31.196597	840.460386	0.004489304	399.1843811	0.006659193	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023085042	0	0	0	0.003000001	0.008079765	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	38.569535	1085.19704	0.00579656	494.5828863	0.00825063	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023071151	0	0	0	0.003000001	0.008074903	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	47.718349	1395.46272	0.007453838	612.4436919	0.010216784	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023052492	0	0	0	0.003000001	0.008068372	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	58.233277	1768.47155	0.009446258	747.7777625	0.012474427	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023036147	0	0	0	0.003000001	0.008062651	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	68.091029	2142.04641	0.011441701	875.5172894	0.014605377	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023028335	0	0	0	0.003000001	0.008059917	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	74.631634	2428.05842	0.012969429	960.7179976	0.016026695	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023022296	0	0	0	0.003000001	0.008057804	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	81.559248	2741.41533	0.01464322	1050.324122	0.017521504	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023014344	0	0	0	0.003000001	0.00805502	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	88.510159	3071.22419	0.016404887	1139.774112	0.019013709	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02300596	0	0	0	0.003000001	0.008052086	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	94.152052	3368.67224	0.017993701	1212.391413	0.02022511	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.02300001	0	0	0	0.003000001	0.008050004	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	102.33668	3775.09886	0.020164621	1316.758672	0.021966165	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022991445	0	0	0	0.003000001	0.008047006	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	109.5302	4165.80521	0.022251572	1407.192239	0.023474777	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022980254	0	0	0	0.003000001	0.008043089	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	115.82566	4531.94223	0.024207286	1487.22861	0.024809944	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022976643	0	0	0	0.003000001	0.008041825	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	118.85923	4776.57985	0.025514013	1526.135481	0.025458988	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022977923	0	0	0	0.003000001	0.008042273	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	122.6601	5060.57691	0.027030978	1574.311946	0.026262668	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022978379	0	0	0	0.003000001	0.008042433	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	125.37955	5301.69322	0.028318897	1609.622199	0.026851713	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022984202	0	0	0	0.003000001	0.008044471	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	129.43951	5606.33671	0.029946144	1661.90189	0.027723843	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022990317	0	0	0	0.003000001	0.008046611	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	133.44006	5915.09017	0.031595345	1713.575851	0.028585868	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.022998142	0	0	0	0.003000001	0.00804935	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	138.34817	6272.09766	0.033502294	1776.87907	0.029641892	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023006925	0	0	0	0.003000001	0.008052424	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Electricity	136.64795	6331.68801	0.033820595	1755.266133	0.029281345	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023016592	0	0	0	0.003000001	0.008055807	0	0	0	0	0	0	0	0	0	0	0	0	0

T6 instate small	Electricity	97.555608	4617.93209	0.024666599	1252.999775	0.020902539	0	0	0	0	0	0	0	0	0	0	0	0	0.012000003	0.023025818	0	0	0	0.003000001	0.008059036	0	0	0	0	0	0	0	0	0	0	0	0	0
T6 instate small	Natural Gas	0.1161274	3.14263164	1.67863E-05	1.497629476	2.49835E-05	0.01127467	0.168903508	0	3.2692549	38.86819862	0	0.055876066	5.13877014	0	0.001798306	0.021178108	0	0.012000003	0.046270089	0.001653476	0.01947249	0	0.003000001	0.016194531	0	0	0	0.805334	12.06454	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.0442944	1.26653879	6.76519E-06	0.631359574	1.05323E-05	0.012461476	0.162796002	0	3.8119945	37.46273498	0	0.05958353	4.95295359	0	0.002015681	0.020412313	0	0.012000003	0.047546707	0.001853344	0.01876837	0	0.003000001	0.016641347	0	0	0	0.890105	11.62829	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.0339406	0.95116313	5.08062E-06	0.467070138	7.79166E-06	0.01204728	0.165011375	0	3.6225782	37.97253814	0	0.058289623	5.02035474	0	0.001939817	0.02069009	0	0.012000003	0.047101167	0.00178359	0.01902377	0	0.003000001	0.016485408	0	0	0	0.86052	11.78653	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.2500915	6.74974472	3.60536E-05	3.211861082	5.35803E-05	0.011225615	0.169145118	0	3.246822	38.92379814	0	0.055722826	5.14612096	0	0.001789321	0.021208403	0	0.012000003	0.046217323	0.001645214	0.01950034	0	0.003000001	0.016176063	0	0	0	0.80183	12.08179	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.183386	4.96685641	2.65304E-05	2.370575746	3.95459E-05	0.011303292	0.168767342	0	3.2823443	38.83686398	0	0.055965479	5.13462739	0	0.001803548	0.021161035	0	0.012000003	0.046300878	0.001658296	0.01945679	0	0.003000001	0.016205307	0	0	0	0.807378	12.05481	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.3461886	9.32582073	4.98137E-05	4.430022956	7.39016E-05	0.011182574	0.169352947	0	3.2271384	38.97162383	0	0.055588367	5.15244401	0	0.001781437	0.021234461	0	0.012000003	0.046171024	0.001637966	0.0195243	0	0.003000001	0.016159858	0	0	0	0.798755	12.09664	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.404334	10.8921046	5.818E-05	5.172149289	8.62818E-05	0.011177883	0.169374474	0	3.2249936	38.97657769	0	0.055573716	5.15309896	0	0.001780578	0.021237161	0	0.012000003	0.046165979	0.001637176	0.01952679	0	0.003000001	0.016158093	0	0	0	0.79842	12.09818	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.4620388	12.439645	6.64461E-05	5.904824217	9.85043E-05	0.011166913	0.169427761	0	3.2199769	38.98884018	0	0.055539447	5.15472018	0	0.001778569	0.021243842	0	0.012000003	0.046154179	0.001635329	0.01953293	0	0.003000001	0.016153963	0	0	0	0.797637	12.10198	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.5076147	13.6634852	7.29833E-05	6.484507417	0.000108175	0.011161821	0.169452356	0	3.217648	38.99449996	0	0.055523538	5.15546846	0	0.001777636	0.021246926	0	0.012000003	0.046148701	0.001634471	0.01953576	0	0.003000001	0.016152045	0	0	0	0.797273	12.10374	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.5415863	14.5774827	7.78654E-05	6.918054133	0.000115407	0.011161089	0.169455859	0	3.2173135	38.99530615	0	0.055521253	5.15557505	0	0.001777502	0.021247365	0	0.012000003	0.046147914	0.001634348	0.01953617	0	0.003000001	0.01615177	0	0	0	0.797221	12.10399	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.5668259	15.2624097	8.15239E-05	7.244938327	0.00012086	0.011168426	0.169420289	0	3.2206684	38.98712065	0	0.05554417	5.15449284	0	0.001778846	0.021242905	0	0.012000003	0.046155805	0.001635583	0.01953207	0	0.003000001	0.016154532	0	0	0	0.797745	12.10145	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.5934244	15.9873111	8.53959E-05	7.593320289	0.000126672	0.0111817	0.169356507	0	3.2267392	38.9724432	0	0.05558564	5.15255233	0	0.001781277	0.021234908	0	0.012000003	0.046170085	0.001637819	0.01952471	0	0.003000001	0.01615953	0	0	0	0.798693	12.09689	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.6271153	17.6445924	9.42483E-05	8.041593461	0.00013415	0.011155873	0.169233294	0	3.2149279	38.94408917	0	0.055504957	5.14880364	0	0.001776547	0.021219459	0	0.012000003	0.046142303	0.001633469	0.01951051	0	0.003000001	0.016149806	0	0	0	0.796848	12.08809	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.6643176	19.4271275	0.00010377	8.526219672	0.000142234	0.01112118	0.169181977	0	3.1990624	38.93228007	0	0.05539658	5.14724236	0	0.001770192	0.021213024	0	0.012000003	0.046104984	0.001627627	0.01950459	0	0.003000001	0.016136745	0	0	0	0.79437	12.08443	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.6940178	21.0764505	0.000112579	8.911933566	0.000148669	0.011090789	0.169152638	0	3.1851644	38.92552866	0	0.055301642	5.14634976	0	0.001764626	0.021209346	0	0.012000003	0.046072294	0.001622509	0.01950121	0	0.003000001	0.016125303	0	0	0	0.792199	12.08233	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.6932558	21.8088366	0.000116491	8.913912141	0.000148702	0.011076264	0.169076283	0	3.178522	38.90795767	0	0.055256267	5.14402669	0	0.001761966	0.021199772	0	0.012000003	0.04605667	0.001620062	0.01949241	0	0.003000001	0.016119834	0	0	0	0.791162	12.07688	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.7598477	24.7208132	0.000132046	9.781366886	0.000163173	0.011065036	0.169009879	0	3.1733874	38.89267689	0	0.055221193	5.14200642	0	0.001759909	0.021191446	0	0.012000003	0.046044592	0.001618172	0.01948475	0	0.003000001	0.016115607	0	0	0	0.79036	12.07213	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.8303799	27.9111969	0.000149087	10.69367453	0.000178392	0.011050251	0.168986247	0	3.1666257	38.88723856	0	0.055175004	5.14128742	0	0.001757201	0.021188482	0	0.012000003	0.046028688	0.001615682	0.01948203	0	0.003000001	0.016110041	0	0	0	0.789304	12.07045	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.9011493	31.2690828	0.000167023	11.60439253	0.000193584	0.011034662	0.16898951	0	3.159497	38.88798942	0	0.055126308	5.14138669	0	0.001754346	0.021188892	0	0.012000003	0.04601192	0.001613056	0.0194824	0	0.003000001	0.016104172	0	0	0	0.78819	12.07068	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.9585911	34.2974933	0.000183199	12.34373172	0.000205918	0.011023601	0.168991192	0	3.1544384	38.88837653	0	0.055091752	5.14143787	0	0.00175232	0.021189102	0	0.012000003	0.046000021	0.001611193	0.0194826	0	0.003000001	0.016100007	0	0	0	0.7874	12.0708	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.0419213	38.4354483	0.000205302	13.40632704	0.000223644	0.011007675	0.169036296	0	3.1471555	38.89875585	0	0.055042002	5.14281012	0	0.001749403	0.021194758	0	0.012000003	0.04598289	0.001608511	0.0194878	0	0.003000001	0.016094012	0	0	0	0.786263	12.07402	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.1151608	42.4133505	0.00022655	14.32705914	0.000239004	0.010986868	0.169123596	0	3.1376401	38.91884537	0	0.054977003	5.14546616	0	0.001745592	0.021205704	0	0.012000003	0.045960509	0.001605007	0.01949786	0	0.003000001	0.016086178	0	0	0	0.784776	12.08026	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.1792568	46.1411046	0.000246462	15.14193418	0.000252598	0.010980153	0.169156413	0	3.1345692	38.9263973	0	0.054956025	5.1464646	0	0.001744362	0.021209819	0	0.012000003	0.045953285	0.001603876	0.01950165	0	0.003000001	0.01608365	0	0	0	0.784297	12.0826	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.2101425	48.6318359	0.000259766	15.53805705	0.000259206	0.010982534	0.169158109	0	3.1356579	38.92678771	0	0.054963462	5.14651622	0	0.001744798	0.021210032	0	0.012000003	0.045955846	0.001604277	0.01950184	0	0.003000001	0.016084546	0	0	0	0.784467	12.08272	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.2389004	51.1132015	0.00027302	15.90097832	0.00026526	0.010983382	0.169181084	0	3.1360457	38.93207466	0	0.054966111	5.1472152	0	0.001744953	0.021212912	0	0.012000003	0.045956758	0.00160442	0.01950449	0	0.003000001	0.016084865	0	0	0	0.784527	12.08436	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.2221735	51.6797908	0.000276047	15.69025877	0.000261745	0.010994209	0.169166485	0	3.1409971	38.92871505	0	0.054999934	5.14677103	0	0.001746936	0.021211082	0	0.012000003	0.045968405	0.001606244	0.01950281	0	0.003000001	0.016088942	0	0	0	0.785301	12.08332	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.1914467	51.6044241	0.000275644	15.29724209	0.000255189	0.011005578	0.16916099	0	3.1461966	38.92745072	0	0.055035452	5.14660387	0	0.001749019	0.021210393	0	0.012000003	0.045980635	0.001608158	0.01950217	0	0.003000001	0.016093222	0	0	0	0.786113	12.08293	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.1411041	50.5825131	0.000270186	14.65353365	0.00024445	0.011020128	0.169150539	0	3.1528501	38.92504566	0	0.055080902	5.1462859	0	0.001751684	0.021209082	0	0.012000003	0.045996285	0.001610608	0.01950097	0	0.003000001	0.0160987	0	0	0	0.787152	12.08218	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	1.0873342	49.2949536	0.000263308	13.96521163	0.000232968	0.011036457	0.169141575	0	3.1603179	38.92298273	0	0.055131915	5.14601316	0	0.001754675	0.021207958	0	0.012000003	0.046013851	0.001613359	0.01949993	0	0.003000001	0.016104848	0	0	0	0.788318	12.08154	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.9820731	45.5051133	0.000243065	12.61489576	0.000210442	0.01105443	0.169134205	0	3.1685372	38.9212868	0	0.055188061	5.14578894	0	0.001757967	0.021207034	0	0.012000003	0.046033184	0.001616385	0.01949909	0	0.003000001	0.016111614	0	0	0	0.789602	12.08101	0	0	0	0	1.06	0	0	0
T6 instate small	Natural Gas	0.6418693	30.3837856	0.000162294	8.244139529	0.000137529	0.011071585	0.169139673	0	3.176382	38.92254517	0	0.055241649	5.14595531	0	0.001761109	0.02120772	0	0.012000003	0.046051636	0.001619274	0.01949972	0	0.003000001	0.016118073	0	0	0	0.790827	12.08141	0	0	0	0	1.06	0	0	0
T7 Single	Diesel	1.7482807	52.249006	0.000279087	16.46880399	0.000274733	0.010979824	1.862836709	0	0.0951187	27.52493933	0	1.471459852	22.0130237	3.72417628	0.029806696	0.007927905	0	0.03600001	0.080354522	0.028517272	0.00758495	0	0.009000003	0.028124083	0	0	0	0.0125	2.120698	0	0	0	0	0.22	0.015991	0.043212	0
T7 Single	Diesel	1.9300989	61.1454945	0.000326608	18.18153133	0.000303304	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.471459852	22.0130237	3.72417628	0.024313074	0.007927905	0	0.03600001	0.080354522	0.023261302	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	2.8132017	90.55473	0.000483696	26.50035995	0.000442079	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.471459852	22.0130237	3.72417628	0.024313074	0.007927905	0	0.03600001	0.080354522	0.023261302	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	6.6598154	204.542133	0.001092558	62.73546117	0.001046553	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.471459852	22.0130237	3.72417628	0.024313074	0.007927905	0	0.03600001	0.080354522	0.023261302	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	2.3296984	58.4977764	0.000312465	21.94575892	0.000366099	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.471459852	22.0130237	3.72417628	0.024313074	0.007927905	0	0.03600001	0.080354522	0.023261302	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.016583	0.041968	0
T7 Single	Diesel	2.0542307	47.8996951	0.000255855	19.350853	0.000322811	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.471459852	22.0130237	3.72417628	0.024313074	0.007927905	0	0.03600001	0.080354522	0.023261302	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.014557	0.036839	0
T7 Single	Diesel	2.5082767	58.5664715	0.000312832	23.6279661	0.000394162	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.471459852	22.0130237	3.72417628	0.024313074	0.007927905	0	0.03600001	0.080354522	0.023261302	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.014557	0.036839	0
T7 Single	Diesel	2.9796467	69.596004	0.000371746	28.06827201	0.000468235	0.01109072	1.862836709	0	0.0560919	27.52493933	0	1.406069402	22.0130237	3.72417628	0.023234715	0.007927905	0	0.03600001	0.080354522	0.022229591	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012626	2.120698	0	0	0	0	0.22	0.014557	0.036839	0
T7 Single	Diesel	3.1805251	74.3535186	0.000397158	29.96054673	0.000499802	0.011074671	1.862836709	0	0.0560108	27.52493933	0	1.40415378	22.0130237	3.72417628	0.023170247	0.007927905	0	0.03600001	0.080354522	0.022167912	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012608	2.120698	0	0	0	0	0.22	0.01425	0.036063	0
T7 Single	Diesel	7.2846969	207.918575	0.001110593	68.62184499	0.001144749	0.011042445	1.862836709	0	0.0558478	27.52493933	0	1.278378358	11.5044882	3.02214629	0.023074477	0.007927905	0	0.03600001	0.080354522	0.022076286	0.00758495	0	0.009000003	0.028124083	0	0	0	0.012571	2.120698	0	0	0	0	0.22	0.014245	0.03605	0
T7 Single	Diesel	7.7708626	219.019123	0.001169887	73.20152552	0.001221148	0.010994975	1.862836709	0	0.0556077	27.52493933	0	1.274222618	11.5726347	3.02669886	0.022890565	0.007927905	0	0.03600001	0.088782956	0.021900329	0.00758495	0	0.009000003	0.031074035	0	0	0	0.012517	2.120698	0	0	0	0	0.22	0.01424	0.036037	0
T7 Single	Diesel	8.5667613	242.904535	0.00129747	80.69889184	0.001346219	0.010933192	1.862836709	0	0.0552952	27.52493933	0	1.271700502	11.8297664	3.04387672	0.022667947	0.007927905	0	0.03600001	0.088782956	0.021687342	0.00758495	0	0.009000003	0.031074035	0	0	0	0.012447	2.120698	0	0	0	0	0.22	0.014032	0.035511	0
T7 Single	Diesel	8.872404	250.570491	0.001338418	83.57804607	0.001394249	0.010858029	1.862836709	0	0.0549151	27.52493933	0	1.163122543	9.81725186	1.73467028	0.022066906	0.007927905	0	0.03600001	0.088782956	0.021112302	0.00758495	0	0.009000003	0.031074035	0	0	0	0.012361	2.120698	0	0	0	0	0.22	0.013982	0.035385	0
T7 Single	Diesel	8.8737893	248.767165	0.001328785	83.59109495	0.001394466	0.010770417	1.862836709	0	0.054472	27.52493933	0	1.167541665	10.4624836	1.83992745	0.021784355	0.007927905	0	0.03600001	0.088782956	0.020841974	0.00758495	0	0.009000003	0.031074035	0	0	0	0.012261	2.120698	0	0	0	0	0.22	0.013922	0.035232	0
T7 Single	Diesel	8.5414282	237.494475	0.001268572	80.4602534	0.001342238	0.010671289	1.862836709	0	0.0539706	27.52493933	0	1.173646718	11.2590183	1.9698668	0.021471813	0.007927905	0	0.03600001	0.088782956	0.020542952	0.00758495	0	0.009000003	0.031074035	0	0	0	0.012148	2.120698	0	0	0	0	0.22	0.013847	0.035044	0
T7 Single	Diesel	8.66757	239.360157	0.001278538	81.64850921	0.00136206	0.010561576	1.862836709	0	0.0534158	27.52493933	0	1.170697913	11.7316911	2.04697429	0.021081927	0.007927905	0	0.03600001	0.088782956	0.020169932	0.00758495	0	0.009000003	0.031074035	0	0	0	0.012024	2.120698	0	0	0	0	0.22	0.013803	0.034932	0
T7 Single	Diesel	8.5509826	234.287027	0.00125144	80.55025637	0.001343739	0.010442211	1.862836709	0	0.0528121	27.52493933	0	1.122602231	12.2671442	2.13432317	0.019338517	0.007927905	0	0.03600001	0.088782956	0.018501941	0.00758495	0	0.009000003	0.031074035	0	0	0	0.011888	2.120698	0	0	0	0	0.22	0.013753	0.034805	0
T7 Single	Diesel	8.7433806	239.527949	0.001279434	82.36264535	0.001373973	0.010314125	1.862836709	0	0.0521643	27.52493933	0	1.122775292	12.8787749	2.23409897	0.018972705	0.007927905	0	0.03600001	0.088782956	0.018151955	0.00758495	0	0.009000003	0.031074035	0	0	0	0.011742	2.120698	0	0	0	0	0.22	0.013696	0.034661	0
T7 Single	Diesel	8.8717363	268.857128	0.001436095	83.57175633	0.001394144	0.010178251	1.862836709	0	0.0514771	27.52493933	0	1.123561874	13.5840846	2.34915672	0.018656656	0.007927905	0	0.03600001	0.088782956	0.017849577	0.00758495	0	0.009000003	0.031074035	0	0	0	0.011587	2.120698	0	0	0	0	0.22	0.01363	0.034494	0
T7 Single	Diesel	8.8367041	293.025201	0.001565189	83.24175309	0.001388639	0.010035521	1.862836709	0	0.0507552	27.52493933	0	1.125419855	14.4063806	2.48329851	0.018375597	0.007927905	0	0.03600001	0.088782956	0.017580677	0.00758495	0	0.009000003	0.031074035	0	0	0	0.011425	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	9.2707523	332.277287	0.001774853	87.3304863	0.001456847	0.009886867	1.862836709	0	0.0500034	27.52493933	0	1.104020371	14.4063806	2.48329851	0.01788057	0.007927905	0	0.03600001	0.088782956	0.017107065	0.00758495	0	0.009000003	0.031074035	0	0	0	0.011255	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	9.6903875	372.946726	0.001992088	91.28344999	0.00152279	0.00973322	1.862836709	0	0.0492263	27.52493933	0	1.080969259	14.4063806	2.48329851	0.017368919	0.007927905	0	0.03600001	0.088782956	0.016617548	0.00758495	0	0.009000003	0.031074035	0	0	0	0.011081	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	10.599905	439.237551	0.002346179	99.85110565	0.001665716	0.009575513	1.862836709	0	0.0484287	27.52493933	0	1.056205877	14.4063806	2.48329851	0.016843748	0.007927905	0	0.03600001	0.088782956	0.016115095	0.00758495	0	0.009000003	0.031074035	0	0	0	0.010901	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	11.578873	514.031782	0.002745691	109.0729845	0.001819555	0.009414678	1.862836709	0	0.0476153	27.52493933	0	1.029649028	14.4063806	2.48329851	0.01630816	0.007927905	0	0.03600001	0.088782956	0.015602676	0.00758495	0	0.009000003	0.031074035	0	0	0	0.010718	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	12.319319	582.226309	0.003109951	116.0479808	0.001935912	0.009251647	1.862836709	0	0.0467907	27.52493933	0	1.001191323	14.4063806	2.48329851	0.015765258	0.007927905	0	0.03600001	0.088782956	0.01508326	0.00758495	0	0.009000003	0.031074035	0	0	0	0.010532	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	13.077818	655.930477	0.003503641	123.1930441	0.002055106	0.009087352	1.862836709	0	0.0459598	27.52493933	0	0.970690928	14.4063806	2.48329851	0.015218147	0.007927905	0	0.03600001	0.088782956	0.014559817	0.00758495	0	0.009000003	0.031074035	0	0	0	0.010345	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	13.530738	716.189914	0.003825515	127.4595543	0.00212628	0.008922725	1.862836709	0	0.0451272	27.52493933	0	0.937959188	14.4063806	2.48329851	0.014669931	0.007927905	0	0.03600001	0.088782956	0.014035316	0.00758495	0	0.009000003	0.031074035	0	0	0	0.010158	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	13.670642	758.937723	0.004053852	128.7774465	0.002148265	0.008758698	1.862836709	0	0.0442976	27.52493933	0	0.902741445	14.4063806	2.48329851	0.014123712	0.007927905	0	0.03600001	0.088782956	0.013512727	0.00758495	0	0.009000003	0.031074035	0	0	0	0.009971	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	13.742802	800.710037	0.004276978	129.4571916	0.002159605	0.008596202	1.862836709	0	0.0434758	27.52493933	0	0.864686022	14.4063806	2.48329851	0.013582595	0.007927905	0	0.03600001	0.088782956	0.012995018	0.00758495	0	0.009000003	0.031074035	0	0	0	0.009786	2.120698	0	0	0	0	0.22	0.013553	0.034299	0
T7 Single	Diesel	13.372787	815.321493	0.004355025	125.9716505	0.002101459	0.008436171	1.862836709	0	0.0426664	27.52493933	0	0.822892897	14.387708	2.48025245	0.013048211	0.007927905	0	0.03600001	0.088782956	0.012483751	0.00758495	0	0.009000003	0.031074035	0	0	0	0.009604	2.120698	0	0	0	0	0.22	0.013555	0.034304	0
T7 Single	Diesel	12.627014	806.11632	0.004305855	118.9464706	0.001984265	0.008279536	1.862836709	0	0.0418742	27.52493933	0	0.769587704	14.0079377	2.41830021	0.012502283	0.007927905	0	0.03600001	0.088782956	0.01196144	0.00758495	0	0.009000003	0.031074035	0	0	0	0.009426	2.120698	0	0	0	0	0.22	0.01359	0.034393	0
T7 Single	Diesel	11.409772	761.892647	0.004069636	107.4800495	0.001792982	0.008127229	1.862836709	0	0.0411039	27.52493933	0	0.705163765	13.3035222	2.30338835	0.011964652	0.007927905	0	0.03600001	0.088782956	0.011447067	0.00758495	0	0.009000003	0.031074035	0	0	0	0.009252	2.120698	0	0	0	0	0.22	0.013656	0.03456	0
T7 Single	Diesel	10.196616	709.965873	0.00379227	96.05212545	0.001602341	0.007980183	1.862836709	0	0.0403602	27.52493933	0	0.628832867	12.2885829	2.13782049	0.011451346	0.007927905	0	0.03600001	0.088782956	0.010955966	0.00758495	0	0.009000003	0.031074035	0	0	0	0.009085	2.120698	0	0	0	0	0.22	0.013751	0.0348	0
T7 Single	Diesel	9.1114868	660.105724	0.003525943	85.83020533	0.001431819	0.007839328	1.862836709	0	0.0396478	27.52493933	0	0.538105191	10.9767382	1.92381822	0.010976441	0.007927905	0	0.03600001	0.088782956	0.010501605	0.00758495	0	0.009000003	0.031074035	0	0	0	0.008924	2.120698	0	0	0	0	0.22	0.013873	0.035111	0
T7 Single	Diesel	6.6339416	500.453842	0.002673165	62.49172992	0.001042487	0.007705598	1.862836709	0	0.0389715	27.52493933	0	0.425306437	9.40840836	1.66797532	0.010552271	0.007927905	0	0.03600001	0.088782956	0.010095784	0.00758495	0	0.009000003	0.031074035	0	0	0	0.008772	2.120698	0	0	0	0	0.22	0.01402	0.035482	0
T7 Single	Electricity	0.240603	5.62475666	3.00445E-05	2.266480295	3.78094E-05	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.040177261	0	0	0	0.009000003	0.014062041	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	0.684379	19.5334274	0.000104337	6.446849825	0.000107546	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.040177261	0	0	0	0.009000003	0.014062041	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	0.8769005	24.7151419	0.000132015	8.260402399	0.0001378	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	1.577552	44.7303855	0.000238927	14.86053991	0.000247903	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	2.6835154	75.7866494	0.000404813	25.2787152	0.000421699	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	3.9541252	110.84966	0.000592101	37.24785984	0.000621369	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	5.3153396	147.793058	0.000789434	50.07049927	0.000835276	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	6.3027085	174.053084	0.000929701	59.37151364	0.000990435	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	7.2336685	198.194144	0.00105865	68.14115703	0.001136731	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	8.5827767	235.128149	0.001255933	80.84975644	0.001348735	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	10.096913	305.985984	0.001634418	95.11291836	0.001586673	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	11.669034	386.945275	0.002066861	109.9222967	0.001833723	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	12.242202	438.778391	0.002343727	115.3215456	0.001923794	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	12.796338	492.483149	0.00263059	120.5415083	0.002010873	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	13.997373	580.021426	0.003098174	131.8552583	0.002199609	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	15.290119	678.788612	0.003625737	144.0329224	0.002402757	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	16.267891	768.840765	0.004106749	153.2435359	0.002556408	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.269504	866.1685	0.004626623	162.6787261	0.002713806	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.867594	945.742219	0.005051665	168.3127328	0.002807793	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	18.052339	1002.1915	0.005353187	170.0530342	0.002836824	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	18.147627	1057.35263	0.00564783	170.9506503	0.002851798	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.702364	1079.29024	0.005765009	166.7562726	0.002781828	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.547619	1120.25076	0.005983799	165.2985686	0.00275751	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.251298	1151.96321	0.00615319	162.5072296	0.002710945	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.213621	1198.54306	0.006401996	162.1523134	0.002705024	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	17.456763	1264.70128	0.006755379	164.4427043	0.002743233	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Electricity	14.516194	1095.07826	0.00584934	136.7425504	0.002281139	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.044391478	0	0	0	0.009000003	0.015537017	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Single	Natural Gas	0.1034462	3.09158794	1.65137E-05	0.974463626	1.6256E-05	0.015036674	0.529766074	0	10.517992	37.73676384	0	0.630674988	12.2227199	0	0.001204742	0.023559502	0	0.03600001	0.080354522	0.001107716	0.02166209	0	0.009000003	0.028124083	0	0	0	1.074048	37.84043	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.155765	4.93463266	2.63582E-05	1.467306446	2.44776E-05	0.015191813	0.529766074	0	7.0465433	37.73676384	0	0.451204472	12.2227199	0	0.001730339	0.023559502	0	0.03600001	0.080354522	0.001590983	0.02166209	0	0.009000003	0.028124083	0	0	0	1.085129	37.84043	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7291175	23.4697126	0.000125363	6.868286532	0.000114577	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.1737737	5.33709118	2.8508E-05	1.6369482	2.73076E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.1433262	3.59886195	1.92233E-05	1.350132629	2.25229E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.126379	2.94685372	1.57406E-05	1.190490523	1.98598E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.1543126	3.60308816	1.92458E-05	1.453624279	2.42494E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.1833119	4.28163984	2.28703E-05	1.726797875	2.88064E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.1956702	4.57432855	2.44337E-05	1.843213163	3.07485E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.4481644	12.7914306	6.83252E-05	4.221708272	7.04265E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.080354522	0.00207425	0.04293621	0	0.009000003	0.028124083	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.4780739	13.4743513	7.1973E-05	4.503456383	7.51266E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5270387	14.943814	7.98221E-05	4.96470445	8.28212E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5458422	15.4154339	8.23413E-05	5.141833894	8.57761E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5459275	15.3044908	8.17487E-05	5.142636679	8.57895E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5254802	14.6109798	7.80443E-05	4.950023092	8.25763E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5332406	14.725759	7.86574E-05	5.023126189	8.37958E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.526068	14.4136532	7.69903E-05	4.955560196	8.26686E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5379045	14.7360818	7.87125E-05	5.067060806	8.45287E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5458012	16.5404524	8.83505E-05	5.141446941	8.57696E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5436459	18.0273048	9.62925E-05	5.121144697	8.54309E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5703492	20.4421459	0.000109191	5.372689068	8.96272E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5961657	22.9441846	0.000122556	5.615880715	9.36841E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.6521204	27.0224853	0.00014434	6.142974424	0.000102477	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7123479	31.6239271	0.000168919	6.710316826	0.000111941	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7579011	35.8193462	0.000191328	7.139427987	0.0001191	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.804565	40.3537258	0.000215549	7.579001899	0.000126433	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.8324292	44.0609676	0.000235351	7.841483349	0.000130812	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.8410363	46.6908703	0.000249398	7.92256185	0.000132164	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.8454757	49.2607593	0.000263125	7.964380683	0.000132862	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.8227118	50.1596757	0.000267927	7.749945501	0.000129285	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7768309	49.5933611	0.000264902	7.317746978	0.000122075	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.7019445	46.8726612	0.000250369	6.612317319	0.000110307	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.6273096	43.6780561	0.000233306	5.909256048	9.85782E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.5605509	40.6105926	0.000216921	5.280389763	8.80874E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
T7 Single	Natural Gas	0.408129	30.788594	0.000164457	3.844575342	6.41352E-05	0.015246213	0.372426768	0	4.03928	85.70311992	0	0.163862654	11.3308218	0	0.002255936	0.046697043	0	0.03600001	0.088782956	0.00207425	0.04293621	0	0.009000003	0.031074035	0	0	0	1.089015	26.60191	0	0	0	0	1.06	0	0	0
		Total:	187,214	100.00%	59,945	100.00%																																
			Weighted Average Emission Factors*:				0.00300		0.01184	0.05658		0.19770	0.15800		0.50881	0.00196		0.00003	0.01573	0.03780	0.00187		0.00003	0.00393	0.01323													

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Tractor Trailer Trucks (2016+ Model Year)																																						
T7 Tractor	Diesel	0.4098287	23.6090212	0.001010201	5.95481158	0.00131755	0.010874888	3.456342696	0	0.0888697	51.07029647	0	1.431365375	40.8433834	4.37918473	0.032522873	0.014709587	0	0.03600001	0.078374803	0.031115948	0.01407326	0	0.009000003	0.027431181	0	0	0	0.01238	3.934783	0	0	0	0	0.22	0.015359	0.080176	0
T7 Tractor	Diesel	0.6336327	36.501706	0.001561862	9.206683333	0.002037053	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.431365375	40.8433834	4.37918473	0.026552545	0.014709587	0	0.03600001	0.078374803	0.025403893	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.015968	0.077869	0
T7 Tractor	Diesel	0.5152144	29.6799748	0.001269969	7.486064595	0.001656352	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.431365375	40.8433834	4.37918473	0.026552545	0.014709587	0	0.03600001	0.078374803	0.025403893	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.015571	0.077869	0
T7 Tractor	Diesel	0.8110154	46.7202003	0.001999099	11.78405441	0.002607317	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.431365375	40.8433834	4.37918473	0.026552545	0.014709587	0	0.03600001	0.078374803	0.025403893	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.015571	0.077869	0
T7 Tractor	Diesel	0.8990698	51.7927525	0.002216147	13.0634845	0.002890402	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.431365375	40.8433834	4.37918473	0.026552545	0.014709587	0	0.03600001	0.078374803	0.025403893	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.015571	0.077869	0
T7 Tractor	Diesel	1.0248511	59.0386408	0.00252619	14.89108674	0.003294773	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.431365375	40.8433834	4.37918473	0.026552545	0.014709587	0	0.03600001	0.078374803	0.025403893	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.013377	0.068352	0
T7 Tractor	Diesel	1.2990908	74.8367753	0.003202172	18.87578875	0.004176421	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.431365375	40.8433834	4.37918473	0.026552545	0.014709587	0	0.03600001	0.078374803	0.025403893	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.013377	0.068352	0
T7 Tractor	Diesel	1.5704615	90.4696436	0.003871083	22.81880631	0.005048845	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.425522583	40.8433834	4.37918473	0.026446359	0.014709587	0	0.03600001	0.078374803	0.025302301	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.013377	0.068352	0
T7 Tractor	Diesel	1.8279687	105.30387	0.004505821	26.56038558	0.0058767	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.425522583	40.8433834	4.37918473	0.026446359	0.014709587	0	0.03600001	0.078374803	0.025302301	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.012399	0.064283	0
T7 Tractor	Diesel	2.1940445	126.392414	0.005408174	31.87946685	0.00705359	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.369686865	32.0642653	4.00749087	0.026451395	0.014709587	0	0.03600001	0.078374803	0.025307119	0.01407326	0	0.009000003	0.027431181	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.012396	0.064268	0
T7 Tractor	Diesel	2.6134242	150.551634	0.006441916	37.97305311	0.008401845	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.371049169	32.2581712	4.01570054	0.026453629	0.014709587	0	0.03600001	0.086604652	0.025309257	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.012392	0.064244	0
T7 Tractor	Diesel	3.1145974	179.422741	0.007677275	45.25510007	0.010013057	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.373384444	32.5905667	4.02977363	0.026457459	0.014709587	0	0.03600001	0.086604652	0.025312921	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011848	0.062186	0
T7 Tractor	Diesel	3.7280121	214.759747	0.009189301	54.16801559	0.011985111	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.33607797	30.9579415	3.3571796	0.026417037	0.014709587	0	0.03600001	0.086604652	0.025274248	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011833	0.062108	0
T7 Tractor	Diesel	4.5205849	260.417524	0.011142941	65.68409911	0.014533138	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.340381858	31.4044415	3.40334095	0.026423158	0.014709587	0	0.03600001	0.086604652	0.025280104	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011818	0.062026	0
T7 Tractor	Diesel	5.2431503	302.042377	0.012924016	76.18297381	0.016856099	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.344847884	31.8677624	3.45124132	0.026429509	0.014709587	0	0.03600001	0.086604652	0.02528618	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011802	0.061941	0
T7 Tractor	Diesel	5.9816976	344.5879	0.014744486	86.91406575	0.019230439	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.349485387	32.3488729	3.50098086	0.026436104	0.014709587	0	0.03600001	0.086604652	0.02529249	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011785	0.061853	0
T7 Tractor	Diesel	6.6593801	383.627185	0.016414928	96.7607928	0.021409107	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.333189837	32.8488176	3.55266758	0.025878629	0.014709587	0	0.03600001	0.086604652	0.024759131	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	7.478891	442.718166	0.018943358	108.6682863	0.024043737	0.01112792	3.456342696	0	0.0516322	51.07029647	0	1.333189837	32.8488176	3.55266758	0.025878629	0.014709587	0	0.03600001	0.086604652	0.024759131	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012668	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	8.5338044	519.67258	0.022236141	123.9961779	0.027435156	0.011112335	3.456342696	0	0.0515599	51.07029647	0	1.331482117	32.8488176	3.55266758	0.025812385	0.014709587	0	0.03600001	0.086604652	0.024695753	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012651	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	9.6151529	602.939861	0.025799044	139.7081717	0.030911562	0.011074513	3.456342696	0	0.0513844	51.07029647	0	1.327319166	32.8488176	3.55266758	0.025651624	0.014709587	0	0.03600001	0.086604652	0.024541946	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012607	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	10.497841	678.477123	0.029031189	152.5336233	0.033749297	0.011014455	3.456342696	0	0.0511057	51.07029647	0	1.320653555	32.8488176	3.55266758	0.025396345	0.014709587	0	0.03600001	0.086604652	0.02429771	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012539	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	11.347412	756.469339	0.032368379	164.8778981	0.036480567	0.010932159	3.456342696	0	0.0507239	51.07029647	0	1.311407221	32.8488176	3.55266758	0.025046548	0.014709587	0	0.03600001	0.086604652	0.023963046	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012445	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	12.037164	828.279846	0.035441061	174.8999877	0.038698036	0.010827627	3.456342696	0	0.0502389	51.07029647	0	1.299467377	32.8488176	3.55266758	0.024602234	0.014709587	0	0.03600001	0.086604652	0.023537952	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012326	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	12.873399	914.878641	0.039146515	187.0504943	0.041386434	0.010700858	3.456342696	0	0.0496507	51.07029647	0	1.284680207	32.8488176	3.55266758	0.024063402	0.014709587	0	0.03600001	0.086604652	0.02302243	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012182	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	13.691922	1005.47911	0.043023196	198.9436209	0.044017884	0.010551852	3.456342696	0	0.0489593	51.07029647	0	1.266841472	32.8488176	3.55266758	0.023430052	0.014709587	0	0.03600001	0.086604652	0.022416478	0.01407326	0	0.009000003	0.030311628	0	0	0	0.012012	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	14.447713	1096.81146	0.046931193	209.9252684	0.046447662	0.010380609	3.456342696	0	0.0481648	51.07029647	0	1.245682639	32.8488176	3.55266758	0.022702185	0.014709587	0	0.03600001	0.086604652	0.021720098	0.01407326	0	0.009000003	0.030311628	0	0	0	0.011818	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	14.644498	1149.70034	0.049194242	212.7845529	0.047080302	0.010187129	3.456342696	0	0.047267	51.07029647	0	1.220850082	32.8488176	3.55266758	0.021879799	0.014709587	0	0.03600001	0.086604652	0.020933289	0.01407326	0	0.009000003	0.030311628	0	0	0	0.011597	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	14.631461	1188.223	0.050842579	212.5951257	0.04703839	0.009971413	3.456342696	0	0.0462661	51.07029647	0	1.191873156	32.8488176	3.55266758	0.020962897	0.014709587	0	0.03600001	0.086604652	0.020056051	0.01407326	0	0.009000003	0.030311628	0	0	0	0.011352	3.934783	0	0	0	0	0.22	0.011768	0.061762	0
T7 Tractor	Diesel	14.33614	1204.58522	0.051542698	208.3041182	0.04608897	0.009733459	3.456342696	0	0.0451621	51.07029647	0	1.146507651	31.8188083	3.44618021	0.019923414	0.014709587	0	0.03600001	0.086604652	0.019061536	0.01407326	0	0.009000003	0.030311628	0	0	0	0.011081	3.934783	0	0	0	0	0.22	0.011803	0.06195	0
T7 Tractor	Diesel	13.080009	1137.30712	0.048663952	190.0525339	0.042050659	0.009473269	3.456342696	0	0.0439548	51.07029647	0	1.080281553	29.3706052	3.19307305	0.018723517	0.014709587	0	0.03600001	0.086604652	0.017913546	0.01407326	0	0.009000003	0.030311628	0	0	0	0.010785	3.934783	0	0	0	0	0.22	0.011889	0.062398	0
T7 Tractor	Diesel	11.675415	1050.63659	0.044955428	169.6437761	0.037535056	0.009190842	3.456342696	0	0.0426444	51.07029647	0	0.996459174	25.8100376	2.82496423	0.017413263	0.014709587	0	0.03600001	0.086604652	0.016659973	0.01407326	0	0.009000003	0.030311628	0	0	0	0.010463	3.934783	0	0	0	0	0.22	0.012013	0.063049	0
T7 Tractor	Diesel	9.3750422	873.149914	0.037360995	136.2193635	0.030139635	0.008886178	3.456342696	0	0.0412308	51.07029647	0	0.898622194	21.5310204	2.38257859	0.016050642	0.014709587	0	0.03600001	0.086604652	0.015356299	0.01407326	0	0.009000003	0.030311628	0	0	0	0.010116	3.934783	0	0	0	0	0.22	0.012162	0.063831	0
T7 Tractor	Diesel	7.4951751	722.500919	0.030914912	108.9048941	0.024096088	0.008559277	3.456342696	0	0.039714	51.07029647	0	0.791620472	17.1820048	1.93295617	0.014691935	0.014709587	0	0.03600001	0.086604652	0.014056369	0.01407326	0	0.009000003	0.030311628	0	0	0	0.009744	3.934783	0	0	0	0	0.22	0.012313	0.064625	0
T7 Tractor	Diesel	6.6781942	666.26195	0.028508517	97.03416138	0.021469592	0.00821014	3.456342696	0	0.038094	51.07029647	0	0.680540655	13.7803135	1.58127276	0.013377785	0.014709587	0	0.03600001	0.086604652	0.012799068	0.01407326	0	0.009000003	0.030311628	0	0	0	0.009347	3.934783	0	0	0	0	0.22	0.012432	0.065247	0
T7 Tractor	Diesel	4.6695282	482.126511	0.020629592	67.8482443	0.015011972	0.007838765	3.456342696	0	0.0363709	51.07029647	0	0.562982983	12.6222591	1.46154746	0.012104913	0.014709587	0	0.03600001	0.086604652	0.01158126	0.01407326	0	0.009000003	0.030311628	0	0	0	0.008924	3.934783	0	0	0	0	0.22	0.012472	0.065459	0
T7 Tractor	Electricity	0.0341419	1.96681332	8.41575E-05	0.496081673	0.000109762	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.039187401	0	0	0	0.009000003	0.01371559	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.0577688	3.32788831	0.000142396	0.839380326	0.00018572	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.039187401	0	0	0	0.009000003	0.01371559	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.0993345	5.72236756	0.000244853	1.443330512	0.000319349	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.1807416	10.4119907	0.000445516	2.626175905	0.000581063	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.2936873	16.9184558	0.00072392	4.267276292	0.000944169	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.4533863	26.1182456	0.001117567	6.587703503	0.001457583	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.6429123	37.0362783	0.001584736	9.341516422	0.002066886	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	0.8721461	50.2417559	0.002149782	12.67228266	0.002803845	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	1.1313817	65.1755548	0.002788781	16.43897668	0.003637256	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	1.2706109	75.2146959	0.003218343	18.46197589	0.004084861	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	1.4498332	88.2887083	0.003777764	21.06607663	0.00466104	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	1.6335467	102.435233	0.004383076	23.73543363	0.005251657	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	1.7835091	115.268481	0.004932194	25.91438746	0.005733768	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	1.9278453	128.518809	0.005499159	28.01159274	0.006197791	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.0450293	140.718908	0.006021186	29.71427513	0.006574524	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.1870998	155.431433	0.006650717	31.77856055	0.007031263	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.326161	170.823814	0.007309338	33.79911893	0.007478328	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.4545646	186.340537	0.007973279	35.66482345	0.00789113	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.487997	195.325984	0.008357755	36.15059573	0.007998611	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.4857821	201.870713	0.008637796	36.11841337	0.007991491	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.7494099	231.017444	0.009884948	39.9489252	0.008839023	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	3.1890191	277.285291	0.011864691	46.33644815	0.010252314	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	3.7299967	335.651545	0.014362111	54.19685169	0.011991491	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	3.847593	358.347774	0.015333254	55.9055266	0.01236955	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	3.7687932	363.294589	0.015544922	54.76056527	0.012116218	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	3.8407548	383.179752	0.016395783	55.80616732	0.012347566	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Electricity	2.8004498	289.145079	0.012372157	40.69053558	0.00900311	0	0	0	0	0	0	0	0	0	0	0	0	0.03600001	0.043302326	0	0	0	0.009000003	0.015155814	0	0	0	0	0	0	0	0	0	0	0	0	0
T7 Tractor	Natural Gas	0.8420176	48.5061417	0.002075517	12.23451545	0.002706985	0.014188062	0.98293806	0	10.328729	70.01751009	0	0.597521041	22.6782672	0	0.001156586	0.043712749	0	0.03600001	0.078374803	0.001063438	0.04019226	0	0.009000003	0.027431181	0	0	0	1.013433	70.20986	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.0827115	4.76476756	0.000203878	1.20179879	0.000265908	0.01444223	0.98293806	0	6.7499484	70.01751009	0	0.435726027	22.6782672	0	0.001661173	0.043712749	0	0.03600001	0.078374803	0.001527387	0.04019226	0	0.009000003	0.027431181	0	0	0	1.031588	70.20986	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.0067433	0.38846207	1.66218E-05	0.097980278	2.16789E-05	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.0225371	1.29829349	5.55524E-05	0.327463517	7.24539E-05	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.0763816	4.40011525	0.000188275	1.109823956	0.000245558	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.0870675	5.01569837	0.000214615	1.26509009	0.000279911	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.1103658	6.35784778	0.000272044	1.603615217	0.000354813	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.1334204	7.68595681	0.000328872	1.938598992	0.000428931	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.1552973	8.94621628	0.000382797	2.256469335	0.000499262	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.1863977	10.7378187	0.000459458	2.708358249	0.000599246	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.078374803	0.001991337	0.07966466	0	0.009000003	0.027431181	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.2220266	12.7902942	0.000547281	3.22604616	0.000713789	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.2646043	15.2430736	0.000652232	3.844701172	0.000850671	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.3167177	18.2451712	0.000780688	4.601908574	0.001018209	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.3840517	22.1240823	0.000946662	5.580271228	0.00123468	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.4454381	25.6603715	0.001097975	6.47221569	0.00143203	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.5081823	29.2748773	0.001252635	7.383888444	0.001633745	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.5657556	32.5915065	0.00139455	8.220428922	0.001818836	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.6353781	37.6116515	0.001609356	9.232044279	0.002042664	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.7249996	44.1494058	0.001889098	10.53424365	0.002330787	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.8168668	51.2234773	0.002191789	11.86907488	0.002626129	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.8918566	57.6408357	0.002466379	12.95867646	0.002867212	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.964033	64.2667578	0.002749894	14.0073991	0.00309925	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.0226316	70.3675053	0.003010938	14.85883772	0.003287638	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.0936751	77.7246095	0.003325739	15.89109854	0.003516034	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.1632136	85.421681	0.003655087	16.90149334	0.003739592	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.2274227	93.1809302	0.003987096	17.83445235	0.003946017	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.2441408	97.6741677	0.004179356	18.07736628	0.003999763	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.2430333	100.946907	0.004319392	18.06127326	0.003996203	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.2179439	102.336979	0.004378872	17.69672558	0.003915544	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	1.1112278	96.6212867	0.004134304	16.1461404	0.003572464	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.9918988	89.2580887	0.003819242	14.41228997	0.003188836	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.7964679	74.1794956	0.003174048	11.57267901	0.002560549	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.6367616	61.38093	0.002626413	9.252145577	0.002047112	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.567354	56.6030811	0.002421975	8.243653276	0.001823975	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
T7 Tractor	Natural Gas	0.3967054	40.9596346	0.001752612	5.764128772	0.00127536	0.014589653	0.691007716	0	3.6571568	159.0152004	0	0.160350843	21.0234226	0	0.002165761	0.086642583	0	0.03600001	0.086604652	0.001991337	0.07966466	0	0.009000003	0.030311628	0	0	0	1.042118	49.35769	0	0	0	0	1.06	0	0	0
		Total:	23,371	100.00%	4,520	100.00%																																
				Weighted Average Emission Factors*:			0.00869		0.00000	0.29375		0.00000	0.90185		2.57610	0.01665		0.00000	0.03600	0.07890	0.01593		0.00000	0.00900	0.02762													

*Calculated

Idling Emission Factors
Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.
Model Year 2016+

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Electricity	1.45134648	0.00186287	0	0	0	0	0
T6TS	Electricity	1.587956572	0.002563007	0	0	0	0	0
T6TS	Gasoline	17.75183255	0.058524425	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	57.54192202	0.062852994	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	36.3955502	0.066629551	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	11.23800599	0.070016812	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	13.12735605	0.073061337	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	15.84659906	0.076637116	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	18.34952013	0.079910163	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	18.48612566	0.080992912	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	16.7944496	0.082975077	1.028580008	15.30093521	0.089555892	0	0
T6TS	Gasoline	14.28021867	0.085397243	1.028580008	15.30093521	0.035839852	0	0
		Total:	74.14%					
		T6TS Weighted Average Emission Factors*:		1.02244	15.20960	0.08283	0.00000	0.00000
T6 instate small	Diesel	330.1307535	0.005527129	0.17221846	7.292564252	9.968575291	0.00238059	0.002488229
T6 instate small	Diesel	249.2179204	0.005080311	0.173174988	7.333068297	10.02394232	0.002393812	0.002502049
T6 instate small	Diesel	150.4675843	0.003766898	0.174312564	7.381238747	10.08978895	0.002409536	0.002518485
T6 instate small	Diesel	243.9791877	0.007935197	0.172838972	7.318839742	10.00449259	0.002389167	0.002497194
T6 instate small	Diesel	122.4544921	0.005087479	0.172724809	7.314005511	9.997884433	0.002387589	0.002495545
T6 instate small	Diesel	37.34040483	0.002144742	0.166472794	7.049264894	9.635997081	0.002301167	0.002405215
T6 instate small	Diesel	22.93113528	0.001586647	0.168741582	7.145336395	9.767322079	0.002332528	0.002437995
T6 instate small	Diesel	137.6706941	0.01091076	0.172971226	7.324439998	10.01214786	0.002390995	0.002499105
T6 instate small	Diesel	78.74667987	0.008052896	0.172585859	7.308121693	9.989841545	0.002385668	0.002493537
T6 instate small	Diesel	85.64918991	0.015048882	0.173194439	7.33389193	4.011985706	0.002394081	0.00250233
T6 instate small	Diesel	15.0334608	0.017569901	0.173127012	7.331036766	4.024250206	0.002393149	0.002501356
T6 instate small	Electricity	6.902688828	0.033227511	0	0	0	0	0
T6 instate small	Electricity	9.660680923	0.036326639	0	0	0	0	0
T6 instate small	Electricity	2.045336262	0.039420368	0	0	0	0	0
T6 instate small	Natural Gas	1.75518609	0.04744012	0.168907164	38.86904004	5.138881389	0.01947291	0.021178567
T6 instate small	Natural Gas	0.535214005	0.042853069	0.162793334	37.462121	4.952872419	0.018768061	0.020411979
T6 instate small	Natural Gas	0.328680549	0.028005517	0.165011977	37.97267667	5.020373058	0.019023843	0.020690165
T6 instate small	Natural Gas	1.973285611	0.000612432	0.169148135	38.92449235	5.146212747	0.019500691	0.021208781
T6 instate small	Natural Gas	1.12870565	0.001422515	0.168771285	38.83777149	5.134747369	0.019457245	0.021161529
T6 instate small	Natural Gas	1.227641911	0.001996614	0.169366414	38.97472304	5.152853752	0.019525856	0.02123615
T6 instate small	Natural Gas	0.215480223	0.003731978	0.169300478	38.95954976	5.150847691	0.019518254	0.021227883
		Total:	31.77%					
		T6 instate small Single Weighted Average Emission Factors*:		0.11082	17.05791	3.99000	0.00821	0.00891
T7 Single	Diesel	22.34779936	0.00559894	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	20.35620962	0.00618122	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	24.73656877	0.009009393	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	53.35091691	0.021328331	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	16.73895573	0.007460954	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	11.39399031	0.006578758	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	13.15264337	0.008032858	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	12.65503307	0.00954244	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	11.62653372	0.010185762	1.862836709	27.52493933	22.01302375	0.007584948	0.007927905
T7 Single	Diesel	15.63195295	0.02332954	1.862836709	27.52493933	9.00190849	0.007584948	0.007927905
T7 Single	Diesel	2.452255856	0.024886505	1.862836709	27.52493933	9.035739929	0.007584948	0.007927905
T7 Single	Electricity	1.032746867	0.029689963	0	0	0	0	0
T7 Single	Electricity	1.818321737	0.031033862	0	0	0	0	0
T7 Single	Electricity	0.343964777	0.033946629	0	0	0	0	0
T7 Single	Natural Gas	1.322325387	0.03265508	0.529766074	37.73676384	12.2227199	0.021662093	0.023559502
T7 Single	Natural Gas	1.642809786	0.029179909	0.529766074	37.73676384	12.2227199	0.021662093	0.023559502
T7 Single	Natural Gas	6.411152243	0.021245469	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	1.392078511	0.000770541	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	1.029803088	0.002191752	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.700973621	0.00280831	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.809168324	0.005052175	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.778554669	0.008594068	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.715280004	0.012663248	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.961698787	0.017022592	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
T7 Single	Natural Gas	0.150866081	0.020184681	0.372426768	85.70311992	11.33082185	0.042936207	0.046697043
		Total:	37.92%					
		T7 Single Weighted Average Emission Factors*:		0.071728441	0.82448	36.20880	10.71750	0.01643	0.01775

		T6TS Weighted Average Emission Factors*:	0.040363787	1.02244	15.20960	0.08283	0.00000	0.00000
		T6 instate small Single Weighted Average Emission Factors*:	0.309975191	0.11082	17.05791	3.99000	0.00821	0.00891
		T7 Single Weighted Average Emission Factors*:	0.071728441	0.82448	36.20880	10.71750	0.01643	0.01775
		Total:	42.21%					
		Single-Unit Truck Weighted Average Emission Factors*:		0.45940	20.13576	4.75965	0.00882	0.00956
Tractor Trailer Trucks								
T7 Tractor	Diesel	10.32863648	0.00131755	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	13.20150408	0.002037053	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	8.787135768	0.001656352	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	11.34599056	0.002607317	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	9.70501091	0.002890402	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	8.510153956	0.003294773	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	7.600419392	0.004176421	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	6.486424361	0.005048845	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	5.753115478	0.0058767	3.456342696	51.07029647	40.84338337	0.014073256	0.014709587
T7 Tractor	Diesel	3.970185798	0.00705359	3.456342696	51.07029647	16.80945871	0.014073256	0.014709587
T7 Tractor	Diesel	1.643916459	0.008401845	3.456342696	51.07029647	16.90309586	0.014073256	0.014709587
T7 Tractor	Electricity	0.282541162	0.033749297	0	0	0	0	0
T7 Tractor	Electricity	0.286175448	0.036480567	0	0	0	0	0
T7 Tractor	Electricity	0.174240195	0.038698036	0	0	0	0	0
T7 Tractor	Natural Gas	21.22079951	0.024096088	0.98293806	70.01751009	22.67826721	0.040192259	0.043712749
T7 Tractor	Natural Gas	1.723264617	0.021469592	0.98293806	70.01751009	22.67826721	0.040192259	0.043712749
T7 Tractor	Natural Gas	0.11500916	0.015011972	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.315290294	0.000109762	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.824500813	0.00018572	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.722990311	0.000319349	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.645702723	0.000581063	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.551061942	0.000944169	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.488762809	0.001457583	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.337291885	0.002066886	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
T7 Tractor	Natural Gas	0.13966089	0.002803845	0.691007716	159.0152004	21.02342258	0.079664657	0.086642583
		Total:	22.23%					
		Weighted Average Emission Factors*:		0.96404	41.33249	13.34999	0.01946	0.02104

*Calculated

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups (Average Fleet Mix)														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
					Total:	27,737	100%							
					Weighted Average Emission Factors*:			0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans (Average Fleet Mix)														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
					Total:	8,426	100%							
					Weighted Average Emission Factors*:			0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks (2016+ model year)														
San Francisco (SF)	2025	T6 instate small	2016+	5	Diesel	1684.485132	72%	0.029069802	0.033093756	0.142582266	1.249201863	0.018607752	0.003039086	0.002907617
San Francisco (SF)	2025	T6 instate small	2016+	5	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	2016+	5	Natural Gas	8.945045387	0%	0.03610457	2.578897878	8.19138056	0.11746531	0	0.004687538	0.004310018
San Francisco (SF)	2025	T6TS	2016+	5	Gasoline	429.8965341	18%	0.056760411	0.082824659	0.307992726	0.15014577	0.03637541	0.007585843	0.006974902
San Francisco (SF)	2025	T6TS	2016+	5	Electricity	7.281077916	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	2016+	5	Diesel	159.6113784	7%	0.018617172	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	2016+	5	Electricity	2.815018602	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	2016+	5	Natural Gas	12.38340112	1%	0.073574465	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
					Total:	2,328	100%							
					Weighted Average Emission Factors*:			0.03332	0.08407	0.35148	1.33320	0.02202	0.00419	0.00395
					Note: Highlighted speeds indicate where there was no data for emissions factors at the 5mph speed bin, and emissions for 10 mph were used.									
Tractor Trailer Trucks (2016+ model year)														
San Francisco (SF)	2025	T7 Tractor	2016+	5	Diesel	59.91344111	77%	0.046069264	1.489872574	5.21167941	6.552037088	0.011812857	0.004241577	0.00401937
San Francisco (SF)	2025	T7 Tractor	2016+	5	Electricity	0.522153817	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	2016+	5	Natural Gas	16.98355486	22%	0.089906973	6.421926621	22.68959339	3.103883369	0	0.005705029	0.005245563
					Total:	77	100%							
					Weighted Average Emission Factors*:			0.05538	2.56178	9.01069	5.75142	0.00914	0.00453	0.00426
					Note: Highlighted speeds indicate where there was no data for emissions factors at the 5mph speed bin, and emissions for 10 mph were used.									

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups (Average Fleet Mix)														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.233115432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
					Total:	70,774	100%							
					Weighted Average Emission Factors*:			0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans (Average Fleet Mix)														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.233115432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
					Total:	26,002	100%							
					Weighted Average Emission Factors*:			0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks (2016+ model year)														
San Francisco (SF)	2016+	T6 instate small	2016+	10	Diesel	1684.485132	63%	0.029069802	0.033093756	0.142582266	1.249201863	0.018607752	0.003039086	0.002907617
San Francisco (SF)	2016+	T6 instate small	2016+	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T6 instate small	2016+	10	Natural Gas	8.945045387	0%	0.03610457	2.578897878	8.19138056	0.11746531	0	0.004687538	0.004310018
San Francisco (SF)	2016+	T6TS	2016+	10	Gasoline	767.5545344	29%	0.03573397	0.052142925	0.280644584	0.130277679	0.029528882	0.004772994	0.004388592
San Francisco (SF)	2016+	T6TS	2016+	10	Electricity	12.99992888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Single	2016+	10	Diesel	159.6113784	6%	0.018617172	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2016+	T7 Single	2016+	10	Electricity	2.815018602	0%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Single	2016+	10	Natural Gas	12.38340112	0%	0.073574465	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
					Total:	2,672	100%							
					Weighted Average Emission Factors*:			0.03017	0.07492	0.33737	1.17512	0.02182	0.00380	0.00358
Tractor Trailer Trucks (2016+ model year)														
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Diesel	59.91344111	77%	0.046069264	1.489872574	5.21167941	6.552037088	0.011812857	0.004241577	0.00401937
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Electricity	0.522153817	1%	0	0	0	0	0	0	0
San Francisco (SF)	2016+	T7 Tractor	2016+	10	Natural Gas	16.98355486	22%	0.089906973	6.421926621	22.68959339	3.103883369	0	0.005705029	0.005245563
					Total:	77	100%							
					Weighted Average Emission Factors*:			0.05538	2.56178	9.01069	5.75142	0.00914	0.00453	0.00426

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2050	T6 instate small	2016	Aggregate	Diesel	8.727726632	237.3083451	0.001751608	113.5149059	0.002463369	0.00667037	0.172215813	0	0.055351574	7.292452178	0	0.420216093	9.968422092	1.733069333	0.00271173	0.002380553	0	0.003000001	0.016232482	0.002834342	0.002488191	0	0.012000003	0.046378521	0	0	0	0.007593708	0.196054594	0	0	0	0	0.22	0.011653702	0.020417322	0
San Francisco (SF)	2050	T6 instate small	2017	Aggregate	Diesel	8.152450599	219.7730581	0.001622177	104.3382588	0.002264228	0.006625292	0.173172228	0	0.054455356	7.332951428	0	0.412099661	10.02378257	1.750540656	0.002817194	0.002393774	0	0.003000001	0.016160192	0.002944575	0.002502009	0	0.012000003	0.046171977	0	0	0	0.007542391	0.1971434	0	0	0	0	0.22	0.011188828	0.019754503	0
San Francisco (SF)	2050	T6 instate small	2018	Aggregate	Diesel	6.163913308	164.4121054	0.00121355	77.36368833	0.001678857	0.006570726	0.174310299	0	0.053370499	7.381142853	0	0.402274859	10.08965787	1.772084327	0.002944856	0.002409505	0	0.003000001	0.016072686	0.003078009	0.002518452	0	0.012000003	0.045921959	0	0	0	0.007480272	0.198439007	0	0	0	0	0.22	0.011159437	0.019884328	0
San Francisco (SF)	2050	T6 instate small	2019	Aggregate	Diesel	12.6614022	342.1422212	0.002525402	162.9712525	0.003536613	0.006641462	0.172835816	0	0.05477683	7.318706087	0	0.415011026	10.00430989	1.744330905	0.002779364	0.002389123	0	0.003000001	0.016186123	0.002905034	0.002497149	0	0.012000003	0.046246064	0	0	0	0.007560798	0.19676042	0	0	0	0	0.22	0.011197537	0.019716127	0
San Francisco (SF)	2050	T6 instate small	2020	Aggregate	Diesel	8.101886738	219.2527409	0.001618337	104.4854776	0.002267423	0.006646705	0.17272107	0	0.054881076	7.31384718	0	0.415955115	9.997668003	1.74222894	0.002767096	0.002387537	0	0.003000001	0.016194531	0.002892212	0.002495491	0	0.012000003	0.046270089	0	0	0	0.007566768	0.19662979	0	0	0	0	0.22	0.011200362	0.019703038	0
San Francisco (SF)	2050	T6 instate small	2021	Aggregate	Diesel	3.090296573	88.36291815	0.00065222	44.048216	0.000955883	0.006925324	0.166475522	0	0.060420466	7.049380428	0	0.466121556	9.636155009	1.638914948	0.00211524	0.002301204	0	0.003000001	0.016641347	0.002210882	0.002405255	0	0.012000003	0.047546707	0	0	0	0.007883954	0.18951971	0	0	0	0	0.22	0.010265261	0.017174962	0
San Francisco (SF)	2050	T6 instate small	2022	Aggregate	Diesel	2.367943174	66.36002814	0.000489813	32.58619517	0.000707148	0.006828086	0.168740967	0	0.058487217	7.145310327	0	0.448613445	9.767286446	1.674034538	0.002342738	0.00233252	0	0.003000001	0.016485408	0.002448666	0.002437986	0	0.012000003	0.047101167	0	0	0	0.007773256	0.192098746	0	0	0	0	0.22	0.010217893	0.017408684	0
San Francisco (SF)	2050	T6 instate small	2023	Aggregate	Diesel	17.44819356	470.9110713	0.003475863	224.0826883	0.004862783	0.006635189	0.172968141	0	0.054652118	7.324309367	0	0.407581987	10.0119693	1.746765021	0.002761244	0.002390952	0	0.003000001	0.016176063	0.002886095	0.002499061	0	0.012000003	0.046217323	0	0	0	0.007553657	0.196911062	0	0	0	0	0.22	0.010123927	0.017844793	0
San Francisco (SF)	2050	T6 instate small	2024	Aggregate	Diesel	12.79433693	346.5238712	0.002557743	165.388531	0.00358907	0.006653424	0.172581826	0	0.055014671	7.307950927	0	0.411112555	9.989608115	1.739689109	0.002720782	0.002385612	0	0.003000001	0.016205307	0.002843804	0.002493479	0	0.012000003	0.046300878	0	0	0	0.007574417	0.196471272	0	0	0	0	0.22	0.009947313	0.017478991	0
San Francisco (SF)	2050	T6 instate small	2025	Aggregate	Diesel	24.15262583	650.6367885	0.004802445	309.0704821	0.006707089	0.006625084	0.173180667	0	0.054451221	7.333308751	0	0.365886719	4.985429806	1.403199671	0.002789314	0.00239389	0	0.003000001	0.016159858	0.002915434	0.002502131	0	0.012000003	0.046171024	0	0	0	0.007542154	0.197153006	0	0	0	0	0.22	0.009930622	0.0175341	0
San Francisco (SF)	2050	T6 instate small	2026	Aggregate	Diesel	28.20926826	759.9120945	0.005609022	360.8465894	0.007830674	0.006623983	0.17320268	0	0.054429329	7.33424092	0	0.365906991	5.014402842	1.405482033	0.002791517	0.002394194	0	0.003000001	0.016158093	0.002917737	0.002502449	0	0.012000003	0.046165979	0	0	0	0.0075409	0.197178067	0	0	0	0	0.22	0.009926849	0.017530595	0
San Francisco (SF)	2050	T6 instate small	2027	Aggregate	Diesel	32.23517118	867.8797222	0.006405947	411.9632982	0.00893995	0.006621408	0.173257172	0	0.054378127	7.33654836	0	0.366486799	5.123388793	1.413705591	0.002798136	0.002394948	0	0.003000001	0.016153963	0.002924656	0.002503237	0	0.012000003	0.046154179	0	0	0	0.007537969	0.197240102	0	0	0	0	0.22	0.009823625	0.017355914	0
San Francisco (SF)	2050	T6 instate small	2028	Aggregate	Diesel	35.4148803	953.2636732	0.007036178	452.4061961	0.009817595	0.006620212	0.173282323	0	0.054354358	7.337613363	0	0.318971208	4.122383034	0.757225454	0.002715382	0.002395295	0	0.003000001	0.016152045	0.002838159	0.0025036	0	0.012000003	0.046148701	0	0	0	0.007536608	0.197268734	0	0	0	0	0.22	0.009793417	0.017306052	0
San Francisco (SF)	2050	T6 instate small	2029	Aggregate	Diesel	37.78498135	1017.03076	0.007506853	482.6535546	0.010473988	0.00662004	0.173285905	0	0.054350944	7.337765064	0	0.323245961	4.397715729	0.803629796	0.002721049	0.002395345	0	0.003000001	0.01615177	0.002844083	0.002503652	0	0.012000003	0.046147914	0	0	0	0.007536412	0.197272813	0	0	0	0	0.22	0.009757036	0.017242261	0
San Francisco (SF)	2050	T6 instate small	2030	Aggregate	Diesel	39.54588262	1064.816228	0.007859564	505.4593632	0.010968893	0.006621763	0.173249531	0	0.054385185	7.336224794	0	0.328874704	4.741617308	0.86140723	0.002723815	0.002394842	0	0.003000001	0.016154532	0.002846974	0.002503126	0	0.012000003	0.046155805	0	0	0	0.007538373	0.197231403	0	0	0	0	0.22	0.009712355	0.017158277	0
San Francisco (SF)	2050	T6 instate small	2031	Aggregate	Diesel	41.40158341	1115.3906	0.008232861	529.7650117	0.011496346	0.006622761	0.173184308	0	0.054429735	7.333462932	0	0.332488047	4.947097165	0.895715155	0.002720061	0.002393941	0	0.003000001	0.01615953	0.00284305	0.002502184	0	0.012000003	0.046170085	0	0	0	0.007539509	0.197157151	0	0	0	0	0.22	0.009686455	0.017103512	0
San Francisco (SF)	2050	T6 instate small	2032	Aggregate	Diesel	43.75210791	1231.014546	0.009086298	561.0397944	0.012175035	0.006601192	0.173058309	0	0.054181939	7.32812754	0	0.318953075	5.180612221	0.934427196	0.002590387	0.002392199	0	0.003000001	0.016149806	0.002707513	0.002500363	0	0.012000003	0.046142303	0	0	0	0.007514954	0.197013712	0	0	0	0	0.22	0.009652317	0.017035807	0
San Francisco (SF)	2050	T6 instate small	2033	Aggregate	Diesel	46.34760725	1355.377099	0.010004236	594.8508284	0.012908763	0.006564206	0.173005832	0	0.053783951	7.325905417	0	0.322012095	5.453099707	0.980021851	0.002612072	0.002391473	0	0.003000001	0.016136745	0.002730178	0.002499605	0	0.012000003	0.046104984	0	0	0	0.007472848	0.196953971	0	0	0	0	0.22	0.009612345	0.01696677	0
San Francisco (SF)	2050	T6 instate small	2034	Aggregate	Diesel	48.419709	1470.445815	0.010853575	621.7610228	0.013492737	0.006514929	0.172975831	0	0.053297929	7.324635001	0	0.325577158	5.772577786	1.033617896	0.002629502	0.002391059	0	0.003000001	0.016125303	0.002748396	0.002499172	0	0.012000003	0.046072294	0	0	0	0.007416751	0.196919816	0	0	0	0	0.22	0.009566741	0.01688915	0
San Francisco (SF)	2050	T6 instate small	2035	Aggregate	Diesel	48.36654577	1521.542371	0.011230727	621.8990626	0.013495733	0.006456041	0.172897749	0	0.052777146	7.32132866	0	0.33024584	6.149520652	1.096596667	0.002637352	0.002389979	0	0.003000001	0.016119834	0.002756602	0.002498044	0	0.012000003	0.04605667	0	0	0	0.007349711	0.196830926	0	0	0	0	0.22	0.009515049	0.016793069	0
San Francisco (SF)	2050	T6 instate small	2036	Aggregate	Diesel	53.01248064	1724.702952	0.012730284	682.4189874	0.014809066	0.006384613	0.172829845	0	0.052163371	7.318453268	0	0.327460453	6.147105479	1.095812931	0.002620532	0.002389041	0	0.003000001	0.016115607	0.002739021	0.002497063	0	0.012000003	0.046044592	0	0	0	0.007268396	0.196753623	0	0	0	0	0.22	0.00951384	0.016786474	0
San Francisco (SF)	2050	T6 instate small	2037	Aggregate	Diesel	57.93331645	1947.287217	0.014373211	746.0681755	0.016190307	0.0062991	0.172805679	0	0.051425878	7.317429934	0	0.32402409	6.146245933	1.095534437	0.002600913	0.002388707	0	0.003000001	0.016110041	0.002718515	0.002496713	0	0.012000003	0.046028688	0	0	0	0.007171045	0.196726111	0	0	0	0	0.22	0.009512248	0.016784126	0
San Francisco (SF)	2050	T6 instate small	2038	Aggregate	Diesel	62.87069974	2181.557655	0.016102396	809.6064583	0.017569141	0.006200161	0.172809015	0	0.050577803	7.317571223	0	0.320023436	6.146364608	1.095572875	0.002580225	0.002388753	0	0.003000001	0.016104172	0.002696892	0.002496762	0	0.012000003	0.04601192	0	0	0	0.007058412	0.196729909	0	0	0	0	0.22	0.00951057	0.01678445	0
San Francisco (SF)	2050	T6 instate small	2039	Aggregate	Diesel	66.87826	2392.841503	0.017661913	861.1881137	0.018688506	0.006088985	0.172810735	0	0.049642743	7.317644067	0	0.315579893	6.146425793	1.095592693	0.002554574	0.002388777	0	0.003000001	0.016100007	0.00267008	0.002496786	0	0.012000003	0.046000021	0	0	0	0.006931846	0.196731868	0	0	0	0	0.22	0.009509379	0.016784617	0
San Francisco (SF)	2050	T6 instate small	2040	Aggregate	Diesel	72.69197852	2681.535214	0.019792803	935.3224588	0.020297284	0.005963538	0.172856859	0	0.048580265	7.319597147	0	0.310403264	6.148066275	1.096124499	0.002527685	0.002389414	0	0.003000001	0.016094012	0.002641976	0.002497453	0	0.012000003	0.04598289	0	0	0	0.006789034	0.196784375	0	0	0	0	0.22	0.009507664	0.016789097	0
San Francisco (SF)	2050	T6 instate small	2041	Aggregate	Diesel	77.80169492	2959.062472	0.021841272	999.5593974	0.021691279	0.005823901	0.172946132	0	0.04739201	7.323377402	0	0.30436525	6.151241485	1.097156185	0.002498845	0.002390648	0	0.003000001	0.016086178	0.002611832	0.002498743	0	0.012000003	0.045960509	0	0	0	0.006630068	0.196886006	0	0	0	0	0.22	0.009505424	0.016797768	0
San Francisco (SF)	2050	T6 instate small	2042	Aggregate	Diesel	82.27349759	3219.137596	0.023760925	1056.410981	0.022925007	0.005674018	0.172979691	0	0.046156364	7.324798453	0	0.298034329	6.152435091	1.097544816	0.002459459	0.002391112	0	0.003000001	0.01608365	0.002570665	0.002499228	0	0.012000003	0.045953285	0	0	0	0.006459437	0.19692421	0	0	0	0	0.22	0.009504701	0.016801028	0
San Francisco (SF)	2050	T6 instate small	2043	Aggregate	Diesel	84.428305	3392.909049	0.025043557	1084.047382	0.02352474	0.005512691	0.172981426	0	0.044849521	7.324871916	0	0.291115283	6.152496796	1.097564919	0.002412	0.002391136	0	0.003000001	0.016084546	0.00252106	0.002499253	0	0.012000003	0.045955846	0	0	0	0.006275779	0.196926185	0	0	0	0	0.22	0.009504957	0.016801196	0
San Francisco (SF)	2050	T6 instate small	2044	Aggregate	Diesel	86.43466107	3566.027079	0.026321367	1109.367397	0.024074205	0.005337734	0.17300492	0	0.043428028	7.325866765	0	0.28262136	6.12235636	1.09262529	0.002360497	0.002391461	0	0.003000001	0.016084865	0.002467228	0.002499592	0	0.012000003	0.045956758	0	0	0	0.006076604	0.196952932	0	0	0	0	0.22	0.009509132	0.016810697	0
San Francisco (SF)	2050	T6 instate small	2045	Aggregate	Diesel	85.26767572	3605.556455	0.026613139	1094.666076	0.023755174	0.005151292	0.17298999	0	0.041934492	7.325234585	0	0.271423178	5.981114065	1.068778403	0.00229799	0.002391254	0	0.003000001	0.016088942	0.002401895	0.002499376	0	0.012000003	0.045968405	0	0	0	0.005864354	0.196935936	0	0	0	0	0.22	0.009528853	0.016842041	0
San Francisco (SF)	2050	T6 instate small	2046	Aggregate	Diesel	83.12394681	3600.298329	0.026574328	1067.246386	0.023160144	0.00495148	0.172984372	0	0.040331476	7.324996675	0	0.257279814	5.743008519	1.02868836	0.002230323	0.002391177	0	0.003000001	0.016093222	0.002331168	0.002499295	0	0.012000003	0.045980635	0	0	0	0.005636883	0.19692954	0	0	0	0	0.22	0.009561456	0.016896942	0
San Francisco (SF)	2050	T6 instate small	2047	Aggregate	Diesel	79.61168676	3529.002413	0.026048082	1022.336623	0.022185564	0.004738716	0.172973684	0	0.03862728	7.324544115	0	0.240136376	5.416505998	0.973703404	0.002157901	0.002391029	0	0.003000001	0.0160987	0.002255471	0.002499141	0	0.012000003	0.045996285	0	0	0	0.005394667	0.196917373	0	0	0	0	0.22	0.009606053	0.016971909	0
San Francisco (SF)	2050	T6 instate small	2048	Aggregate	Diesel	75.8603096	3439.172938	0.025385038	974.314295	0.021143439	0.004512681	0.172964517	0	0.036815566	7.324155931	0	0.219622123	5.011575486	0.905537682	0.002082847	0.002390902	0	0.003000001	0.016104848	0.002177024	0.002499008	0	0.012000003	0.046013851	0	0	0	0.005137344	0.196906937	0	0	0	0	0.22	0.009661219	0.017065316	0
San Francisco (SF)	2050	T6 instate small	2049	Aggregate	Diesel	68.51653288	3174.766234	0.023433413	880.1064808	0.019099051	0.004273288	0.172956981	0	0.034894591	7.323836808	0	0.195010675	4.543480456	0.826759518	0.002006748	0.002390798	0	0.003000001	0.016111614	0.002097484	0.002498899	0	0.012000003	0.046033184	0	0	0	0.004864814	0.196898357	0	0	0	0	0.22	0.009724932	0.017173615	0
San Francisco (SF)	2050	T6 instate small	2050	Aggregate	Diesel	44.78144823	2119.792912	0.015646501	575.1708749	0.012481692	0.004020117	0.172962573	0	0.032855998	7.324073596	0	0.164358149	4.038868371	0.741895551	0.001931936	0.002390875	0	0.003000001	0.016118073	0.00201929	0.00249898	0	0.012000003	0.046051636	0	0	0	0.004576597	0.196904723	0	0	0	0	0.22	0.009793447	0.017291809	0
San Francisco (SF)	2050	T6 instate small	2024	Aggregate	Electricity	0.97302323	26.35351703	0.000194519	12.57797753	0.000272953	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008102654	0	0	0	0.012000003	0.023150439	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2025	Aggregate	Electricity	2.283057653	61.50226936	0.000453957	29.21528014	0.000633996	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008079929	0	0	0	0.012000003	0.023085512	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2026	Aggregate	Electricity	3.205653943	86.35513618	0.0006374	41.00600134	0.000889865	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008079046	0	0	0	0.012000003	0.023082989	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2027	Aggregate	Electricity	5.997411691	161.4705864	0.001191838	76.64651405	0.001663294	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008076981	0	0	0	0.012000003	0.023077089	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2028	Aggregate	Electricity	10.88145674	292.8965827	0.002161912	139.0048027	0.003016521	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008076023	0	0	0	0.012000003	0.02307435	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2029	Aggregate	Electricity	17.21812296	463.4476468	0.003420775	219.9389269	0.00477286	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008075885	0	0	0	0.012000003	0.023073957	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2030	Aggregate	Electricity	25.37566866	683.267688	0.005043299	324.3414604	0.007038482	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008077266	0	0	0	0.012000003	0.023077903	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2031	Aggregate	Electricity	31.19659677	840.4603865	0.006203561	399.1843811	0.008662637	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008079765	0	0	0	0.012000003	0.023085042	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2032	Aggregate	Electricity	38.56953469	1085.197045	0.008009998	494.5828863	0.010732864	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008074903	0	0	0	0.012000003	0.023071151	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2033	Aggregate	Electricity	47.71834944	1395.462719	0.010300114	612.4436919	0.013290543	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008068372	0	0	0	0.012000003	0.023052492	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2034	Aggregate	Electricity	58.23327666	1768.471552	0.013053347	747.7777625	0.016227406	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008062651	0	0	0	0.012000003	0.023036147	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2035	Aggregate	Electricity	68.09102891	2142.046407	0.015810758	875.5172894	0.018999461	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008059917	0	0	0	0.012000003	0.023028335	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2036	Aggregate	Electricity	74.63163421	2428.058417	0.017921854	960.7179976	0.020848388	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008057804	0	0	0	0.012000003	0.023022296	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2037	Aggregate	Electricity	81.55924849	2741.415333	0.020234787	1050.324122	0.022792917	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.00805502	0	0	0	0.012000003	0.023014344	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2038	Aggregate	Electricity	88.51015853	3071.22419	0.022669154	1139.774112	0.024734057	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008052086	0	0	0	0.012000003	0.02300596	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2039	Aggregate	Electricity	94.15205206	3368.672237	0.024864662	1212.391413	0.026309913	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008050004	0	0	0	0.012000003	0.02300001	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2040	Aggregate	Electricity	102.3366778	3775.098859	0.027864556	1316.758672	0.02857477	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008047006	0	0	0	0.012000003	0.022991445	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2041	Aggregate	Electricity	109.5302006	4165.805209	0.030748417	1407.192239	0.030537255	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008043089	0	0	0	0.012000003	0.022980254	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2042	Aggregate	Electricity	115.8256604	4531.942226	0.033450928	1487.22861	0.032274111	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008041825	0	0	0	0.012000003	0.022976643	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2043	Aggregate	Electricity	118.8592252	4776.579855	0.035256634	1526.135481	0.033118423	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008042273	0	0	0	0.012000003	0.022977923	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2044	Aggregate	Electricity	122.6601032	5060.576905	0.037352858	1574.311946	0.034163893	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008042433	0	0	0	0.012000003	0.022978379	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2045	Aggregate	Electricity	125.3795534	5301.693221	0.039132572	1609.622199	0.034930155	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008044471	0	0	0	0.012000003	0.022984202	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2046	Aggregate	Electricity	129.4395053	5606.336713	0.04138119	1661.90189	0.036064668	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008046611	0	0	0	0.012000003	0.022990317	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2047	Aggregate	Electricity	133.4400635	5915.090173	0.043660145	1713.575851	0.037186037	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.00804935	0	0	0	0.012000003	0.022998142	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2048	Aggregate	Electricity	138.3481665	6272.097661	0.046295269	1776.87907	0.03855977	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008052424	0	0	0	0.012000003	0.023006925	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2049	Aggregate	Electricity	136.6479538	6331.688008	0.046735114	1755.266133	0.038090751	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008055807	0	0	0	0.012000003	0.023016592	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2050	Aggregate	Electricity	97.55560825	4617.932091	0.034085631	1252.999775	0.027191149	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.008059036	0	0	0	0.012000003	0.023025818	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6 instate small	2020	Aggregate	Natural Gas	0.116127376	3.142631636	2.31962E-05	1.497629476	3.24998E-05	0.01127467	0.168903508	0	3.269254937	38.86819862	0	0.055876066	5.138770144	0	0.001653476	0.019472489	0	0.003000001	0.016194531	0.001798306	0.021178108	0	0.012000003	0.046270089	0	0	0	0.805333539	12.06453627	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2021	Aggregate	Natural Gas	0.044294378	1.266538794	9.34851E-06	0.631359574	1.3701E-05	0.012461476	0.162796002	0	3.811994519	37.46273498	0	0.05958353	4.952953594	0	0.001853344	0.018768369	0	0.003000001	0.016641347	0.002015681	0.020412313	0	0.012000003	0.047546707	0	0	0	0.890105409	11.62828588	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2022	Aggregate	Natural Gas	0.033940616	0.951163133	7.02067E-06	0.467070138	1.01358E-05	0.01204728	0.165011375	0	3.622578156	37.97253814	0	0.058289623	5.020354743	0	0.00178359	0.019023774	0	0.003000001	0.016485408	0.001939817	0.02069009	0	0.012000003	0.047101167	0	0	0	0.860519988	11.78652678	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2023	Aggregate	Natural Gas	0.250091492	6.749744724	4.98209E-05	3.211861082	6.97001E-05	0.011225615	0.169145118	0	3.246821965	38.92379814	0	0.055722826	5.146120964	0	0.001645214	0.019500343	0	0.003000001	0.016176063	0.001789321	0.021208403	0	0.012000003	0.046217323	0	0	0	0.801829676	12.08179414	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2024	Aggregate	Natural Gas	0.183386022	4.966856406	3.66611E-05	2.370575746	5.14435E-05	0.011303292	0.168767342	0	3.282344263	38.83686398	0	0.055965479	5.134627387	0	0.001658296	0.01945679	0	0.003000001	0.016205307	0.001803548	0.021161035	0	0.012000003	0.046300878	0	0	0	0.807377994	12.05481012	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2025	Aggregate	Natural Gas	0.34618863	9.325820728	6.88352E-05	4.430022956	9.61352E-05	0.011182574	0.169352947	0	3.227138443	38.97162383	0	0.055588367	5.152444006	0	0.001637966	0.019524303	0	0.003000001	0.016159858	0.001781437	0.021234461	0	0.012000003	0.046171024	0	0	0	0.798755257	12.09663905	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2026	Aggregate	Natural Gas	0.404334005	10.89210461	8.03962E-05	5.172149289	0.00011224	0.011177883	0.169374474	0	3.22499357	38.97657769	0	0.055573716	5.153098956	0	0.001637176	0.019526785	0	0.003000001	0.016158093	0.001780578	0.021237161	0	0.012000003	0.046165979	0	0	0	0.798420244	12.09817671	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2027	Aggregate	Natural Gas	0.462038779	12.43964505	9.18188E-05	5.904824217	0.00012814	0.011166913	0.169427761	0	3.219976902	38.98884018	0	0.055539447	5.154720182	0	0.001635329	0.019532929	0	0.003000001	0.016153963	0.001778569	0.021243842	0	0.012000003	0.046154179	0	0	0	0.797636678	12.10198294	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2028	Aggregate	Natural Gas	0.507614741	13.66348519	0.000100852	6.484507417	0.000140719	0.011161821	0.169452356	0	3.217647963	38.99449996	0	0.055523538	5.155468463	0	0.001634471	0.019535764	0	0.003000001	0.016152045	0.001777636	0.021246926	0	0.012000003	0.046148701	0	0	0	0.797272915	12.10373971	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2029	Aggregate	Natural Gas	0.541586287	14.57748273	0.000107599	6.918054133	0.000150128	0.011161089	0.169455859	0	3.217313482	38.99530615	0	0.055521253	5.155575049	0	0.001634348	0.019536168	0	0.003000001	0.01615177	0.001777502	0.021247365	0	0.012000003	0.046147914	0	0	0	0.797220671	12.10398995	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2030	Aggregate	Natural Gas	0.566825944	15.26240973	0.000112654	7.244938327	0.000157221	0.011168426	0.169420289	0	3.220668379	38.98712065	0	0.05554417	5.154492842	0	0.001635583	0.019532067	0	0.003000001	0.016154532	0.001778846	0.021242905	0	0.012000003	0.046155805	0	0	0	0.797744681	12.1014492	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2031	Aggregate	Natural Gas	0.593424398	15.98731114	0.000118005	7.593320289	0.000164781	0.0111817	0.169356507	0	3.226739165	38.9724432	0	0.05558564	5.152552335	0	0.001637819	0.019524714	0	0.003000001	0.01615953	0.001781277	0.021234908	0	0.012000003	0.046170085	0	0	0	0.798692893	12.09689338	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2032	Aggregate	Natural Gas	0.627115346	17.64459245	0.000130237	8.041593461	0.000174509	0.011155873	0.169233294	0	3.214927908	38.94408917	0	0.055504957	5.148803644	0	0.001633469	0.019510509	0	0.003000001	0.016149806	0.001776547	0.021219459	0	0.012000003	0.046142303	0	0	0	0.796848063	12.0880924	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2033	Aggregate	Natural Gas	0.66431761	19.4271275	0.000143394	8.526219672	0.000185026	0.01112118	0.169181977	0	3.199062432	38.93228007	0	0.05539658	5.147242362	0	0.001627627	0.019504593	0	0.003000001	0.016136745	0.001770192	0.021213024	0	0.012000003	0.046104984	0	0	0	0.794369994	12.0844269	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2034	Aggregate	Natural Gas	0.69401782	21.07645049	0.000155568	8.911933566	0.000193396	0.011090789	0.169152638	0	3.185164368	38.92552866	0	0.055301642	5.146349757	0	0.001622509	0.01950121	0	0.003000001	0.016125303	0.001764626	0.021209346	0	0.012000003	0.046072294	0	0	0	0.79219922	12.08233129	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2035	Aggregate	Natural Gas	0.693255812	21.80883656	0.000160974	8.913912141	0.000193439	0.011076264	0.169076283	0	3.178521988	38.90795767	0	0.055256267	5.144026694	0	0.001620062	0.019492407	0	0.003000001	0.016119834	0.001761966	0.021199772	0	0.012000003	0.04605667	0	0	0	0.79116173	12.07687733	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2036	Aggregate	Natural Gas	0.759847736	24.72081325	0.000182468	9.781366886	0.000212264	0.011065036	0.169009879	0	3.173387383	38.89267689	0	0.055221193	5.14200642	0	0.001618172	0.019484752	0	0.003000001	0.016115607	0.001759909	0.021191446	0	0.012000003	0.046044592	0	0	0	0.790359743	12.07213423	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2037	Aggregate	Natural Gas	0.830379918	27.91119686	0.000206017	10.69367453	0.000232062	0.011050251	0.168986247	0	3.166625739	38.88723856	0	0.055175004	5.141287417	0	0.001615682	0.019482027	0	0.003000001	0.016110041	0.001757201	0.021188482	0	0.012000003	0.046028688	0	0	0	0.789303624	12.07044619	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2038	Aggregate	Natural Gas	0.901149282	31.26908277	0.000230802	11.60439253	0.000251825	0.011034662	0.16898951	0	3.15949703	38.88798942	0	0.055126308	5.141386688	0	0.001613056	0.019482404	0	0.003000001	0.016104172	0.001754346	0.021188892	0	0.012000003	0.04601192	0	0	0	0.788190173	12.07067926	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2039	Aggregate	Natural Gas	0.958591144	34.29749329	0.000253155	12.34373172	0.000267869	0.011023601	0.168991192	0	3.15443838	38.88837653	0	0.055091752	5.141437869	0	0.001611193	0.019482598	0	0.003000001	0.016100007	0.00175232	0.021189102	0	0.012000003	0.046000021	0	0	0	0.78740005	12.07079942	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2040	Aggregate	Natural Gas	1.041921349	38.43544835	0.000283698	13.40632704	0.000290929	0.011007675	0.169036296	0	3.147155451	38.89875585	0	0.055042002	5.142810119	0	0.001608511	0.019487797	0	0.003000001	0.016094012	0.001749403	0.021194758	0	0.012000003	0.04598289	0	0	0	0.786262511	12.07402112	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2041	Aggregate	Natural Gas	1.115160827	42.41335046	0.000313059	14.32705914	0.000310909	0.010986868	0.169123596	0	3.137640136	38.91884537	0	0.054977003	5.145466158	0	0.001605007	0.019497862	0	0.003000001	0.016086178	0.001745592	0.021205704	0	0.012000003	0.045960509	0	0	0	0.78477629	12.08025682	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2042	Aggregate	Natural Gas	1.179256849	46.14110461	0.000340574	15.14193418	0.000328593	0.010980153	0.169156413	0	3.13456922	38.9263973	0	0.054956025	5.1464646	0	0.001603876	0.019501646	0	0.003000001	0.01608365	0.001744362	0.021209819	0	0.012000003	0.045953285	0	0	0	0.784296635	12.08260091	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2043	Aggregate	Natural Gas	1.210142511	48.63183591	0.000358959	15.53805705	0.000337189	0.010982534	0.169158109	0	3.135657915	38.92678771	0	0.054963462	5.146516215	0	0.001604277	0.019501841	0	0.003000001	0.016084546	0.001744798	0.021210032	0	0.012000003	0.045955846	0	0	0	0.784466682	12.08272209	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2044	Aggregate	Natural Gas	1.238900364	51.11320146	0.000377274	15.90097832	0.000345065	0.010983382	0.169181084	0	3.136045698	38.93207466	0	0.054966111	5.147215205	0	0.00160442	0.01950449	0	0.003000001	0.016084865	0.001744953	0.021212912	0	0.012000003	0.045956758	0	0	0	0.78452725	12.08436315	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2045	Aggregate	Natural Gas	1.222173526	51.67979082	0.000381456	15.69025877	0.000340492	0.010994209	0.169166485	0	3.140997138	38.92871505	0	0.054999934	5.14677103	0	0.001606244	0.019502807	0	0.003000001	0.016088942	0.001746936	0.021211082	0	0.012000003	0.045968405	0	0	0	0.785300628	12.08332034	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2046	Aggregate	Natural Gas	1.191446656	51.60442412	0.0003809	15.29724209	0.000331963	0.011005578	0.16916099	0	3.146196607	38.92745072	0	0.055035452	5.146603872	0	0.001608158	0.019502173	0	0.003000001	0.016093222	0.001749019	0.021210393	0	0.012000003	0.045980635	0	0	0	0.786112747	12.08292789	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2047	Aggregate	Natural Gas	1.141104118	50.58251307	0.000373357	14.65353365	0.000317994	0.011020128	0.169150539	0	3.152850065	38.92504566	0	0.055080902	5.1462859	0	0.001610608	0.019500968	0	0.003000001	0.0160987	0.001751684	0.021209082	0	0.012000003	0.045996285	0	0	0	0.787151967	12.08218137	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2048	Aggregate	Natural Gas	1.087334224	49.29495356	0.000363853	13.96521163	0.000303057	0.011036457	0.169141575	0	3.160317918	38.92298273	0	0.055131915	5.146013159	0	0.001613359	0.019499935	0	0.003000001	0.016104848	0.001754675	0.021207958	0	0.012000003	0.046013851	0	0	0	0.78831839	12.08154104	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2049	Aggregate	Natural Gas	0.982073123	45.50511326	0.00033588	12.61489576	0.000273754	0.01105443	0.169134205	0	3.16853716	38.9212868	0	0.055188061	5.14578894	0	0.001616385	0.019499085	0	0.003000001	0.016111614	0.001757967	0.021207034	0	0.012000003	0.046033184	0	0	0	0.789602174	12.08101464	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T6 instate small	2050	Aggregate	Natural Gas	0.641869266	30.38378558	0.000224267	8.244139529	0.000178905	0.011071585	0.169139673	0	3.176382005	38.92254517	0	0.055241649	5.145955309	0	0.001619274	0.019499716	0	0.003000001	0.016118073	0.001761109	0.02120772	0	0.012000003	0.046051636	0	0	0	0.79082748	12.08140523	0	0	0	0	1.06	0	0	0
						Total:	135.480	100.00%	46.081	100%																																
						Weighted Average Emissions Factors:					0.00246		0.00000	0.03858		0.00000	0.12364		0.47228	0.00104		0.00000	0.00300	0.01153	0.00109		0.00000	0.01200	0.03295		0.00000		0.00747		0.00000		0.00000		0.10005	0.00410		0.00000

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG_RUNEX	ROG_IDLEX	ROG_STREX	CO_RUNEX	CO_IDLEX	CO_STREX	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Francisco (SF)	2050	T6TS	2024	Aggregate	Electricity	0.267467561	4.902932404	0.000216581	5.351490953	0.000660546	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2025	Aggregate	Electricity	0.367991891	7.352416475	0.000324783	7.362781759	0.000908804	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2026	Aggregate	Electricity	0.491256743	10.67972671	0.000471763	9.829064914	0.001213222	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2027	Aggregate	Electricity	0.856514654	20.22252819	0.000893304	17.13714519	0.002115274	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2028	Aggregate	Electricity	1.458198962	37.30748122	0.00164801	29.17564483	0.003601211	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2029	Aggregate	Electricity	2.228439829	61.66067751	0.00272378	44.5866241	0.005503421	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2030	Aggregate	Electricity	3.156519192	94.18235353	0.004160383	63.15563599	0.007795434	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2031	Aggregate	Electricity	3.892185505	124.9728504	0.005520514	77.87484759	0.009612257	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2032	Aggregate	Electricity	4.775913992	164.5712843	0.007269723	95.55648716	0.011794739	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2033	Aggregate	Electricity	5.754463418	212.3896578	0.009382038	115.1353041	0.014211394	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2034	Aggregate	Electricity	6.699105501	264.1477654	0.011668385	134.0357029	0.01654431	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2035	Aggregate	Electricity	7.813348295	328.5116208	0.014511575	156.3294727	0.019296077	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2036	Aggregate	Electricity	8.402831256	375.8376271	0.01660214	168.1238478	0.020751882	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2037	Aggregate	Electricity	9.024319471	428.456952	0.01892653	180.558584	0.022286727	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2038	Aggregate	Electricity	9.566550673	481.1985081	0.02125632	191.4075459	0.023625838	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2039	Aggregate	Electricity	10.05288756	534.6425331	0.02361714	201.1381743	0.02482691	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2040	Aggregate	Electricity	10.49001491	588.8445676	0.026011445	209.8842183	0.025906452	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2041	Aggregate	Electricity	11.00341879	650.605436	0.028739651	220.1564032	0.02717437	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2042	Aggregate	Electricity	11.47335707	713.4378132	0.03151519	229.5589282	0.028334943	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2043	Aggregate	Electricity	11.62881619	759.207831	0.033537021	232.6693544	0.02871887	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2044	Aggregate	Electricity	11.91341182	815.3715247	0.03601798	238.3635438	0.029421716	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2045	Aggregate	Electricity	12.26118209	878.1609033	0.038791619	245.3217312	0.030280579	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2046	Aggregate	Electricity	12.85773901	962.4152579	0.042513446	257.2576421	0.031753854	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2047	Aggregate	Electricity	13.40292086	1046.943201	0.046247358	268.1656406	0.033100251	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2048	Aggregate	Electricity	14.10390866	1148.160664	0.050718508	282.1910046	0.034831432	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2049	Aggregate	Electricity	14.44149519	1223.680783	0.054054511	288.9454357	0.035665145	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2050	Aggregate	Electricity	12.93136146	1138.8752	0.050308335	258.7306801	0.031935674	0	0	0	0	0	0	0	0	0	0	0	0	0.003000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T6TS	2016	Aggregate	Gasoline	1.360369848	13.09854246	0.000578611	27.21827992	0.00335961	0	1.028580008	0.178346919	0.180409331	15.30093521	3.503310215	0	0.089555892	0.506759285	0.0012012	0	0.000413449	0.003000001	0.015756104	0.001306415	0	0.000449664	0.012000003	0.04501744	0.041027119	0.536376376	5.687938365	0	1.500901533	0.195267427	0.041027119	0.536376376	5.687938365	0.045	0.018205368	0.005312036	0.000421593
San Francisco (SF)	2050	T6TS	2017	Aggregate	Gasoline	4.879454218	49.98448022	0.002208	97.62811999	0.012050445	0.001389594	1.028580008	0.198180377	0.094390769	15.30093521	2.984995374	0.206649653	0.089555892	0	0.001290651	0	0.000445867	0.003000001	0.015756104	0.001403701	0	0.000484921	0.012000003	0.04501744	0.041027119	0.536376376	5.687938365	0.002027692	1.500901533	0.216982567	0.041027119	0.536376376	5.687938365	0.045	0.017515892	0.005121936	0.000400484
San Francisco (SF)	2050	T6TS	2018	Aggregate	Gasoline	3.458222541	38.04785585	0.001680715	69.1921166	0.008540529	0.022561387	1.028580008	0.200861865	0.147671319	15.30093521	3.540956962	0.15900992	0.089555892	0	0.001344322	0	0.000465317	0.003000001	0.015756104	0.001462073	0	0.000506075	0.012000003	0.04501744	0.035914865	0.53603772	5.641109227	0.032921522	1.500901533	0.219918459	0.035914865	0.53603772	5.641109227	0.045	0.017517631	0.005121936	0.000409294
San Francisco (SF)	2050	T6TS	2019	Aggregate	Gasoline	1.22605595	14.59434223	0.000644686	24.53092744	0.003027904	0.013599134	1.028580008	0.202744437	0.095365334	15.30093521	3.299411834	0.11350824	0.089555892	0.786126875	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.035914865	0.53603772	5.641109227	0.019843825	1.500901533	0.221979639	0.035914865	0.53603772	5.641109227	0.045	0.017516428	0.005121936	0.000405568
San Francisco (SF)	2050	T6TS	2020	Aggregate	Gasoline	1.646257932	21.29203745	0.000940548	32.9383287	0.004065647	0.013121709	1.028580008	0.241626747	0.101167025	15.30093521	3.594829221	0.170449255	0.089555892	0.811579894	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.030809081	0.535720232	5.597206871	0.019147167	1.500901533	0.264550873	0.030809081	0.535720232	5.597206871	0.045	0.017516498	0.005121936	0.000411493
San Francisco (SF)	2050	T6TS	2021	Aggregate	Gasoline	2.23344	31.4746878	0.001390354	44.68666752	0.00551577	0.007308167	1.028580008	0.233452891	0.134021164	15.30093521	3.470918478	0.169825555	0.089555892	1.227872474	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.030809081	0.535720232	5.597206871	0.010664061	1.500901533	0.25560153	0.030809081	0.535720232	5.597206871	0.045	0.015842283	0.004659389	0.000376095
San Francisco (SF)	2050	T6TS	2022	Aggregate	Gasoline	2.956152505	45.4659437	0.002008399	59.14669931	0.007300602	0.019417992	1.028580008	0.227804559	0.143700854	15.30093521	3.537388115	0.163513214	0.089555892	0.775476115	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.028334688	1.500901533	0.249417318	0.025703295	0.535402743	5.510247581	0.045	0.015842952	0.004659389	0.00037695
San Francisco (SF)	2050	T6TS	2023	Aggregate	Gasoline	3.33167906	55.9605748	0.002471986	66.66023464	0.008228014	0.027116506	1.028580008	0.155718897	0.129282105	15.30093521	3.119170725	0.166460006	0.089555892	0.584504308	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.039568342	1.500901533	0.170492592	0.025703295	0.535402743	5.510247581	0.045	0.015843054	0.004659389	0.000367996
San Francisco (SF)	2050	T6TS	2024	Aggregate	Gasoline	3.567355636	65.3929901	0.002888651	71.37565156	0.008810047	0.001537754	1.028580008	0.233277511	0.216582574	15.30093521	3.227143083	0.167684546	0.089555892	0.45291337	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.002243887	1.500901533	0.255409511	0.025703295	0.535402743	5.510247581	0.045	0.015553359	0.004579289	0.000366519
San Francisco (SF)	2050	T6TS	2025	Aggregate	Gasoline	3.948811828	78.89660026	0.003485155	79.00782705	0.009752103	0.020701171	1.028580008	0.21471515	0.25397386	15.30093521	3.256690283	0.133403401	0.04453936	0.363475131	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.0302071	1.500901533	0.235086063	0.025703295	0.535402743	5.510247581	0.045	0.01554985	0.004577932	0.000366269
San Francisco (SF)	2050	T6TS	2026	Aggregate	Gasoline	4.384947753	95.32702465	0.004210948	87.73403464	0.010829197	0	1.028580008	0.209361344	0.221872972	15.30093521	3.089985463	0.129132876	0.044792508	0.559946297	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0	1.500901533	0.229224319	0.025703295	0.535402743	5.510247581	0.045	0.015543381	0.004576528	0.000363375
San Francisco (SF)	2050	T6TS	2027	Aggregate	Gasoline	4.669620981	110.2509356	0.004870192	93.4297766	0.011532235	0.00377723	1.028580008	0.180586093	0.196109999	15.30093521	4.12602882	0.128548666	0.045751661	0.290371917	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.005511725	1.500901533	0.197719041	0.025703295	0.535402743	5.510247581	0.045	0.015383454	0.004532418	0.000375506
San Francisco (SF)	2050	T6TS	2028	Aggregate	Gasoline	4.813890848	123.1616172	0.005440505	96.31632808	0.011888528	0.005141378	1.028580008	0.204774497	0.236797651	15.30093521	3.701342363	0.067332706	0.036807375	0.029911978	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.007502287	1.500901533	0.224202298	0.025703295	0.535402743	5.510247581	0.045	0.015337739	0.004519598	0.000368728
San Francisco (SF)	2050	T6TS	2029	Aggregate	Gasoline	4.960380991	137.2531798	0.006062981	99.24730287	0.012250304	0.013402417	1.028580008	0.199524106	0.183949849	15.30093521	3.450584139	0.070465175	0.039264917	0.360795769	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.019556776	1.500901533	0.218453782	0.025703295	0.535402743	5.510247581	0.045	0.015280425	0.004503897	0.000363494
San Francisco (SF)	2050	T6TS	2030	Aggregate	Gasoline	4.98968268	148.8792019	0.006576546	99.83357105	0.012322668	0.015389088	1.028580008	0.174707306	0.193675873	15.30093521	3.800542175	0.076848688	0.042344324	0.328380566	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.025703295	0.535402743	5.510247581	0.022455721	1.500901533	0.191282509	0.025703295	0.535402743	5.510247581	0.045	0.015209443	0.004484224	0.000366748
San Francisco (SF)	2050	T6TS	2031	Aggregate	Gasoline	5.239429221	168.2310371	0.007431388	104.8304998	0.01293945	0.001985935	1.028580008	0.204726252	0.205489736	15.30093521	3.969017296	0.076478213	0.04419597	0.407520731	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.012099976	0.186097678	1.834243097	0.002897871	1.500901533	0.224149477	0.012099976	0.186097678	1.834243097	0.045	0.015166232	0.004472395	0.000369539
San Francisco (SF)	2050	T6TS	2032	Aggregate	Gasoline	5.49530491	189.3604843	0.008364754	109.9500606	0.013571368	0.002949147	1.028580008	0.195406084	0.236886207	15.30093521	3.834815652	0.079013245	0.046315824	0	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.012099976	0.186097678	1.834243097	0.004303388	1.500901533	0.213945065	0.012099976	0.186097678	1.834243097	0.045	0.015117739	0.004458852	0.000366153
San Francisco (SF)	2050	T6TS	2033	Aggregate	Gasoline	5.669274084	209.2454318	0.009243146	113.4308359	0.014001008	0.022268349	1.028580008	0.190152268	0.213677099	15.30093521	3.562910938	0.080063905	0.048766711	0.279570271	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.012099976	0.186097678	1.834243097	0.032493923	1.500901533	0.208192799	0.012099976	0.186097678	1.834243097	0.045	0.015061516	0.004443194	0.00036059
San Francisco (SF)	2050	T6TS	2034	Aggregate	Gasoline	5.650000419	222.7812333	0.009841072	113.0452084	0.013953409	0.003311038	1.028580008	0.182949516	0.164772316	15.30093521	2.94890464	0.080440599	0.051632736	0.1491385	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.012099976	0.186097678	1.834243097	0.004831459	1.500901533	0.200306692	0.012099976	0.186097678	1.834243097	0.045	0.014993655	0.004424884	0.000349406
San Francisco (SF)	2050	T6TS	2035	Aggregate	Gasoline	5.629542146	236.6936613	0.010455635	112.6358793	0.013902884	0	1.028580008	0.182638693	0.174818692	15.30093521	3.743786742	0.082767499	0.055029136	0.279355245	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.012099976	0.186097678	1.834243097	0	1.500901533	0.19996638	0.012099976	0.186097678	1.834243097	0.045	0.014915121	0.004403186	0.000360307
San Francisco (SF)	2050	T6TS	2036	Aggregate	Gasoline	6.054266483	270.7921984	0.011961894	121.1337638	0.014951796	0.01388215	1.028580008	0.192566145	0.230764889	15.30093521	3.22633619	0.078359718	0.055029136	0.261671705	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.0202568	1.500901533	0.21083569	0.007076629	0.074933043	0.679260245	0.045	0.014916591	0.004403186	0.00035252
San Francisco (SF)	2050	T6TS	2037	Aggregate	Gasoline	6.502050707	308.7045884	0.013636625	130.0930305	0.016057657	0.005066179	1.028580008	0.176156549	0.200639806	15.30093521	3.307747514	0.075705487	0.055029136	0.222867302	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.007392556	1.500901533	0.192869248	0.007076629	0.074933043	0.679260245	0.045	0.014915742	0.004403186	0.000353252
San Francisco (SF)	2050	T6TS	2038	Aggregate	Gasoline	6.892730001	346.7050463	0.015315246	137.9097419	0.017022491	0.009562324	1.028580008	0.188492563	0.165056184	15.30093521	3.337712872	0.070573262	0.055029136	0.255956322	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.01395332	1.500901533	0.206375631	0.007076629	0.074933043	0.679260245	0.045	0.014915376	0.004403186	0.000354132
San Francisco (SF)	2050	T6TS	2039	Aggregate	Gasoline	7.243137267	385.2116352	0.017016224	144.9206904	0.017887867	0.013334577	1.028580008	0.198150706	0.164915043	15.30093521	3.386370506	0.067029939	0.055029136	0.102392788	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.019457784	1.500901533	0.216950082	0.007076629	0.074933043	0.679260245	0.045	0.014915535	0.004403186	0.000355216
San Francisco (SF)	2050	T6TS	2040	Aggregate	Gasoline	7.558088901	424.2643724	0.018741328	151.2222427	0.018665681	0.00066245	1.028580008	0.14789214	0.310576891	15.30093521	3.347157699	0.064200864	0.055029136	1.334443214	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.007076629	0.074933043	0.679260245	0.000966645	1.500901533	0.161923278	0.007076629	0.074933043	0.679260245	0.045	0.014917279	0.004403186	0.000352932
San Francisco (SF)	2050	T6TS	2041	Aggregate	Gasoline	7.927998022	468.7632733	0.02070701	158.6233844	0.019579219	0.011914795	1.028580008	0.229173618	0.083605598	15.30093521	3.911300226	0.060111944	0.055029136	0	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004913248	0.039540366	0.304929877	0.017386041	1.500901533	0.250916265	0.004913248	0.039540366	0.304929877	0.045	0.014914199	0.004403186	0.00036448
San Francisco (SF)	2050	T6TS	2042	Aggregate	Gasoline	8.266590036	514.0341998	0.022706794	165.3979334	0.020415416	0.047558646	1.028580008	0.173005702	0.098651051	15.30093521	3.482650323	0.057272225	0.055029136	0	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004913248	0.039540366	0.304929877	0.069397465	1.500901533	0.189419468	0.004913248	0.039540366	0.304929877	0.045	0.014915956	0.004403186	0.000355891
San Francisco (SF)	2050	T6TS	2043	Aggregate	Gasoline	8.378598829	547.0116423	0.02416353	167.6390054	0.020692036	0.032607192	1.028580008	0.169465871	0.090110166	15.30093521	3.29832887	0.054121898	0.055029136	2.167515017	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004326555	0.039540366	0.299944784	0.047580338	1.500901533	0.185543798	0.004326555	0.039540366	0.299944784	0.045	0.015915184	0.004403186	0.000352882
San Francisco (SF)	2050	T6TS	2044	Aggregate	Gasoline	8.51532989	582.8017716	0.025744512	170.3747204	0.021029712	0.000437943	1.028580008	0.251085506	0.131419806	15.30093521	3.27902648	0.050909301	0.054752118	3.193640269	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004326555	0.039540366	0.299944784	0.000639045	1.500901533	0.274907025	0.004326555	0.039540366	0.299944784	0.045	0.014920866	0.004404956	0.000355418
San Francisco (SF)	2050	T6TS	2045	Aggregate	Gasoline	8.458060037	605.7766362	0.026759397	169.2288652	0.020888276	0.009680432	1.028580008	0.162248173	0.152756709	15.30093521	3.287545034	0.047828184	0.053493607	0.219695197	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.003591471	0.039540366	0.294959687	0.014125664	1.500901533	0.177641327	0.003591471	0.039540366	0.294959687	0.045	0.014950701	0.004412996	0.000353177
San Francisco (SF)	2050	T6TS	2046	Aggregate	Gasoline	8.375382159	626.9061438	0.027692766	167.5746462	0.020684092	0.01037492	1.028580008	0.152640189	0.155353531	15.30093521	3.29015361	0.046348377	0.051365718	0.211050884	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.003591471	0.039540366	0.294959687	0.015139059	1.500901533	0.167121793	0.003591471	0.039540366	0.294959687	0.045	0.014999985	0.00442659	0.000353874
San Francisco (SF)	2050	T6TS	2047	Aggregate	Gasoline	8.110931884	633.5697327	0.027987121	162.2835251	0.020030998	0.010458957	1.028580008	0.14841895	0.151488577	15.30093521	3.290155041	0.046784582	0.048448458	0.197843602	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0.015261685	1.500901533	0.162500069	0.004541819	0.039540366	0.287482037	0.045	0.015067397	0.004445227	0.000355071
San Francisco (SF)	2050	T6TS	2048	Aggregate	Gasoline	7.844430234	638.5936295	0.028209045	156.9513601	0.019372838	0	1.028580008	0.186136673	0.177243683	15.30093521	0	0.049052327	0.044828894	0.232967776	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0	1.500901533	0.203796227	0.004541819	0.039540366	0.287482037	0.045	0.015151066	0.004468351	0.000306375
San Francisco (SF)	2050	T6TS	2049	Aggregate	Gasoline	7.344887037	622.3591812	0.02749191	146.9564998	0.018139151	0	1.028580008	0.182362598	0.174048804	15.30093521	0	0.050476408	0.040643522	0.211292655	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0	1.500901533	0.199664091	0.004541819	0.039540366	0.287482037	0.045	0.015247814	0.00449509	0.000308168
San Francisco (SF)	2050	T6TS	2050	Aggregate	Gasoline	6.021030958	530.2769437	0.023424296	120.4687874	0.014869717	0	1.028580008	0	0	15.30093521	0	0.042062564	0.036128367	0	0.001380102	0	0.000478284	0.003000001	0.015756104	0.001500987	0	0.000520178	0.012000003	0.04501744	0.004541819	0.039540366	0.287482037	0	1.500901533	0	0.004541819	0.039540366	0.287482037	0.045	0.015349509	0.004523936	0.00030418
						Total:	22,638	100.00%	8,102	100%																																
						Weighted Average Emissions Factors:					0.00435		0.08758	0.06612		1.46278	0.02716		0.23741	0.00058		0.00023	0.00300	0.01121	0.00063		0.00025	0.01200	0.03202		0.04860		0.00634		0.09589		0.04860		0.01901	0.00638		0.00017

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2050	T7 Single	2016	Aggregate	Diesel	1.748280678	52.24900602	0.00179576	16.46880399	0.002858137	0.010979824	1.862836709	0	0.095118657	27.52493933	0	1.471459852	22.01302375	3.724176277	0.028517272	0.007584948	0	0.009000003	0.028124083	0.029806696	0.007927905	0	0.03600001	0.080354522	0	0	0	0.012499694	2.120697792	0	0	0	0	0.22	0.015990993	0.043211602	0
San Francisco (SF)	2050	T7 Single	2017	Aggregate	Diesel	1.930098868	61.14549452	0.002101526	18.18153133	0.003155378	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.471459852	22.01302375	3.724176277	0.023261302	0.007584948	0	0.009000003	0.028124083	0.024313074	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2050	T7 Single	2018	Aggregate	Diesel	2.813201693	90.55472998	0.0031123	26.50035995	0.004599098	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.471459852	22.01302375	3.724176277	0.023261302	0.007584948	0	0.009000003	0.028124083	0.024313074	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2050	T7 Single	2019	Aggregate	Diesel	6.659815411	204.5421329	0.007029964	62.73546117	0.010887647	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.471459852	22.01302375	3.724176277	0.023261302	0.007584948	0	0.009000003	0.028124083	0.024313074	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2050	T7 Single	2020	Aggregate	Diesel	2.329698399	58.49777642	0.002010526	21.94575892	0.003808654	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.471459852	22.01302375	3.724176277	0.023261302	0.007584948	0	0.009000003	0.028124083	0.024313074	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.016583291	0.041968455	0
San Francisco (SF)	2050	T7 Single	2021	Aggregate	Diesel	2.054230679	47.8996951	0.001646278	19.350853	0.003358312	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.471459852	22.01302375	3.724176277	0.023261302	0.007584948	0	0.009000003	0.028124083	0.024313074	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.014556546	0.036839234	0
San Francisco (SF)	2050	T7 Single	2022	Aggregate	Diesel	2.508276656	58.56647152	0.002012887	23.6279661	0.004100599	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.471459852	22.01302375	3.724176277	0.023261302	0.007584948	0	0.009000003	0.028124083	0.024313074	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.014556546	0.036839234	0
San Francisco (SF)	2050	T7 Single	2023	Aggregate	Diesel	2.979646711	69.59600395	0.002391964	28.06827201	0.004871207	0.01109072	1.862836709	0	0.056091928	27.52493933	0	1.406069402	22.01302375	3.724176277	0.022229591	0.007584948	0	0.009000003	0.028124083	0.023234715	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01262594	2.120697792	0	0	0	0	0.22	0.014556546	0.036839234	0
San Francisco (SF)	2050	T7 Single	2024	Aggregate	Diesel	3.18052513	74.35351857	0.002555476	29.96054673	0.005199609	0.011074671	1.862836709	0	0.056010759	27.52493933	0	1.40415378	22.01302375	3.724176277	0.022167912	0.007584948	0	0.009000003	0.028124083	0.023170247	0.007927905	0	0.03600001	0.080354522	0	0	0	0.01260767	2.120697792	0	0	0	0	0.22	0.014249674	0.036062611	0
San Francisco (SF)	2050	T7 Single	2025	Aggregate	Diesel	7.284696921	207.9185747	0.00714601	68.62184499	0.01190922	0.011042445	1.862836709	0	0.055847777	27.52493933	0	1.278378358	11.50448824	3.022146287	0.022076286	0.007584948	0	0.009000003	0.028124083	0.023074477	0.007927905	0	0.03600001	0.080354522	0	0	0	0.012570984	2.120697792	0	0	0	0	0.22	0.014244736	0.036050114	0
San Francisco (SF)	2050	T7 Single	2026	Aggregate	Diesel	7.770862582	219.0191231	0.007527528	73.20152552	0.012704017	0.010994975	1.862836709	0	0.055607694	27.52493933	0	1.274222618	11.57263467	3.026698856	0.021900329	0.007584948	0	0.009000003	0.031074035	0.022890565	0.007927905	0	0.03600001	0.088782956	0	0	0	0.012516942	2.120697792	0	0	0	0	0.22	0.014239636	0.036037209	0
San Francisco (SF)	2050	T7 Single	2027	Aggregate	Diesel	8.566761342	242.9045351	0.008348452	80.69889184	0.014005174	0.010933192	1.862836709	0	0.055295224	27.52493933	0	1.271700502	11.82976638	3.043876719	0.021687342	0.007584948	0	0.009000003	0.031074035	0.022667947	0.007927905	0	0.03600001	0.088782956	0	0	0	0.012446607	2.120697792	0	0	0	0	0.22	0.014031698	0.035510966	0
San Francisco (SF)	2050	T7 Single	2028	Aggregate	Diesel	8.872404042	250.5704907	0.008611925	83.57804607	0.014504847	0.010858029	1.862836709	0	0.054915081	27.52493933	0	1.163122543	9.817251856	1.734670282	0.021112302	0.007584948	0	0.009000003	0.031074035	0.022066906	0.007927905	0	0.03600001	0.088782956	0	0	0	0.01236104	2.120697792	0	0	0	0	0.22	0.01398185	0.035384813	0
San Francisco (SF)	2050	T7 Single	2029	Aggregate	Diesel	8.873789272	248.7671647	0.008549946	83.59109495	0.014507112	0.010770417	1.862836709	0	0.054471979	27.52493933	0	1.167541665	10.46248361	1.839927452	0.020841974	0.007584948	0	0.009000003	0.031074035	0.021784355	0.007927905	0	0.03600001	0.088782956	0	0	0	0.0122613	2.120697792	0	0	0	0	0.22	0.01392154	0.035232182	0
San Francisco (SF)	2050	T7 Single	2030	Aggregate	Diesel	8.541428174	237.4944747	0.008162512	80.4602534	0.013963759	0.010671289	1.862836709	0	0.053970632	27.52493933	0	1.173646718	11.25901835	1.9698668	0.020542952	0.007584948	0	0.009000003	0.031074035	0.021471813	0.007927905	0	0.03600001	0.088782956	0	0	0	0.01214845	2.120697792	0	0	0	0	0.22	0.013847088	0.03504376	0
San Francisco (SF)	2050	T7 Single	2031	Aggregate	Diesel	8.667569979	239.3601567	0.008226634	81.64850921	0.014169979	0.010561576	1.862836709	0	0.053415753	27.52493933	0	1.170697913	11.73169111	2.046974285	0.020169932	0.007584948	0	0.009000003	0.031074035	0.021081927	0.007927905	0	0.03600001	0.088782956	0	0	0	0.01202355	2.120697792	0	0	0	0	0.22	0.013802907	0.034931948	0
San Francisco (SF)	2050	T7 Single	2032	Aggregate	Diesel	8.55098263	234.2870266	0.008052275	80.55025637	0.013979379	0.010442211	1.862836709	0	0.052812057	27.52493933	0	1.122602231	12.26714415	2.134323166	0.018501941	0.007584948	0	0.009000003	0.031074035	0.019338517	0.007927905	0	0.03600001	0.088782956	0	0	0	0.011887662	2.120697792	0	0	0	0	0.22	0.013752857	0.034805285	0
San Francisco (SF)	2050	T7 Single	2033	Aggregate	Diesel	8.743380611	239.5279487	0.008232401	82.36264535	0.014293916	0.010314125	1.862836709	0	0.052164258	27.52493933	0	1.122775292	12.87877486	2.234098972	0.018151955	0.007584948	0	0.009000003	0.031074035	0.018972705	0.007927905	0	0.03600001	0.088782956	0	0	0	0.011741847	2.120697792	0	0	0	0	0.22	0.013695688	0.034660603	0
San Francisco (SF)	2050	T7 Single	2034	Aggregate	Diesel	8.87173634	268.8571281	0.009240424	83.57175633	0.014503755	0.010178251	1.862836709	0	0.051477068	27.52493933	0	1.123561874	13.58408463	2.349156716	0.017849577	0.007584948	0	0.009000003	0.031074035	0.018656656	0.007927905	0	0.03600001	0.088782956	0	0	0	0.011587164	2.120697792	0	0	0	0	0.22	0.013629762	0.03449376	0
San Francisco (SF)	2050	T7 Single	2035	Aggregate	Diesel	8.83670415	293.0252008	0.010071063	83.24175309	0.014446484	0.010035521	1.862836709	0	0.050755202	27.52493933	0	1.125419855	14.40638055	2.483298506	0.017580677	0.007584948	0	0.009000003	0.031074035	0.018375597	0.007927905	0	0.03600001	0.088782956	0	0	0	0.011424677	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2036	Aggregate	Diesel	9.270752261	332.2772868	0.011420129	87.3304863	0.015156077	0.009886867	1.862836709	0	0.050003374	27.52493933	0	1.104020371	14.40638055	2.483298506	0.017107065	0.007584948	0	0.009000003	0.031074035	0.01788057	0.007927905	0	0.03600001	0.088782956	0	0	0	0.011255445	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2037	Aggregate	Diesel	9.690387472	372.9467264	0.012817908	91.28344999	0.015842109	0.00973322	1.862836709	0	0.049226297	27.52493933	0	1.080969259	14.40638055	2.483298506	0.016617548	0.007584948	0	0.009000003	0.031074035	0.017368919	0.007927905	0	0.03600001	0.088782956	0	0	0	0.01108053	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2038	Aggregate	Diesel	10.59990506	439.2375506	0.015096275	99.85110565	0.017329013	0.009575513	1.862836709	0	0.048428686	27.52493933	0	1.056205877	14.40638055	2.483298506	0.016115095	0.007584948	0	0.009000003	0.031074035	0.016843748	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010900993	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2039	Aggregate	Diesel	11.57887309	514.0317816	0.017666898	109.0729845	0.018929456	0.009414678	1.862836709	0	0.047615254	27.52493933	0	1.029649028	14.40638055	2.483298506	0.015602676	0.007584948	0	0.009000003	0.031074035	0.01630816	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010717895	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2040	Aggregate	Diesel	12.31931856	582.2263091	0.020010695	116.0479808	0.020139956	0.009251647	1.862836709	0	0.046790715	27.52493933	0	1.001191323	14.40638055	2.483298506	0.01508326	0.007584948	0	0.009000003	0.031074035	0.015765258	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010532296	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2041	Aggregate	Diesel	13.07781785	655.9304766	0.022543853	123.1930441	0.021379972	0.009087352	1.862836709	0	0.045959783	27.52493933	0	0.970690928	14.40638055	2.483298506	0.014559817	0.007584948	0	0.009000003	0.031074035	0.015218147	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010345258	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2042	Aggregate	Diesel	13.53073825	716.1899144	0.024614926	127.4595543	0.022120418	0.008922725	1.862836709	0	0.045127172	27.52493933	0	0.937959188	14.40638055	2.483298506	0.014035316	0.007584948	0	0.009000003	0.031074035	0.014669931	0.007927905	0	0.03600001	0.088782956	0	0	0	0.010157843	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2043	Aggregate	Diesel	13.67064188	758.9377234	0.026084137	128.7774465	0.022349136	0.008758698	1.862836709	0	0.044297595	27.52493933	0	0.902741445	14.40638055	2.483298506	0.013512727	0.007584948	0	0.009000003	0.031074035	0.014123712	0.007927905	0	0.03600001	0.088782956	0	0	0	0.00997111	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2044	Aggregate	Diesel	13.74280166	800.7100367	0.027519821	129.4571916	0.022467105	0.008596202	1.862836709	0	0.043475767	27.52493933	0	0.864686022	14.40638055	2.483298506	0.012995018	0.007584948	0	0.009000003	0.031074035	0.013582595	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009786122	2.120697792	0	0	0	0	0.22	0.013552902	0.034299244	0
San Francisco (SF)	2050	T7 Single	2045	Aggregate	Diesel	13.37278668	815.3214931	0.028022007	125.9716505	0.021862195	0.008436171	1.862836709	0	0.042666401	27.52493933	0	0.822892897	14.38770805	2.480252445	0.012483751	0.007584948	0	0.009000003	0.031074035	0.013048211	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009603939	2.120697792	0	0	0	0	0.22	0.013554647	0.034303661	0
San Francisco (SF)	2050	T7 Single	2046	Aggregate	Diesel	12.62701386	806.1163203	0.027705631	118.9464706	0.020642985	0.008279536	1.862836709	0	0.041874211	27.52493933	0	0.769587704	14.00793774	2.418300213	0.01196144	0.007584948	0	0.009000003	0.031074035	0.012502283	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009425622	2.120697792	0	0	0	0	0.22	0.013590145	0.034393497	0
San Francisco (SF)	2050	T7 Single	2047	Aggregate	Diesel	11.40977171	761.8926466	0.026185696	107.4800495	0.018653005	0.008127229	1.862836709	0	0.041103911	27.52493933	0	0.705163765	13.30352225	2.303388352	0.011447067	0.007584948	0	0.009000003	0.031074035	0.011964652	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009252232	2.120697792	0	0	0	0	0.22	0.013655987	0.034560128	0
San Francisco (SF)	2050	T7 Single	2048	Aggregate	Diesel	10.19661629	709.9658727	0.024401011	96.05212545	0.016669705	0.007980183	1.862836709	0	0.040360214	27.52493933	0	0.628832867	12.2885829	2.137820486	0.010955966	0.007584948	0	0.009000003	0.031074035	0.011451346	0.007927905	0	0.03600001	0.088782956	0	0	0	0.009084831	2.120697792	0	0	0	0	0.22	0.013750854	0.034800214	0
San Francisco (SF)	2050	T7 Single	2049	Aggregate	Diesel	9.111486765	660.1057235	0.022687353	85.83020533	0.014895706	0.007839328	1.862836709	0	0.039647835	27.52493933	0	0.538105191	10.97673821	1.923818216	0.010501605	0.007584948	0	0.009000003	0.031074035	0.010976441	0.007927905	0	0.03600001	0.088782956	0	0	0	0.008924479	2.120697792	0	0	0	0	0.22	0.013873472	0.035110534	0
San Francisco (SF)	2050	T7 Single	2050	Aggregate	Diesel	6.633941606	500.4538418	0.017200234	62.49172992	0.010845348	0.007705598	1.862836709	0	0.038971488	27.52493933	0	0.425306437	9.408408364	1.667975318	0.010095784	0.007584948	0	0.009000003	0.031074035	0.010552271	0.007927905	0	0.03600001	0.088782956	0	0	0	0.008772237	2.120697792	0	0	0	0	0.22	0.014020065	0.035481525	0
San Francisco (SF)	2050	T7 Single	2024	Aggregate	Electricity	0.240603004	5.624756658	0.000193319	2.266480295	0.000393344	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.014062041	0	0	0	0.03600001	0.040177261	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2025	Aggregate	Electricity	0.684378962	19.53342739	0.00067135	6.446849825	0.001118841	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.014062041	0	0	0	0.03600001	0.040177261	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2026	Aggregate	Electricity	0.876900467	24.71514189	0.000849441	8.260402399	0.001433581	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2027	Aggregate	Electricity	1.577552008	44.73038547	0.001537351	14.86053991	0.002579025	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2028	Aggregate	Electricity	2.683515414	75.78664937	0.002604732	25.2787152	0.004387084	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2029	Aggregate	Electricity	3.954125249	110.8496604	0.003809822	37.24785984	0.006464311	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2030	Aggregate	Electricity	5.315339626	147.7930583	0.00507954	50.07049927	0.008689662	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2031	Aggregate	Electricity	6.302708454	174.0530837	0.005982078	59.37151364	0.010303839	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2032	Aggregate	Electricity	7.233668475	198.1941435	0.006811789	68.14115703	0.011825798	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2033	Aggregate	Electricity	8.582776692	235.1281485	0.008081183	80.84975644	0.014031356	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2034	Aggregate	Electricity	10.09691278	305.9859838	0.010516516	95.11291836	0.016506707	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2035	Aggregate	Electricity	11.66903362	386.9452752	0.013299028	109.9222967	0.019076853	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2036	Aggregate	Electricity	12.24220229	438.7783912	0.015080494	115.3215456	0.020013885	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2037	Aggregate	Electricity	12.79633846	492.4831492	0.016926288	120.5415083	0.020919801	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2038	Aggregate	Electricity	13.9973735	580.0214262	0.019934914	131.8552583	0.022883286	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2039	Aggregate	Electricity	15.29011915	678.7886115	0.023329471	144.0329224	0.024996702	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2040	Aggregate	Electricity	16.26789129	768.8407645	0.026424498	153.2435359	0.02659519	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2041	Aggregate	Electricity	17.26950383	866.1685005	0.029769581	162.6787261	0.028232654	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2042	Aggregate	Electricity	17.86759372	945.7422187	0.032504472	168.3127328	0.029210427	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2043	Aggregate	Electricity	18.05233908	1002.191502	0.034444593	170.0530342	0.029512454	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2044	Aggregate	Electricity	18.14762742	1057.352626	0.036340441	170.9506503	0.029668234	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2045	Aggregate	Electricity	17.70236439	1079.290242	0.03709442	166.7562726	0.028940306	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2046	Aggregate	Electricity	17.54761875	1120.250758	0.038502204	165.2985686	0.028687323	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2047	Aggregate	Electricity	17.25129826	1151.963214	0.039592138	162.5072296	0.028202891	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2048	Aggregate	Electricity	17.21362138	1198.543063	0.041193053	162.1523134	0.028141296	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2049	Aggregate	Electricity	17.45676266	1264.701277	0.043466863	164.4427043	0.028538789	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2050	Aggregate	Electricity	14.51619431	1095.078257	0.037637043	136.7425504	0.023731469	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015537017	0	0	0	0.03600001	0.044391478	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Single	2016	Aggregate	Natural Gas	0.103446245	3.091587945	0.000106256	0.974463626	0.000169117	0.015036674	0.529766074	0	10.51799171	37.73676384	0	0.630674988	12.2227199	0	0.001107716	0.021662093	0	0.009000003	0.028124083	0.001204742	0.023559502	0	0.03600001	0.080354522	0	0	0	1.074048154	37.84043387	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2017	Aggregate	Natural Gas	0.155765016	4.934632657	0.0001696	1.467306446	0.000254649	0.015191813	0.529766074	0	7.046543279	37.73676384	0	0.451204472	12.2227199	0	0.001590983	0.021662093	0	0.009000003	0.028124083	0.001730339	0.023559502	0	0.03600001	0.080354522	0	0	0	1.085129475	37.84043387	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2018	Aggregate	Natural Gas	0.729117466	23.46971262	0.000806637	6.868286532	0.001191981	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2019	Aggregate	Natural Gas	0.173773694	5.337091176	0.000183432	1.6369482	0.00028409	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2020	Aggregate	Natural Gas	0.143326181	3.598861946	0.00012369	1.350132629	0.000234314	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2021	Aggregate	Natural Gas	0.126379036	2.946853718	0.000101281	1.190490523	0.000206608	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2022	Aggregate	Natural Gas	0.154312556	3.603088161	0.000123836	1.453624279	0.000252274	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2023	Aggregate	Natural Gas	0.183311876	4.281639843	0.000147157	1.726797875	0.000299683	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2024	Aggregate	Natural Gas	0.195670187	4.574328546	0.000157216	1.843213163	0.000319887	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2025	Aggregate	Natural Gas	0.44816436	12.79143058	0.000439632	4.221708272	0.000732671	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.028124083	0.002255936	0.046697043	0	0.03600001	0.080354522	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2026	Aggregate	Natural Gas	0.478073926	13.47435126	0.000463104	4.503456383	0.000781568	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2027	Aggregate	Natural Gas	0.527038689	14.94381396	0.000513608	4.96470445	0.000861617	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2028	Aggregate	Natural Gas	0.545842239	15.41543387	0.000529817	5.141833894	0.000892358	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2029	Aggregate	Natural Gas	0.545927461	15.30449082	0.000526004	5.142636679	0.000892497	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2030	Aggregate	Natural Gas	0.525480158	14.61097976	0.000502169	4.950023092	0.000859069	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2031	Aggregate	Natural Gas	0.533240572	14.72575903	0.000506114	5.023126189	0.000871756	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2032	Aggregate	Natural Gas	0.526067961	14.41365324	0.000495387	4.955560196	0.00086003	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2033	Aggregate	Natural Gas	0.537904544	14.73608182	0.000506468	5.067060806	0.000879381	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2034	Aggregate	Natural Gas	0.545801161	16.54045242	0.000568483	5.141446941	0.000892291	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2035	Aggregate	Natural Gas	0.543645934	18.02730478	0.000619585	5.121144697	0.000888767	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2036	Aggregate	Natural Gas	0.570349158	20.44214595	0.000702582	5.372689068	0.000932422	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2037	Aggregate	Natural Gas	0.596165681	22.94418461	0.000788575	5.615880715	0.000974628	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2038	Aggregate	Natural Gas	0.652120427	27.02248535	0.000928743	6.142974424	0.001066104	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2039	Aggregate	Natural Gas	0.712347858	31.62392712	0.001086891	6.710316826	0.001164566	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2040	Aggregate	Natural Gas	0.75790106	35.81934624	0.001231085	7.139427987	0.001239037	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2041	Aggregate	Natural Gas	0.804564957	40.35372583	0.001386928	7.579001899	0.001315325	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2042	Aggregate	Natural Gas	0.83242923	44.06096756	0.001514343	7.841483349	0.001360878	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2043	Aggregate	Natural Gas	0.84103629	46.69087031	0.001604731	7.92256185	0.001374949	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2044	Aggregate	Natural Gas	0.845475656	49.26075925	0.001693056	7.964380683	0.001382207	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2045	Aggregate	Natural Gas	0.822711837	50.15967572	0.001723952	7.749945501	0.001344992	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2046	Aggregate	Natural Gas	0.776830889	49.59336109	0.001704488	7.317746978	0.001269984	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2047	Aggregate	Natural Gas	0.701944514	46.87266116	0.001610979	6.612317319	0.001147558	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2048	Aggregate	Natural Gas	0.627309559	43.67805614	0.001501183	5.909256048	0.001025543	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2049	Aggregate	Natural Gas	0.56055093	40.61059264	0.001395757	5.280389763	0.000916404	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Single	2050	Aggregate	Natural Gas	0.408129017	30.78859398	0.001058182	3.844575342	0.00066722	0.015246213	0.372426768	0	4.039279976	85.70311992	0	0.163862654	11.33082185	0	0.00207425	0.042936207	0	0.009000003	0.031074035	0.002255936	0.046697043	0	0.03600001	0.088782956	0	0	0	1.089015202	26.60191199	0	0	0	0	1.06	0	0	0
						Total:	29,096	100.00%	5,762	100%																																
							Weighted Average Emissions Factors:				0.00448		0.00000	0.13295		0.00000	0.41978		1.18254	0.00675		0.00000	0.00900	0.02271	0.00705		0.00000	0.03600	0.06489		0.00000		0.03459		0.00000		0.00000		0.12615	0.00608		0.00000

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	% VMT	Trips	% Trips	ROG RUNEX	ROG IDLEX	ROG STREX	CO RUNEX	CO IDLEX	CO STREX	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco (SF)	2050	T7 Tractor	2016	Aggregate	Diesel	0.409828739	23.60902116	0.001010201	5.95481158	0.00131755	0.010874888	3.456342696	0	0.088869711	51.07029647	0	1.431365375	40.84338337	4.379184731	0.031115948	0.014073256	0	0.009000003	0.027431181	0.032522873	0.014709587	0	0.03600001	0.078374803	0	0	0	0.012380233	3.934783059	0	0	0	0	0.22	0.015358523	0.080175629	0
San Francisco (SF)	2050	T7 Tractor	2017	Aggregate	Diesel	0.633632714	36.50170602	0.001561862	9.206683333	0.002037053	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.015967726	0.07786907	0
San Francisco (SF)	2050	T7 Tractor	2018	Aggregate	Diesel	0.515214356	29.67997477	0.001269969	7.486064595	0.001656352	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.015571187	0.07786907	0
San Francisco (SF)	2050	T7 Tractor	2019	Aggregate	Diesel	0.811015445	46.72020034	0.001999099	11.78405441	0.002607317	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.015571187	0.07786907	0
San Francisco (SF)	2050	T7 Tractor	2020	Aggregate	Diesel	0.899069821	51.79275245	0.002216147	13.0634845	0.002890402	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.015571187	0.07786907	0
San Francisco (SF)	2050	T7 Tractor	2021	Aggregate	Diesel	1.024851118	59.03864082	0.00252619	14.89108674	0.003294773	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.013377367	0.068352215	0
San Francisco (SF)	2050	T7 Tractor	2022	Aggregate	Diesel	1.299090761	74.8367753	0.003202172	18.87578875	0.004176421	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.431365375	40.84338337	4.379184731	0.025403893	0.014073256	0	0.009000003	0.027431181	0.026552545	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.013377367	0.068352215	0
San Francisco (SF)	2050	T7 Tractor	2023	Aggregate	Diesel	1.570461549	90.46964358	0.003871083	22.81880631	0.005048845	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.425522583	40.84338337	4.379184731	0.025302301	0.014073256	0	0.009000003	0.027431181	0.026446359	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.013377367	0.068352215	0
San Francisco (SF)	2050	T7 Tractor	2024	Aggregate	Diesel	1.827968725	105.3038701	0.004505821	26.56038558	0.0058767	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.425522583	40.84338337	4.379184731	0.025302301	0.014073256	0	0.009000003	0.027431181	0.026446359	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.012399229	0.064283459	0
San Francisco (SF)	2050	T7 Tractor	2025	Aggregate	Diesel	2.194044519	126.3924135	0.005408174	31.87946685	0.00705359	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.369686865	32.06426527	4.00749087	0.025307119	0.014073256	0	0.009000003	0.027431181	0.026451395	0.014709587	0	0.03600001	0.078374803	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.012396235	0.06426794	0
San Francisco (SF)	2050	T7 Tractor	2026	Aggregate	Diesel	2.613424165	150.5516342	0.006441916	37.97305311	0.008401845	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.371049169	32.25817119	4.015700538	0.025309257	0.014073256	0	0.009000003	0.030311628	0.026453629	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.012391667	0.064244254	0
San Francisco (SF)	2050	T7 Tractor	2027	Aggregate	Diesel	3.114597389	179.4227409	0.007677275	45.25510007	0.010013057	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.373384444	32.59056672	4.029773634	0.025312921	0.014073256	0	0.009000003	0.030311628	0.026457459	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.011848384	0.062186333	0
San Francisco (SF)	2050	T7 Tractor	2028	Aggregate	Diesel	3.728012085	214.7597467	0.009189301	54.16801559	0.011985111	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.33607797	30.95794145	3.357179601	0.025274248	0.014073256	0	0.009000003	0.030311628	0.026417037	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.01183339	0.062107637	0
San Francisco (SF)	2050	T7 Tractor	2029	Aggregate	Diesel	4.520584935	260.4175238	0.011142941	65.68409911	0.014533138	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.340381858	31.4044415	3.403340951	0.025280104	0.014073256	0	0.009000003	0.030311628	0.026423158	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.011817842	0.062026031	0
San Francisco (SF)	2050	T7 Tractor	2030	Aggregate	Diesel	5.243150297	302.0423765	0.012924016	76.18297381	0.016856099	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.344847884	31.86776237	3.451241319	0.02528618	0.014073256	0	0.009000003	0.030311628	0.026429509	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.011801708	0.06194135	0
San Francisco (SF)	2050	T7 Tractor	2031	Aggregate	Diesel	5.981697574	344.5879001	0.014744486	86.91406575	0.019230439	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.349485387	32.34887286	3.500980865	0.02529249	0.014073256	0	0.009000003	0.030311628	0.026436104	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.011784954	0.061853419	0
San Francisco (SF)	2050	T7 Tractor	2032	Aggregate	Diesel	6.659380096	383.6271853	0.016414928	96.7607928	0.021409107	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.333189837	32.84881758	3.552667585	0.024759131	0.014073256	0	0.009000003	0.030311628	0.025878629	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2033	Aggregate	Diesel	7.478891005	442.7181662	0.018943358	108.6682863	0.024043737	0.01112792	3.456342696	0	0.05163219	51.07029647	0	1.333189837	32.84881758	3.552667585	0.024759131	0.014073256	0	0.009000003	0.030311628	0.025878629	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01266829	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2034	Aggregate	Diesel	8.533804395	519.6725795	0.022236141	123.9961779	0.027435156	0.011112335	3.456342696	0	0.051559878	51.07029647	0	1.331482117	32.84881758	3.552667585	0.024695753	0.014073256	0	0.009000003	0.030311628	0.025812385	0.014709587	0	0.03600001	0.086604652	0	0	0	0.012650548	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2035	Aggregate	Diesel	9.615152901	602.9398613	0.025799044	139.7081717	0.030911562	0.011074513	3.456342696	0	0.051384389	51.07029647	0	1.327319166	32.84881758	3.552667585	0.024541946	0.014073256	0	0.009000003	0.030311628	0.025651624	0.014709587	0	0.03600001	0.086604652	0	0	0	0.012607491	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2036	Aggregate	Diesel	10.49784056	678.4771227	0.029031189	152.5336233	0.033749297	0.011014455	3.456342696	0	0.051105725	51.07029647	0	1.320653555	32.84881758	3.552667585	0.02429771	0.014073256	0	0.009000003	0.030311628	0.025396345	0.014709587	0	0.03600001	0.086604652	0	0	0	0.012539118	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2037	Aggregate	Diesel	11.34741212	756.4693393	0.032368379	164.8778981	0.036480567	0.010932159	3.456342696	0	0.050723884	51.07029647	0	1.311407221	32.84881758	3.552667585	0.023963046	0.014073256	0	0.009000003	0.030311628	0.025046548	0.014709587	0	0.03600001	0.086604652	0	0	0	0.012445431	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2038	Aggregate	Diesel	12.03716364	828.2798462	0.035441061	174.8999877	0.038698036	0.010827627	3.456342696	0	0.050238867	51.07029647	0	1.299467377	32.84881758	3.552667585	0.023537952	0.014073256	0	0.009000003	0.030311628	0.024602234	0.014709587	0	0.03600001	0.086604652	0	0	0	0.012326429	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2039	Aggregate	Diesel	12.87339947	914.8786409	0.039146515	187.0504943	0.041386434	0.010700858	3.456342696	0	0.049650673	51.07029647	0	1.284680207	32.84881758	3.552667585	0.02302243	0.014073256	0	0.009000003	0.030311628	0.024063402	0.014709587	0	0.03600001	0.086604652	0	0	0	0.012182112	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2040	Aggregate	Diesel	13.6919216	1005.479113	0.043023196	198.9436209	0.044017884	0.010551852	3.456342696	0	0.048959303	51.07029647	0	1.266841472	32.84881758	3.552667585	0.022416478	0.014073256	0	0.009000003	0.030311628	0.023430052	0.014709587	0	0.03600001	0.086604652	0	0	0	0.01201248	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2041	Aggregate	Diesel	14.4477129	1096.811464	0.046931193	209.9252684	0.046447662	0.010380609	3.456342696	0	0.048164758	51.07029647	0	1.245682639	32.84881758	3.552667585	0.021720098	0.014073256	0	0.009000003	0.030311628	0.022702185	0.014709587	0	0.03600001	0.086604652	0	0	0	0.011817533	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2042	Aggregate	Diesel	14.64449779	1149.700337	0.049194242	212.7845529	0.047080302	0.010187129	3.456342696	0	0.047267035	51.07029647	0	1.220850082	32.84881758	3.552667585	0.020933289	0.014073256	0	0.009000003	0.030311628	0.021879799	0.014709587	0	0.03600001	0.086604652	0	0	0	0.011597271	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2043	Aggregate	Diesel	14.63146082	1188.223001	0.050842579	212.5951257	0.04703839	0.009971413	3.456342696	0	0.046266137	51.07029647	0	1.191873156	32.84881758	3.552667585	0.020056051	0.014073256	0	0.009000003	0.030311628	0.020962897	0.014709587	0	0.03600001	0.086604652	0	0	0	0.011351694	3.934783059	0	0	0	0	0.22	0.011767544	0.061762044	0
San Francisco (SF)	2050	T7 Tractor	2044	Aggregate	Diesel	14.33614027	1204.585221	0.051542698	208.3041182	0.04608897	0.009733459	3.456342696	0	0.045162062	51.07029647	0	1.146507651	31.81880828	3.446180207	0.019061536	0.014073256	0	0.009000003	0.030311628	0.019923414	0.014709587	0	0.03600001	0.086604652	0	0	0	0.011080803	3.934783059	0	0	0	0	0.22	0.011803412	0.061950298	0
San Francisco (SF)	2050	T7 Tractor	2045	Aggregate	Diesel	13.08000921	1137.307115	0.048663952	190.0525339	0.042050659	0.009473269	3.456342696	0	0.043954811	51.07029647	0	1.080281553	29.37060522	3.193073051	0.017913546	0.014073256	0	0.009000003	0.030311628	0.018723517	0.014709587	0	0.03600001	0.086604652	0	0	0	0.010784596	3.934783059	0	0	0	0	0.22	0.011888666	0.062397752	0
San Francisco (SF)	2050	T7 Tractor	2046	Aggregate	Diesel	11.67541473	1050.636592	0.044955428	169.6437761	0.037535056	0.009190842	3.456342696	0	0.042644384	51.07029647	0	0.996459174	25.81003756	2.824964226	0.016659973	0.014073256	0	0.009000003	0.030311628	0.017413263	0.014709587	0	0.03600001	0.086604652	0	0	0	0.010463074	3.934783059	0	0	0	0	0.22	0.012012656	0.063048513	0
San Francisco (SF)	2050	T7 Tractor	2047	Aggregate	Diesel	9.375042225	873.1499136	0.037360995	136.2193635	0.030139635	0.008886178	3.456342696	0	0.041230781	51.07029647	0	0.898622194	21.5310204	2.382578592	0.015356299	0.014073256	0	0.009000003	0.030311628	0.016050642	0.014709587	0	0.03600001	0.086604652	0	0	0	0.010116237	3.934783059	0	0	0	0	0.22	0.012161664	0.063830583	0
San Francisco (SF)	2050	T7 Tractor	2048	Aggregate	Diesel	7.495175093	722.5009194	0.030914912	108.9048941	0.024096088	0.008559277	3.456342696	0	0.039714001	51.07029647	0	0.791620472	17.18200476	1.932956174	0.014056369	0.014073256	0	0.009000003	0.030311628	0.014691935	0.014709587	0	0.03600001	0.086604652	0	0	0	0.009744086	3.934783059	0	0	0	0	0.22	0.012313109	0.064625447	0
San Francisco (SF)	2050	T7 Tractor	2049	Aggregate	Diesel	6.678194176	666.2619502	0.028508517	97.03416138	0.021469592	0.00821014	3.456342696	0	0.038094045	51.07029647	0	0.680540655	13.78031346	1.581272761	0.012799068	0.014073256	0	0.009000003	0.030311628	0.013377785	0.014709587	0	0.03600001	0.086604652	0	0	0	0.009346619	3.934783059	0	0	0	0	0.22	0.012431566	0.065247169	0
San Francisco (SF)	2050	T7 Tractor	2050	Aggregate	Diesel	4.669528169	482.1265109	0.020629592	67.8482443	0.015011972	0.007838765	3.456342696	0	0.036370913	51.07029647	0	0.562982983	12.62225907	1.461547458	0.01158126	0.014073256	0	0.009000003	0.030311628	0.012104913	0.014709587	0	0.03600001	0.086604652	0	0	0	0.008923838	3.934783059	0	0	0	0	0.22	0.012471893	0.065458825	0
San Francisco (SF)	2050	T7 Tractor	2024	Aggregate	Electricity	0.034141891	1.966813316	8.41575E-05	0.496081673	0.000109762	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.01371559	0	0	0	0.03600001	0.039187401	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2025	Aggregate	Electricity	0.057768777	3.327888314	0.000142396	0.839380326	0.00018572	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.01371559	0	0	0	0.03600001	0.039187401	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2026	Aggregate	Electricity	0.099334516	5.722367561	0.000244853	1.443330512	0.000319349	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2027	Aggregate	Electricity	0.180741631	10.41199066	0.000445516	2.626175905	0.000581063	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2028	Aggregate	Electricity	0.293687288	16.91845576	0.00072392	4.267276292	0.000944169	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2029	Aggregate	Electricity	0.453386339	26.11824561	0.001117567	6.587703503	0.001457583	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2030	Aggregate	Electricity	0.642912348	37.0362783	0.001584736	9.341516422	0.002066886	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2031	Aggregate	Electricity	0.872146088	50.24175586	0.002149782	12.67228266	0.002803845	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2032	Aggregate	Electricity	1.13138174	65.17555478	0.002788781	16.43897668	0.003637256	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2033	Aggregate	Electricity	1.270610867	75.21469594	0.003218343	18.46197589	0.004084861	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2034	Aggregate	Electricity	1.449833216	88.28870834	0.003777764	21.06607663	0.00466104	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2035	Aggregate	Electricity	1.633546705	102.4352326	0.004383076	23.73543363	0.005251657	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2036	Aggregate	Electricity	1.783509116	115.2684809	0.004932194	25.91438746	0.005733768	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2037	Aggregate	Electricity	1.927845337	128.5188088	0.005499159	28.01159274	0.006197791	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2038	Aggregate	Electricity	2.045029259	140.7189077	0.006021186	29.71427513	0.006574524	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2039	Aggregate	Electricity	2.187099831	155.4314326	0.006650717	31.77856055	0.007031263	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2040	Aggregate	Electricity	2.326160973	170.8238141	0.007309338	33.79911893	0.007478328	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2041	Aggregate	Electricity	2.454564587	186.3405369	0.007973279	35.66482345	0.00789113	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2042	Aggregate	Electricity	2.487996953	195.3259835	0.008357755	36.15059573	0.007998611	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2043	Aggregate	Electricity	2.485782063	201.8707127	0.008637796	36.11841337	0.007991491	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2044	Aggregate	Electricity	2.749409856	231.0174437	0.009884948	39.9489252	0.008839023	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2045	Aggregate	Electricity	3.189019143	277.2852911	0.011864691	46.33644815	0.010252314	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2046	Aggregate	Electricity	3.729996675	335.6515449	0.014362111	54.19685169	0.011991491	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2047	Aggregate	Electricity	3.847593021	358.3477742	0.015333254	55.9055266	0.01236955	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2048	Aggregate	Electricity	3.768793205	363.2945892	0.015544922	54.76056527	0.012116218	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2049	Aggregate	Electricity	3.840754805	383.1797518	0.016395783	55.80616732	0.012347566	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2050	Aggregate	Electricity	2.800449799	289.1450788	0.012372157	40.69053558	0.00900311	0	0	0	0	0	0	0	0	0	0	0	0	0.009000003	0.015155814	0	0	0	0.03600001	0.043302326	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2050	T7 Tractor	2016	Aggregate	Natural Gas	0.842017581	48.50614169	0.002075517	12.23451545	0.002706985	0.014188062	0.98293806	0	10.32872907	70.01751009	0	0.597521041	22.67826721	0	0.001063438	0.040192259	0	0.009000003	0.027431181	0.001156586	0.043712749	0	0.03600001	0.078374803	0	0	0	1.013433002	70.20986143	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2017	Aggregate	Natural Gas	0.082711548	4.764767564	0.000203878	1.20179879	0.000265908	0.01444223	0.98293806	0	6.749948351	70.01751009	0	0.435726027	22.67826721	0	0.001527387	0.040192259	0	0.009000003	0.027431181	0.001661173	0.043712749	0	0.03600001	0.078374803	0	0	0	1.031587859	70.20986143	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2018	Aggregate	Natural Gas	0.006743309	0.388462073	1.66218E-05	0.097980278	2.16789E-05	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2019	Aggregate	Natural Gas	0.022537062	1.29829349	5.55524E-05	0.327463517	7.24539E-05	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2020	Aggregate	Natural Gas	0.076381552	4.400115252	0.000188275	1.109823956	0.000245558	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2021	Aggregate	Natural Gas	0.087067453	5.015698368	0.000214615	1.26509009	0.000279911	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2022	Aggregate	Natural Gas	0.11036581	6.357847784	0.000272044	1.603615217	0.000354813	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2023	Aggregate	Natural Gas	0.13342044	7.685956813	0.000328872	1.938598992	0.000428931	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2024	Aggregate	Natural Gas	0.15529727	8.946216278	0.000382797	2.256469335	0.000499262	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2025	Aggregate	Natural Gas	0.186397677	10.73781871	0.000459458	2.708358249	0.000599246	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.027431181	0.002165761	0.086642583	0	0.03600001	0.078374803	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2026	Aggregate	Natural Gas	0.222026577	12.79029421	0.000547281	3.22604616	0.000713789	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2027	Aggregate	Natural Gas	0.264604348	15.24307363	0.000652232	3.844701172	0.000850671	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2028	Aggregate	Natural Gas	0.316717727	18.24517123	0.000780688	4.601908574	0.001018209	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2029	Aggregate	Natural Gas	0.384051702	22.12408231	0.000946662	5.580271228	0.00123468	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2030	Aggregate	Natural Gas	0.445438107	25.66037147	0.001097975	6.47221569	0.00143203	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2031	Aggregate	Natural Gas	0.508182274	29.27487733	0.001252635	7.383888444	0.001633745	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2032	Aggregate	Natural Gas	0.565755604	32.59150652	0.00139455	8.220428922	0.001818836	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2033	Aggregate	Natural Gas	0.635378133	37.6116515	0.001609356	9.232044279	0.002042664	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2034	Aggregate	Natural Gas	0.724999563	44.14940576	0.001889098	10.53424365	0.002330787	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2035	Aggregate	Natural Gas	0.816866819	51.22347731	0.002191789	11.86907488	0.002626129	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2036	Aggregate	Natural Gas	0.891856605	57.64083572	0.002466379	12.95867646	0.002867212	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2037	Aggregate	Natural Gas	0.964032973	64.2667578	0.002749894	14.0073991	0.00309925	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2038	Aggregate	Natural Gas	1.022631639	70.36750533	0.003010938	14.85883772	0.003287638	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2039	Aggregate	Natural Gas	1.093675054	77.72460955	0.003325739	15.89109854	0.003516034	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2040	Aggregate	Natural Gas	1.163213582	85.42168103	0.003655087	16.90149334	0.003739592	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2041	Aggregate	Natural Gas	1.227422735	93.18093021	0.003987096	17.83445235	0.003946017	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2042	Aggregate	Natural Gas	1.244140832	97.67416767	0.004179356	18.07736628	0.003999763	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2043	Aggregate	Natural Gas	1.243033259	100.9469067	0.004319392	18.06127326	0.003996203	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2044	Aggregate	Natural Gas	1.217943949	102.3369787	0.004378872	17.69672558	0.003915544	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2045	Aggregate	Natural Gas	1.111227832	96.6212867	0.004134304	16.1461404	0.003572464	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2046	Aggregate	Natural Gas	0.991898828	89.25808867	0.003819242	14.41228997	0.003188836	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2047	Aggregate	Natural Gas	0.796467929	74.17949559	0.003174048	11.57267901	0.002560549	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2048	Aggregate	Natural Gas	0.636761568	61.38093005	0.002626413	9.252145577	0.002047112	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2049	Aggregate	Natural Gas	0.567353976	56.60308113	0.002421975	8.243653276	0.001823975	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
San Francisco (SF)	2050	T7 Tractor	2050	Aggregate	Natural Gas	0.396705352	40.95963457	0.001752612	5.764128772	0.00127536	0.014589653	0.691007716	0	3.657156771	159.0152004	0	0.160350843	21.02342258	0	0.001991337	0.079664657	0	0.009000003	0.030311628	0.002165761	0.086642583	0	0.03600001	0.086604652	0	0	0	1.0421181	49.35769397	0	0	0	0	1.06	0	0	0
						Total:	23,371	100.00%	4,520	100%																																
						Weighted Average Emissions Factors:					0.00869		0.00000	0.29375		0.00000	0.90185		2.57610	0.01593		0.00000	0.00900	0.02762	0.01665		0.00000	0.03600	0.07890		0.00000		0.07809		0.00000		0.00000		0.23812	0.00911		0.00000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNI	PM2.5_RU	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PMI	PM2.5_PM	Fuel Consu	Energy Consumption
2016+ Model Year Data use for SFG Controlled Scenario Operations:																				
San Franci	2025	T6TS	2016	5	Gasoline	29.07724	29.07724	0	0.119438	0.006244	0.00679	0.039512	0.057656	0.32311	0.039404	0.045	0.061496	0.021524	0.463303	0
San Franci	2025	T6TS	2017	5	Gasoline	99.12197	99.12197	0	0.161679	0.006709	0.007296	0.04745	0.069239	0.303507	0.037915	0.045	0.061496	0.021524	0.445791	0
San Franci	2025	T6TS	2018	5	Gasoline	65.82538	65.82538	0	0.142123	0.006988	0.0076	0.057343	0.083675	0.303485	0.037915	0.045	0.061496	0.021524	0.445795	0
San Franci	2025	T6TS	2019	5	Gasoline	21.30731	21.30731	0	0.136768	0.007173	0.007802	0.052031	0.075923	0.291742	0.037915	0.045	0.061496	0.021524	0.445791	0
San Franci	2025	T6TS	2020	5	Gasoline	26.04588	26.04588	0	0.13678	0.007173	0.007802	0.050673	0.073942	0.288345	0.037915	0.045	0.061496	0.021524	0.445789	0
San Franci	2025	T6TS	2021	5	Gasoline	32.85897	32.85897	0	0.137706	0.007173	0.007802	0.052532	0.076654	0.289236	0.03429	0.045	0.061496	0.021524	0.403178	0
San Franci	2025	T6TS	2022	5	Gasoline	39.70711	39.70711	0	0.146835	0.007173	0.007802	0.0581	0.08478	0.298345	0.034291	0.045	0.061496	0.021524	0.403182	0
San Franci	2025	T6TS	2023	5	Gasoline	41.68972	41.68972	0	0.165525	0.007173	0.007802	0.066511	0.097052	0.319493	0.034291	0.045	0.061496	0.021524	0.40319	0
San Franci	2025	T6TS	2024	5	Gasoline	39.42228	39.42228	0	0.186546	0.007173	0.007802	0.076276	0.111302	0.341947	0.033965	0.045	0.061496	0.021524	0.399349	0
San Franci	2025	T6TS	2025	5	Gasoline	34.84068	34.84068	0	0.13221	0.007173	0.007802	0.072696	0.106078	0.317785	0.034031	0.045	0.061496	0.021524	0.400134	0
San Franci	2025	T6TS	2024	5	Electricity	3.406803	0	3.406803	0	0	0	0	0	0	0	0	0.030748	0.010762	0	3.515312
San Franci	2025	T6TS	2025	5	Electricity	3.874275	0	3.874275	0	0	0	0	0	0	0	0	0.030748	0.010762	0	3.515312
Weighted	2025	T6TS	2016+	5	Gasoline	429.8965	429.8965	0	0.150146	0.006975	0.007586	0.05676	0.082825	0.307993	0.036375	0.045	0.061496	0.021524	0.427693	0
Weighted	2025	T6TS	2016+	5	Electricity	7.281078	0	7.281078	0	0	0	0	0	0	0	0	0.030748	0.010762	0	3.515312

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNI	PM2.5_RU	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Francis	2025	T6 instate	2016	10	Diesel	351.0426	351.0426	0	1.395162	0.003167	0.00331	0.03242	0.036907	0.159013	0.019735	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2017	10	Diesel	268.0294	268.0294	0	1.369159	0.003104	0.003245	0.031593	0.035966	0.154958	0.018989	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2018	10	Diesel	162.9041	162.9041	0	1.339456	0.003035	0.003173	0.030692	0.034941	0.150539	0.018989	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2019	10	Diesel	278.4379	278.4379	0	1.305226	0.002961	0.003095	0.029717	0.033831	0.145757	0.018989	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2020	10	Diesel	143.9709	143.9709	0	1.266015	0.002881	0.003011	0.028668	0.032636	0.140612	0.018989	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2021	10	Diesel	50.88468	50.88468	0	1.220138	0.002795	0.002922	0.027545	0.031358	0.135103	0.017174	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2022	10	Diesel	30.90155	30.90155	0	1.166857	0.002704	0.002826	0.026348	0.029995	0.12923	0.017174	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2023	10	Diesel	173.9129	173.9129	0	1.08639	0.002584	0.002701	0.025076	0.028547	0.122995	0.017174	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2024	10	Diesel	103.0677	103.0677	0	1.008105	0.002488	0.0026	0.023731	0.027016	0.116395	0.01701	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2025	10	Diesel	113.0492	113.0492	0	0.774357	0.002386	0.002494	0.022311	0.0254	0.109433	0.017043	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2026	10	Diesel	8.284113	8.284113	0	0.616176	0.002278	0.002381	0.020818	0.023699	0.102107	0.017041	0.22	0.061496	0.021524
San Francis	2025	T6 instate	2024	10	Electricity	9.034598	0	9.034598	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T6 instate	2025	10	Electricity	12.75123	0	12.75123	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T6 instate	2026	10	Electricity	1.127072	0	1.127072	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T6 instate	2020	10	Natural Ga	2.063589	2.063589	0	0.11747	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6 instate	2021	10	Natural Ga	0.729349	0.729349	0	0.117429	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6 instate	2022	10	Natural Ga	0.442923	0.442923	0	0.117442	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6 instate	2023	10	Natural Ga	2.492759	2.492759	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6 instate	2024	10	Natural Ga	1.477309	1.477309	0	0.117467	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6 instate	2025	10	Natural Ga	1.620376	1.620376	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6 instate	2026	10	Natural Ga	0.118739	0.118739	0	0.117471	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
Weighted .	2025	T6 instate	2016+	10	Diesel	1684.485	1684.485	0	1.249202	0.002908	0.003039	0.02907	0.033094	0.142582	0.018608	0.22	0.061496	0.021524
Weighted .	2025	T6 instate	2016+	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.030748	0.010762
Weighted .	2025	T6 instate	2016+	10	Natural Ga	8.945045	8.945045	0	0.117465	0.00431	0.004688	0.036105	2.578898	8.191381	0	1.06	0.061496	0.021524
San Francis	2025	T6TS	2024	10	Electricity	6.082643	0	6.082643	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T6TS	2025	10	Electricity	6.917286	0	6.917286	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T6TS	2016	10	Gasoline	51.91567	51.91567	0	0.103634	0.003928	0.004273	0.024875	0.036298	0.29442	0.031988	0.045	0.061496	0.021524
San Francis	2025	T6TS	2017	10	Gasoline	176.9763	176.9763	0	0.140284	0.004221	0.004591	0.029873	0.04359	0.276557	0.030778	0.045	0.061496	0.021524
San Francis	2025	T6TS	2018	10	Gasoline	117.5273	117.5273	0	0.123316	0.004397	0.004782	0.036101	0.052679	0.276537	0.030779	0.045	0.061496	0.021524
San Francis	2025	T6TS	2019	10	Gasoline	38.04292	38.04292	0	0.11867	0.004514	0.004909	0.032757	0.047798	0.265837	0.030778	0.045	0.061496	0.021524
San Francis	2025	T6TS	2020	10	Gasoline	46.50335	46.50335	0	0.118681	0.004514	0.004909	0.031902	0.046551	0.262742	0.030778	0.045	0.061496	0.021524
San Francis	2025	T6TS	2021	10	Gasoline	58.66772	58.66772	0	0.119484	0.004514	0.004909	0.033072	0.048258	0.263553	0.027836	0.045	0.061496	0.021524
San Francis	2025	T6TS	2022	10	Gasoline	70.89467	70.89467	0	0.127405	0.004514	0.004909	0.036577	0.053374	0.271853	0.027837	0.045	0.061496	0.021524
San Francis	2025	T6TS	2023	10	Gasoline	74.43451	74.43451	0	0.143622	0.004514	0.004909	0.041872	0.0611	0.291123	0.027837	0.045	0.061496	0.021524
San Francis	2025	T6TS	2024	10	Gasoline	70.38611	70.38611	0	0.161861	0.004514	0.004909	0.04802	0.070071	0.311584	0.027572	0.045	0.061496	0.021524
San Francis	2025	T6TS	2025	10	Gasoline	62.20596	62.20596	0	0.114715	0.004514	0.004909	0.045767	0.066782	0.289567	0.027626	0.045	0.061496	0.021524
Weighted .	2025	T6TS	2016+	10	Electricity	12.99993	0	12.99993	0	0	0	0	0	0	0	0	0.030748	0.010762
Weighted .	2025	T6TS	2016+	10	Gasoline	767.5545	767.5545	0	0.130278	0.004389	0.004773	0.035734	0.052143	0.280645	0.029529	0.045	0.061496	0.021524
San Francis	2025	T7 Single	2016	10	Diesel	14.96814	14.96814	0	6.097104	0.006275	0.006559	0.052495	0.059762	0.687712	0.027668	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2017	10	Diesel	14.93719	14.93719	0	5.903176	0.005545	0.005796	0.04719	0.053722	0.44441	0.02663	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2018	10	Diesel	19.30783	19.30783	0	5.694518	0.005311	0.005551	0.046323	0.052735	0.43624	0.02663	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2019	10	Diesel	42.44439	42.44439	0	5.469049	0.005079	0.005309	0.045463	0.051756	0.428147	0.02663	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2020	10	Diesel	12.4188	12.4188	0	5.223795	0.004851	0.00507	0.044617	0.050793	0.420176	0.02663	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2021	10	Diesel	8.314203	8.314203	0	4.954326	0.004627	0.004836	0.043788	0.04985	0.412375	0.023376	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2022	10	Diesel	10.40568	10.40568	0	4.65361	0.00441	0.004609	0.042983	0.048933	0.404789	0.023376	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2023	10	Diesel	10.44493	10.44493	0	4.133575	0.004109	0.004294	0.042205	0.048047	0.397465	0.023376	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2024	10	Diesel	10.05357	10.05357	0	3.738692	0.003935	0.004113	0.04146	0.047199	0.390449	0.023104	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2025	10	Diesel	15.31319	15.31319	0	2.752547	0.003774	0.003945	0.040753	0.046394	0.383789	0.023176	0.22	0.137085	0.04798
San Francis	2025	T7 Single	2026	10	Diesel	1.003459	1.003459	0	1.834316	0.003624	0.003788	0.040088	0.045638	0.377529	0.023172	0.22	0.151225	0.052929

San Francis	2025	T7 Single	2024	10	Electricity	0.893026	0	0.893026	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francis	2025	T7 Single	2025	10	Electricity	1.781243	0	1.781243	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francis	2025	T7 Single	2026	10	Electricity	0.14075	0	0.14075	0	0	0	0	0	0	0	0	0.075613	0.026464
San Francis	2025	T7 Single	2016	10	Natural Ga	0.885669	0.885669	0	3.82542	0.004437	0.004826	0.095012	6.786603	23.09307	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2017	10	Natural Ga	1.205478	1.205478	0	1.827685	0.006373	0.006931	0.082435	5.888223	22.20168	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2018	10	Natural Ga	5.004147	5.004147	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2019	10	Natural Ga	1.107496	1.107496	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2020	10	Natural Ga	0.764022	0.764022	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2021	10	Natural Ga	0.511501	0.511501	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2022	10	Natural Ga	0.640171	0.640171	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2023	10	Natural Ga	0.642586	0.642586	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2024	10	Natural Ga	0.618509	0.618509	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2025	10	Natural Ga	0.942088	0.942088	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Single	2026	10	Natural Ga	0.061734	0.061734	0	0.43104	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.151225	0.052929
Weighted .	2025	T7 Single	2016+	10	Diesel	159.6114	159.6114	0	5.016935	0.001832	0.001916	0.018617	0.058252	0.298502	0.010168	0.099546	0.060428	0.02115
Weighted .	2025	T7 Single	2016+	10	Electricity	2.815019	0	2.815019	0	0	0	0	0	0	0	0	0.068896	0.024114
Weighted .	2025	T7 Single	2016+	10	Natural Ga	12.3834	12.3834	0	0.809767	0.007843	0.00853	0.073574	5.255319	21.37813	0	1.06	0.137155	0.048004
San Francis	2025	T7 Tractor	2016	10	Diesel	6.27648	6.27648	0	7.554571	0.008797	0.009195	0.061896	0.070464	0.810875	0.027425	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2017	10	Diesel	8.296098	8.296098	0	7.408077	0.007818	0.008172	0.055612	0.06331	0.523721	0.026396	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2018	10	Diesel	5.712127	5.712127	0	7.237134	0.0075	0.007839	0.054434	0.061969	0.512631	0.025187	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2019	10	Diesel	7.631115	7.631115	0	7.037975	0.00715	0.007473	0.053135	0.06049	0.500398	0.025187	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2020	10	Diesel	6.754699	6.754699	0	6.80534	0.006766	0.007072	0.051715	0.058873	0.487021	0.025187	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2021	10	Diesel	6.129964	6.129964	0	6.531583	0.00635	0.006637	0.050173	0.057118	0.472502	0.021638	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2022	10	Diesel	5.66622	5.66622	0	6.204922	0.005901	0.006168	0.04851	0.055225	0.456839	0.021638	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2023	10	Diesel	5.004979	5.004979	0	5.754584	0.005363	0.005606	0.046725	0.053193	0.440033	0.021638	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2024	10	Diesel	4.594406	4.594406	0	5.246547	0.004861	0.005081	0.044819	0.051024	0.422084	0.020609	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2025	10	Diesel	3.281249	3.281249	0	3.962771	0.004332	0.004528	0.042792	0.048716	0.402991	0.020633	0.22	0.137085	0.04798
San Francis	2025	T7 Tractor	2026	10	Diesel	0.566105	0.566105	0	2.755319	0.003772	0.003943	0.040643	0.046269	0.382756	0.020629	0.22	0.151225	0.052929
San Francis	2025	T7 Tractor	2024	10	Electricity	0.225636	0	0.225636	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francis	2025	T7 Tractor	2025	10	Electricity	0.236516	0	0.236516	0	0	0	0	0	0	0	0	0.068542	0.02399
San Francis	2025	T7 Tractor	2026	10	Electricity	0.060002	0	0.060002	0	0	0	0	0	0	0	0	0.075613	0.026464
San Francis	2025	T7 Tractor	2016	10	Natural Ga	12.8954	12.8954	0	3.83342	0.004437	0.004826	0.095012	6.786603	23.09307	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2017	10	Natural Ga	1.082935	1.082935	0	1.831507	0.006373	0.006931	0.082435	5.888223	22.20168	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2018	10	Natural Ga	0.074762	0.074762	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2019	10	Natural Ga	0.212059	0.212059	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2020	10	Natural Ga	0.573854	0.573854	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2021	10	Natural Ga	0.520778	0.520778	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2022	10	Natural Ga	0.48138	0.48138	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2023	10	Natural Ga	0.425204	0.425204	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2024	10	Natural Ga	0.390323	0.390323	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2025	10	Natural Ga	0.278762	0.278762	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.137085	0.04798
San Francis	2025	T7 Tractor	2026	10	Natural Ga	0.048094	0.048094	0	0.431941	0.008309	0.009036	0.070692	5.04942	21.1341	0	1.06	0.151225	0.052929
Weighted .	2025	T7 Tractor	2016+	10	Diesel	59.91344	59.91344	0	6.552037	0.004019	0.004242	0.046069	1.489873	5.211679	0.011813	0.345642	0.103455	0.036209
Weighted .	2025	T7 Tractor	2016+	10	Electricity	0.522154	0	0.522154	0	0	0	0	0	0	0	0	0.069355	0.024274
Weighted .	2025	T7 Tractor	2016+	10	Natural Ga	16.98355	16.98355	0	3.103883	0.005246	0.005705	0.089907	6.421927	22.68959	0	1.06	0.137125	0.047994

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Francisco	2050	LDA	Aggregate	Aggregate	Gasoline	127647	4734720	4734720	0	598892	0.020301105	0	0	0.157390415	0.000577528	0	0.000712866	0.002000001	0.002147586	0.000628114	0	0.000775326	0.008000002	0.009278817	0.003495029	0	0.117129462	0.032402295	0.12613901	0.762938644	0.005899938	0	0.123402992	0.032402295	0.12613901	0.762938644	0.041960056	0.50286455	0	1.633731329	0.002345726	0	0.005536452
San Francisco	2050	LDA	Aggregate	Aggregate	Diesel	81.3902	2751.25	2751.25	0	368.122	0.011681962	0	0	0.000928179	0	0	0	0.002000001	0.003252926	0.000970147	0	0	0.008000002	0.000294073	0.006870721	0	0	0	0.00782186	0	0	0	0	0	0.0031	0.220578716	0	0	0.001867976	0	0
San Francisco	2050	LDA	Aggregate	Aggregate	Electricity	17604.3	719351	0	719351	84517.8	0	0	0	0	0	0	0	0.002000001	0.001336601	0	0	0	0.008000002	0.004390288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LDA	Aggregate	Aggregate	Plug-in Hybrid	6031.69	227210	92485.9	134724	24941.1	0.003291981	0	0.116967433	0.000235597	0	0.000764193	0.002000001	0.001508424	0.000356233	0	0.000889378	0.008000002	0.004309783	0.001615196	0	0.175544867	0.034090828	0.069571695	0.741504381	0.00235689	0	0.192199534	0.036090828	0.069571695	0.741504381	0.017091167	0.21103873	0	1.369749453	0.001295286	0	0.0005478
San Francisco	2050	LDT1	Aggregate	Aggregate	Gasoline	9702.53	302650	302650	0	44098.5	0.022208557	0	0.175047871	0.00061027	0	0.000771029	0.002000001	0.004113849	0.000663725	0	0.000838564	0.008000002	0.011748139	0.003863839	0	0.12698665	0.046413403	0.206782639	1.242199063	0.005641023	0	0.13901469	0.046413403	0.206782639	1.242199063	0.041786564	0.547217007	0	1.719769524	0.002708156	0	0.000612014
San Francisco	2050	LDT1	Aggregate	Aggregate	Diesel	0.11257	3.63878	3.63878	0	0.52064	0.037075084	0	0	0.004760B3	0	0	0	0.002000001	0.004095711	0.004976094	0	0	0.008000002	0.01170203	0.022341002	0	0	0	0.0254337A5	0	0	0	0	0	0.0031	0.23496466	0	0	0.003502778	0	0
San Francisco	2050	LDT1	Aggregate	Aggregate	Electricity	306.849	11880.8	0	11880.8	1430.93	0	0	0	0	0	0	0	0.002000001	0.001538995	0	0	0	0.008000002	0.004397129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LDT1	Aggregate	Aggregate	Plug-in Hybrid	210.008	7722.83	3141.53	4581.29	961.488	0.003269834	0	0.116967433	0.000234569	0	0.000729182	0.002000001	0.001511584	0.000255115	0	0.000793052	0.008000002	0.004318811	0.001614142	0	0.175544867	0.038666113	0.080370746	0.865681526	0.002353352	0	0.192199534	0.038666113	0.080370746	0.865681526	0.017084985	0.210885912	0	1.369749453	0.001294414	0	0.000628928
San Francisco	2050	LDT2	Aggregate	Aggregate	Gasoline	812422	2631128	2631128	0	375029	0.023706158	0	0.204889038	0.000595106	0	0.000741332	0.002000001	0.004084162	0.00064745	0	0.000806266	0.008000002	0.011669033	0.005045853	0	0.16093314	0.038663315	0.166692174	0.99977665	0.004191069	0.610724187	0	2.13235767	0.002822456	0	0.000646405
San Francisco	2050	LDT2	Aggregate	Aggregate	Diesel	316.387	10153.1	10153.1	0	1453.96	0.037167848	0	0	0.004743277	0	0	0	0.002000001	0.004087631	0.004957747	0	0	0.008000002	0.011678947	0.022308597	0	0	0	0.025396854	0	0	0	0	0	0.0031	0.233602626	0	0	0.002599832	0	0
San Francisco	2050	LDT2	Aggregate	Aggregate	Electricity	3307.4	89651.6	0	89651.6	15487.2	0	0	0	0	0	0	0	0.002000001	0.001538643	0	0	0	0.008000002	0.004396121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LDT2	Aggregate	Aggregate	Plug-in Hybrid	2244.69	73844	30066.6	43777.4	9281.79	0.003292891	0	0.116967433	0.00023691	0	0.000761341	0.002000001	0.001511286	0.000257661	0	0.000809276	0.008000002	0.004317961	0.001615642	0	0.175544867	0.038246236	0.078969344	0.841457842	0.002357541	0	0.192199534	0.038246236	0.078969344	0.841457842	0.017100473	0.211083611	0	1.369749453	0.001295618	0	0.000660532
San Francisco	2050	LHD1	Aggregate	Aggregate	Gasoline	3221.52	114822	114822	0	47995.9	0.014019024	0.023912927	0.391235186	0.001161133	0	8.86108E-05	0.002000001	0.027300008	0.001262838	0	9.63723E-05	0.008000002	0.078000022	0.003700378	0.275107547	0.081983249	0.019570593	0.199620876	2.153349812	0.005399583	0.401436287	0.089761339	0.019570593	0.199620876	2.153349812	0.045	0.594904859	3.781397237	0.357899168	0.007350073	0.001051517	0.000232343
San Francisco	2050	LHD1	Aggregate	Aggregate	Diesel	2010.69	72065.1	72065.1	0	25292	0.190587318	0.824120924	0	0.016169472	0.026415372	0	0	0.003000001	0.027300008	0.016823904	0.027609757	0	0.012000003	0.078000022	0.082498556	0.109759705	0	0	0	0.093819121	0.124954127	0	0	0	0	0	0.239738938	0.203027705	0.909745076	0	0.005670243	0.001074892	0
San Francisco	2050	LHD1	Aggregate	Aggregate	Electricity	4442.64	184789	0	184789	62225.8	0	0	0	0	0	0	0	0.002000001	0.013650004	0	0	0	0.008000002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LHD2	Aggregate	Aggregate	Gasoline	377.639	13144.2	13144.2	0	5626.25	0.018359172	0.020101244	0.324414413	0.001167124	0	8.957926-05	0.002000001	0.031850009	0.001268361	0	9.74215E-05	0.008000002	0.091000026	0.0033852	0.2308708	0.068115086	0.019613045	0.208253129	2.248020457	0.004859888	0.33688613	0.075672319	0.019613045	0.208253129	2.248020457	0.045	0.600576376	3.781397237	0.383762261	0.008277104	0.001210987	0.000228466
San Francisco	2050	LHD2	Aggregate	Aggregate	Diesel	1012.1	34173.2	34173.2	0	12731	0.262523958	0.933582157	0	0.01994671	0.026386901	0	0	0.003000001	0.031850009	0.020848612	0.027579999	0	0.012000003	0.091000026	0.099403326	0.109759705	0	0	0	0.113164077	0.124954127	0	0	0	0	0	0.218087536	0.24922527	0.909745076	0	0.006632227	0.001761057	0
San Francisco	2050	LHD2	Aggregate	Aggregate	Electricity	1111.92	44790.2	0	44790.2	14711.3	0	0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	MDV	Aggregate	Aggregate	Gasoline	4619.4	1626624	1626624	0	214316	0.024569964	0	0	0.21479517	0.000591116	0	0.000731966	0.002000001	0.004146575	0.000642891	0	0.000796081	0.008000002	0.011847358	0.005205169	0	0.162994788	0.039027483	0.175973901	1.043292799	0.007595517	0	0.178458777	0.039027483	0.175973901	1.043292799	0.041925596	0.629249154	0	2.156798268	0.003418493	0	0.000782389
San Francisco	2050	MDV	Aggregate	Aggregate	Diesel	514.907	17657.7	17657.7	0	2350.22	0.011801274	0	0	0.000947919	0	0	0	0.002000001	0.004154574	0.00099078	0	0	0.008000002	0.011870211	0.007548309	0	0	0	0.008593248	0	0	0	0	0	0.0031	0.246845122	0	0	0.003346064	0	0
San Francisco	2050	MDV	Aggregate	Aggregate	Electricity	3050.39	81429.3	0	81429.3	14208.8	0	0	0	0	0	0	0	0.002000001	0.001540579	0	0	0	0.008000002	0.004401655	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	MDV	Aggregate	Aggregate	Plug-in Hybrid	1432.63	50274	20467.3	29806.8	5923.94	0.003292494	0	0.116967433	0.000237418	0	0.000764227	0.002000001	0.00151312	0.000258214	0	0.000809414	0.008000002	0.0043232	0.001615447	0	0.175544867	0.039955428	0.086577594	0.918460373	0.002357257	0	0.192199534	0.039955428	0.086577594	0.918460373	0.017098802	0.211056128	0	1.369749453	0.00129546	0	0.00080295

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNI	PM2.5_RU	PM10_RUI	ROG_RUNI	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06645	0.00822	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.24295	0.06049	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.003	0.00098	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.15091	0.01014	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.12943	1.00698	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.00254	0.00059	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.09234	0.00869	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.16004	0.01266	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.00276	0.00076	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.16389	0.00311	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.20206	0.05069	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.18325	0.00293	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.29945	0.05082	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.10933	0.00795	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.13747	0.01377	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274	0.00079	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.67385	0.0057	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.05694	0.00518	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.22548	0.04421	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.00157	0.00051	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.12711	0.00643	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.18661	0.70103	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.00133	0.0003	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879	0.00547	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.13444	0.01105	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.00145	0.00039	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.14624	0.00231	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.08635	0.04205	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.16066	0.00217	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.14197	0.04269	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.09311	0.00501	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.1178	0.01143	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00144	0.00041	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.49767	0.03989	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.30996	0.0037	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.58654	0.00359	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.74115	0.00739	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.44602	0.00712	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.33215	0.00813	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107	0.00522	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

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35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
3.07E+04	Carbon Dioxide, non-biogenic CO2 (6960)	2.56E+03	8.10E+06		CO2
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
4.74E-01	Methane (CH4) (6970)	3.95E-02	1.25E+02		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
5.76E-02	Nitrous Oxide (N2O) (2030)	4.80E-03	1.52E+01		N2O
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

	PM PROFILE			OG PROFILE				
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

SF Gateway
2050 Operational Emissions Summary with 2050 Mobile Source and TRU Emissions Factors - no emissions reduction measures

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	34.78	1.812	1.087
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	3.63	47.36	43.080	11.842
TRUs	17.59	16.29	0.098	0.090
Total Proposed Daily Operational Emissions	***47.2***	***102.5***	***45.202***	***13.232***
Total Existing Daily Operational Emissions	***9.30***	***17.50***	***6.40***	***2.00***
Net New Daily Operational Emissions	**37.93**	**84.95**	**38.80**	**11.23**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.0002	0.0001	0.0001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.39	4.59	0.239	0.144
Stationary Sources	0.04	0.10	0.005	0.005
Mobile	0.66	8.64	7.862	2.161
TRUs	3.20	2.96	0.018	0.016
Total Proposed Annual Operational Emissions	***8.23***	***16.30***	***8.12***	***2.33***
Total Existing Annual Operational Emissions	***1.70***	***3.20***	***1.20***	***0.40***
Net New Annual Operational Emissions	**6.53**	**13.10**	**6.92**	**1.93**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	8.7398	34.7837	1.8123	0.0000	1.0874	0.0000	0.39	1.15	4.59	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.10	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	2.2884	134.6967	38.4640	0.7202	41.7995	0.6837	10.9922	0.42	24.58	7.02	0.13	7.63	0.12	2.01
Mobile (activity within buildings)	1.3413	24.6045	8.8950	0.0319	0.5285	0.0298	0.1364	0.24	4.49	1.62	0.01	0.10	0.01	0.02
TRUs in-transit	14.8629	1.6168	13.7538	0.0831	0.0000	0.0765	0.0000	2.70	0.29	2.50	0.02	0.00	0.01	0.00
TRUs on-site	2.7239	0.2963	2.5406	0.0149	1.0000	0.0137	1.0000	0.50	0.05	0.46	0.00	1.00	0.00	1.00

Manufacturing and Maker Space Maximum Emissions Calculations

No Change from Inital Operational Year Assumptions

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	35000										
TACs		2.96	2.41	9.68	1.81	1.1	0.391172	0.318732	1.278338	0.23922	0.143532
Manufacturing & Maker Space (Apparel)[1]	35000										
TACs		1.43	8.74	34.78	0.72	0.69	0.188288	1.15365	4.591448	0.094823	0.091366
Maximum											
TACs		**2.96**	**8.74**	**34.78**	**1.81**	**1.09**	**0.39**	**1.15**	**4.59**	**0.24**	**0.14**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	4.13E-03

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	1.33E-04	4.20E-01
Formaldehyde (124)	1.56E-03	4.94E+00
Glycols (131)	2.33E-02	7.39E+01
Isopropyl alcohol (157)	9.33E-03	2.96E+01
Toluene (293)	1.13E-04	3.57E-01
Ethyl Benzene	2.94E-05	9.32E-02
O-Xylene	1.32E-04	4.18E-01
M-Xylene	1.91E-04	6.04E-01
Chlorobenzene	2.24E-05	7.10E-02
Naphthalene	2.94E-05	9.32E-02

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	**g/s**
182.73192	3.63E-03

***Conditional formatting indicates worst-case scenario in orange.**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

No Change from Iniital Operational Year Assumptions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
200KV Backup Generator	220	0.74	1	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total						1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440
200KV	2 per building	220

1. Data per 180710-SFG AECOM RFI Response_60-81-Revision3
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.359621617	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/ho-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary with 2050 Mobile Source Emissions Factors

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*0.802832*	*55.43645*	*2.51329*	*0.0615*	*12.35545*	*0.05657*	*3.138968*	*0.146517*	*10.11715*	*0.458675*	*0.011224*	*2.254869*	*0.010324*	*0.572862*
Visitor	*1.485557*	*79.26021*	*35.95066*	*0.658689*	*29.44402*	*0.627141*	*7.853247*	*0.271114*	*14.46499*	*6.560996*	*0.120211*	*5.373534*	*0.114453*	*1.433218*
Sub-Total	2.288388	134.6967	38.46395	0.720188	41.79947	0.683711	10.99222	0.417631	24.58214	7.019671	0.131434	7.628403	0.124777	2.006079
On-Site Vehicle Activity Within Buildings	1.34	24.6045	8.895007	0.031946	0.528523	0.029776	0.136369	0.244788	4.490321	1.623339	0.00583	0.096455	0.005434	0.024887
Gross Mobile Source Emissions from Proposed Project	**3.629694**	**159.3012**	**47.35896**	**0.752135**	**42.32799**	**0.713487**	**11.12858**	**0.662419**	**29.07246**	**8.64301**	**0.137265**	**7.724859**	**0.130211**	**2.030967**

Worker Trips - Mobile Source Emissions with 2050 Emissions Factors

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1581	47054	0.80283197	55.4364485	2.51328951	0.061499747	12.35544873	0.056570019	3.138968003	0.146516834	10.11715185	0.45867533	0.0112237	2.25486939	0.01032403	0.57286166

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

Operational Days Per Year:

Autos/Pickups (on-site worker) 365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.00360212	0.12312735	0.47912214	1.645121245	0.018912761	0.158183357	0.000568669	0.000719579	0.119104375	0.00052309	0.00066163	0.03025911

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	26	106	132	9.11	1202

Notes:

1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.

2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips	Distance to Site (miles)
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	2,140
Wholesale and Storage	802
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3162**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:

Visitor Trips - Mobile Source Emissions with 2050 Emissions Factors

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	962	31676	0.51268	36.94789	1.65623	0.04124	8.31749	0.03793	2.11310	0.09356	6.74299	0.30226	0.00753	1.51794	0.00692	0.38564
Maker and Manufacturing	45	1800	0.02651	2.06452	0.09074	0.00233	0.47264	0.00214	0.12008	0.00484	0.37677	0.01656	0.00042	0.08626	0.00039	0.02191
Parcel and Last Mile Delivery	607	24280	0.35758	27.84807	1.22405	0.03140	6.37545	0.02889	1.61972	0.06526	5.08227	0.22339	0.00573	1.16352	0.00527	0.29560
Wholesale and Storage	121	4840	0.07128	5.55126	0.24400	0.00626	1.27089	0.00576	0.32288	0.01301	1.01311	0.04453	0.00114	0.23194	0.00105	0.05892
General Retail / Café/Quick Service Restaurants[3]	189	756	0.05731	1.48403	0.09743	0.00125	0.19851	0.00115	0.05043	0.01046	0.27084	0.01778	0.00023	0.03623	0.00021	0.00920
												0.00000				
Vans	448	26880	0.58745	31.69190	1.87852	0.08414	7.78422	0.07928	2.04616	0.10721	5.78377	0.34283	0.01536	1.42062	0.01447	0.37342
Maker and Manufacturing	10	600	0.01311	0.70741	0.04193	0.00188	0.17375	0.00177	0.04567	0.00239	0.12910	0.00765	0.00034	0.03171	0.00032	0.00834
Parcel and Last Mile Delivery	401	24060	0.52582	28.36708	1.68144	0.07531	6.96757	0.07096	1.83150	0.09596	5.17699	0.30686	0.01374	1.27158	0.01295	0.33425
Wholesale and Storage	30	1800	0.03934	2.12223	0.12579	0.00563	0.52126	0.00531	0.13702	0.00718	0.38731	0.02296	0.00103	0.09513	0.00097	0.02501
General Retail / Café/Quick Service Restaurants[3]	7	420	0.00918	0.49519	0.02935	0.00131	0.12163	0.00124	0.03197	0.00168	0.09037	0.00536	0.00024	0.02220	0.00023	0.00583
										0.00000		0.00000				
Single Unit Trucks	281	22480	0.15846	2.97051	8.38475	0.09917	7.69565	0.09470	2.08871	0.02892	0.54212	1.53022	0.01810	1.40446	0.01728	0.38119
Maker and Manufacturing	11	880	0.00620	0.11628	0.32823	0.00388	0.30125	0.00371	0.08176	0.00113	0.02122	0.05990	0.00071	0.05498	0.00068	0.01492
Parcel and Last Mile Delivery	146	11680	0.08233	1.54340	4.35649	0.05152	3.99845	0.04921	1.08524	0.01503	0.28167	0.79506	0.00940	0.72972	0.00898	0.19806
Wholesale and Storage	121	9680	0.06824	1.27912	3.61052	0.04270	3.31378	0.04078	0.89941	0.01245	0.23344	0.65892	0.00779	0.60477	0.00744	0.16414
General Retail / Café/Quick Service Restaurants[3]	3	240	0.00169	0.03171	0.08952	0.00106	0.08216	0.00101	0.02230	0.00031	0.00579	0.01634	0.00019	0.01499	0.00018	0.00407
												0.00000				
Tractor Trailer Trucks	91	11830	0.22696	7.64991	24.03116	0.43415	5.64667	0.41523	1.60527	0.04142	1.39611	4.38569	0.07923	1.03052	0.07578	0.29296
Maker and Manufacturing	1	130	0.00249	0.08406	0.26408	0.00477	0.06205	0.00456	0.01764	0.00046	0.01534	0.04819	0.00087	0.01132	0.00083	0.00322
Parcel and Last Mile Delivery	60	7800	0.14964	5.04390	15.84472	0.28625	3.72308	0.27378	1.05842	0.02731	0.92051	2.89166	0.05224	0.67946	0.04996	0.19316
Wholesale and Storage	30	3900	0.07482	2.52195	7.92236	0.14312	1.86154	0.13689	0.52921	0.01365	0.46026	1.44583	0.02612	0.33973	0.02498	0.09658
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Total	1782	92866	1.48556	79.26021	35.95066	0.65869	29.44402	0.62714	7.85325	0.27111	14.46499	6.56100	0.12021	5.37353	0.11445	1.43322

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
Operational Days Per Year:		Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
		Autos/Pickups												
Autos/Pickups (visiting worker)	365	(visiting worker)	0.003602119	0.12312735	0.479122144	1.645121245	0.018912761	0.158183357	0.000568669	0.000719579	0.119104375	0.000523095	0.000661626	0.030259105
Vans	365	Vans	0.008256376	0.099403774	0.508044986	1.604810657	0.028931285	0.166091895	0.001412392	0.000445465	0.131356483	0.001330981	0.000409588	0.03452837
Single Unit Trucks	365	Single Unit Trucks	0.003044544	0.012230632	0.057382107	0.204448092	0.162768479	0.513251442	0.002000523	3.34678E-05	0.155279671	0.001910495	3.07724E-05	0.042145199
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.008702065	0	0.293317235	0	0.9019583	2.529509208	0.016646228	0	0.216507551	0.015920851	0	0.061550216

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Proposed Project Mobile Source Emissions

Vehicle Category	Emissions (lbs/day) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	Emissions (tons/year) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups	0.7703	11.6911	1.0261	0.0167	0.3864	0.0154	0.0982	0.1406	2.1336	0.1873	0.0031	0.0705	0.0028	0.0179
Vans	0.1241	2.2777	0.2115	0.0040	0.0765	0.0037	0.0201	0.0226	0.4157	0.0386	0.0007	0.0140	0.0007	0.0037
Single Unit Trucks	0.3199	8.0132	5.3813	0.0097	0.0437	0.0093	0.0119	0.0584	1.4624	0.9821	0.0018	0.0080	0.0017	0.0022
Tractor Trailer Trucks	0.1270	2.6225	2.2761	0.0016	0.0219	0.0015	0.0062	0.0232	0.4786	0.4154	0.0003	0.0040	0.0003	0.0011
Total	1.34	24.60	8.90	0.03	0.53	0.03	0.14	0.24	4.49	1.62	0.01	0.10	0.01	0.02

Proposed Project Mobile Source Emissions

Vehicle Category	Starts/Day[1]	5pmh VMT/Day	10pmh VMT/Day	Emissions (lbs/day) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	Emissions (tons/year) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups - 5mph	2543	184.43		0.7024	9.4981	0.9031	0.0060	0.0484	0.0055	0.0123	0.1282	1.7334	0.1648	0.0011	0.0088	0.0010	0.0022
Autos/Pickups - 10mph			1287.16	0.0680	2.1930	0.1230	0.0108	0.3380	0.0099	0.0859	0.0124	0.4002	0.0224	0.0020	0.0617	0.0018	0.0157
Vans - 5mph	448	68.10		0.1070	1.7712	0.1773	0.0017	0.0197	0.0015	0.0052	0.0195	0.3232	0.0324	0.0003	0.0036	0.0003	0.0009
Vans - 10mph			195.97	0.0171	0.5065	0.0342	0.0023	0.0567	0.0021	0.0149	0.0031	0.0924	0.0062	0.0004	0.0104	0.0004	0.0027
Single Unit Trucks - idling				0.2632	7.5992	4.5406	0.0019	0.0000	0.0019	0.0000	0.0480	1.3869	0.8287	0.0004	0.0000	0.0003	0.0000
Single Unit Trucks - 5mph	281	37.89		0.0236	0.2071	0.5077	0.0026	0.0130	0.0025	0.0035	0.0043	0.0378	0.0927	0.0005	0.0024	0.0005	0.0006
Single Unit Trucks - 10mph			89.83	0.0331	0.2068	0.3329	0.0052	0.0308	0.0049	0.0083	0.0060	0.0377	0.0608	0.0009	0.0056	0.0009	0.0015
Tractor Trailer Trucks - idling				0.1194	2.1917	1.0980	0.0007	0.0000	0.0007	0.0000	0.0218	0.4000	0.2004	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	91	12.85		0.0021	0.1206	0.6952	0.0002	0.0061	0.0002	0.0017	0.0004	0.0220	0.1269	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.07	0.0055	0.3102	0.4830	0.0006	0.0158	0.0006	0.0045	0.0010	0.0566	0.0881	0.0001	0.0029	0.0001	0.0008
Total	3363	303.28	1606.02	1.34	24.60	8.90	0.03	0.53	0.03	0.14	0.24	4.49	1.62	0.01	0.10	0.01	0.02

Notes:

1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

Operational Days Per Year:		Vehicle Category	Speed Bin	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX) ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roaday dust	$PM_{2.5}$ RunEx	$PM_{2.5}$ StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups	365	Autos/Pickups	5	0.029653049	0.12312735	0.676172538	1.645121245	0.040015802	0.158183357	0.004727251	0.000719579	0.119104375	0.004349256	0.000661626	0.030259105
Vans	365	Autos/Pickups	10	0.023951976	0.12312735	0.772812712	1.645121245	0.04333483	0.158183357	0.003791868	0.000719579	0.119104375	0.003489068	0.000661626	0.030259105
Single Unit Trucks	365	Vans	5	0.058791572	0.099403774	1.24019504	1.604810657	0.088567751	0.166091895	0.008084807	0.000445465	0.131356483	0.0074378	0.000409588	0.03452837
Tractor Trailer Trucks	365	Vans	10	0.039499645	0.099403774	1.172414351	1.604810657	0.079057831	0.166091895	0.005371288	0.000445465	0.131356483	0.004942254	0.000409588	0.03452837
		Single Unit Trucks	5	0.192047485	0.012230632	0.963295312	0.204448092	2.271367996	0.513251442	0.030932078	3.34678E-05	0.155279671	0.029540918	3.07724E-05	0.042145199
		Single Unit Trucks	10	0.16701127	0.012230632	1.044283493	0.204448092	1.681231232	0.513251442	0.026015214	3.34678E-05	0.155279671	0.02483922	3.07724E-05	0.042145199
		Tractor Trailer Trucks	5	0.075421922	0	4.255299455	0	6.625359092	2.529509208	0.008001897	0	0.216507551	0.007621912	0	0.061550216
		Tractor Trailer Trucks	10	0.075421922	0	4.255299455	0	6.625359092	2.529509208	0.008001897	0	0.216507551	0.007621912	0	0.061550216

On-Site Idling:

Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	Emissions (g/day) ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	562	0.1	119.38	3446.96	2059.60	0.88	0.84
Tractor Trailer Trucks	182	0.1	54.16	994.15	498.02	0.34	0.32
Total			173.54	4441.11	2557.63	1.22	1.16

Emissions for truck idling using EMFAC 2011 idling emission rates provided in g/hr-vehicle (https://www.arb.ca.gov/msei/emfac2011_idling_emission_rates.xlsx)

Emissions for TRU emissions using OFFROAD 2017 emissions rates.

Vehicle Category	Model Year	Fuel	Emission Factors (g/vehicle/day) ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	Aggregated	GAS	1.028580008	15.30093521	0.056134148	0	0
T6 instate small	Aggregated	DSL	0.172972261	7.323552996	5.845601524	0.002499776	0.002391636
T7 Single	Aggregated	DSL	0.377720824	84.08917747	11.36083188	0.045918525	0.042220389
T7 tractor	Aggregated	DSL	2.678296127	49.1611451	24.62758737	0.016816844	0.01587997

*Source: EMFAC 2017

Vehicle Category	idle--hour factor		Emission Factors (g/vehicle/idle-hr) ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	0.098		10.49571437	156.1319919	0.57279424	0	0
T6 instate small	0.098		1.765023072	74.73013261	59.64899514	0.025507915	0.024404454
T7 Single	0.92		0.188013327	7.960383691	6.3539147	0.002717147	0.002599605
		Weighted Average:	2.54895359	73.60056872	43.97724118	0.01877698	0.01796470
T7 tractor	0.75		3.571061503	65.54819347	32.83678316	0.022422459	0.021173294

*Source: Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf)

Single Unit Trucks		% Population
T6TS	GAS	11.91%
T6 instate small	DSL	71.89%
T7 Single	DSL	16.21%
		100.00%

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Mobile Trip Data (per Adavant December 10, 2021, Trip Generation Memorandum)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	3354	0	802	292	120	4568
Wholesale and Storage	1044	0	60	242	60	1406
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5086	0	896	562	182	6726
% of Total Trips	76%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		40	840	300	1180	75	1105	15
SD2	6		48	1308	504	1860	126	1734	21
SD3	2		44	1016	384	1444	96	1348	48
SD4	7		42	1176	434	1652	108	1544	15
East Bay	28		337	8134	3029	11500	755	10745	27
North Bay	28		166	3496	1332	4994	332	4662	12
South Bay	22		518	13217	4967	18702	1239	17463	56
Out of Region	65		129	3229	1162	4520	290	4230	4
			1324	32416	12112	45852	3021	42831	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-9105	4840	-2465	4000	-6465	200	24280	30920
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-6015	1800	-3615	4610	-8225	154	24060	26460
SU Trucks	40	-7.5	880	-2190	9680	8370	5293	3077	132	11680	22240
Tractor Trailers	65	7.5	130	900	3900	4930	888	4042	14	7800	11830
Total Non-Commuter VMT	N/A	N/A	3410	-16410	20220	7220	16127	-8291		67820	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	88	2140	802	0	26	106	0	0	3162
Non-work	134	2428	604	0	132	266	0	0	3564
Total	222	4568	1406	0	158	372	0	0	6726

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

TRU Emissions Associated with Refrigerated Trucks with 2050 Emissions Factors

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	Emissions (lb/day) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	Emissions (tons/year) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	4.7	0.176	0.019	0.167	0.001	0.001	0.023	0.003	0.022	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	7,475	47	159.0	5.984	0.651	5.691	0.031	0.028	1.092	0.119	1.039	0.006	0.005
Wholesale and Storage	17.2	0.56	4,356	47	92.7	3.487	0.379	3.316	0.018	0.016	0.636	0.069	0.605	0.003	0.003
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	0.7	0.025	0.003	0.022	0.000	0.000	0.003	0.000	0.003	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	4,992	47	106.2	3.841	0.418	3.372	0.025	0.023	0.701	0.076	0.615	0.005	0.004
Wholesale and Storage	33.8	0.38	1,755	47	37.3	1.350	0.147	1.185	0.009	0.008	0.246	0.027	0.216	0.002	0.001
Total Off-Site Emissions						**14.863**	**1.617**	**13.754**	**0.083**	**0.076**	**2.702**	**0.294**	**2.501**	**0.015**	**0.014**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	38	5	7.6	0.285	0.031	0.271	0.001	0.001	0.052	0.006	0.049	0.000	0.000
10mph	17.2	0.56	90	10	9.0	0.338	0.037	0.321	0.002	0.002	0.062	0.007	0.059	0.000	0.000
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	2.6	0.093	0.010	0.082	0.001	0.001	0.017	0.002	0.015	0.000	0.000
10mph	33.8	0.38	33	10	3.3	0.120	0.013	0.105	0.001	0.001	0.022	0.002	0.019	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	37.7	1.417	0.154	1.348	0.007	0.007	0.259	0.028	0.246	0.001	0.001
Tractor Trailer Truck	33.8	0.38	NA	NA	13.0	0.471	0.051	0.414	0.003	0.003	0.086	0.009	0.076	0.001	0.001
Total On-Site Emissions						**2.724**	**0.296**	**2.541**	**0.015**	**0.014**	**0.497**	**0.054**	**0.464**	**0.003**	**0.002**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
grams per ton:	907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.3) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total_Activity_hpy	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2050	TRU - Instate Trailer	Aggregated	25	Diesel	0.00087161	0.0089039	0.00125597	0.00096881	0.0084684	0.000045595	4.19484E-05	2124.85	3.03521E-08	44027.18	67099.64	0.478634217	37.4	1664071.072
San Francisco (SF)	2050	TRU - Instate Trailer	Aggregated	50	Diesel	0.0009326	0.009528	0.0013433	0.001036	0.008364	0.00006165	0.00005671	2605.96	3.722E-08	53994.63	73090.17	0.521365783	40.79	2470447.746

	Emission Rates g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.77	1.685071051	0.19	0.01	0.01	422809.88
Trailer TRU	1.28	1.121055405	0.14	0.01	0.01	349285.69

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	127647	4734720	53.74%	599,892	51.83%	3.50E-03	0.00E+00	1.17E-01	5.03E-01	0.00E+00	1.63E+00	2.03E-02	0.00E+00	1.57E-01	6.28E-04	0.00E+00	7.75E-04	8.00E-03	9.28E-03	5.78E-04	0.00E+00	7.13E-04	2.00E-03	3.25E-03
LDA	Diesel	81	2751	0.03%	368	0.03%	6.87E-03	0.00E+00	0.00E+00	2.21E-01	0.00E+00	0.00E+00	1.17E-02	0.00E+00	0.00E+00	9.70E-04	0.00E+00	0.00E+00	8.00E-03	9.29E-03	9.28E-04	0.00E+00	0.00E+00	2.00E-03	3.25E-03
LDA	Electricity	17904	719351	8.16%	84,518	7.30%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.39E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03
LDA	Plug-in Hybrid	6032	227210	2.58%	24,941	2.15%	1.62E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.56E-04	0.00E+00	8.09E-04	8.00E-03	4.31E-03	2.36E-04	0.00E+00	7.44E-04	2.00E-03	1.51E-03
LDT1	Gasoline	9703	302650	3.43%	44,098	3.81%	3.87E-03	0.00E+00	1.27E-01	5.47E-01	0.00E+00	1.72E+00	2.22E-02	0.00E+00	1.75E-01	6.64E-04	0.00E+00	8.39E-04	8.00E-03	1.17E-02	6.10E-04	0.00E+00	7.71E-04	2.00E-03	4.11E-03
LDT1	Diesel	0	4	0.00%	1	0.00%	2.23E-02	0.00E+00	0.00E+00	2.35E-01	0.00E+00	0.00E+00	3.71E-02	0.00E+00	0.00E+00	4.98E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	4.76E-03	0.00E+00	0.00E+00	2.00E-03	4.10E-03
LDT1	Electricity	307	11881	0.13%	1,431	0.12%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03
LDT1	Plug-in Hybrid	233	7723	0.09%	963	0.08%	1.61E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.55E-04	0.00E+00	7.93E-04	8.00E-03	4.32E-03	2.35E-04	0.00E+00	7.29E-04	2.00E-03	1.51E-03
LDT2	Gasoline	81242	2631128	29.86%	375,029	32.40%	5.05E-03	0.00E+00	1.61E-01	6.11E-01	0.00E+00	2.13E+00	2.37E-02	0.00E+00	2.05E-01	6.47E-04	0.00E+00	8.06E-04	8.00E-03	1.17E-02	5.95E-04	0.00E+00	7.41E-04	2.00E-03	4.08E-03
LDT2	Diesel	316	10153	0.12%	1,454	0.13%	2.23E-02	0.00E+00	0.00E+00	2.34E-01	0.00E+00	0.00E+00	3.72E-02	0.00E+00	0.00E+00	4.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	4.74E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	3307	89652	1.02%	15,487	1.34%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03
LDT2	Plug-in Hybrid	2245	73844	0.84%	9,282	0.80%	1.62E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.58E-04	0.00E+00	8.06E-04	8.00E-03	4.32E-03	2.37E-04	0.00E+00	7.41E-04	2.00E-03	1.51E-03
	Total:		8,811,066	100.00%	1,157,465	100.00%																			
				Weighted Average Emission Factors*:			0.00360		0.12313	0.47912		1.64512	0.01891		0.15818	0.00057		0.00072	0.00800	0.00945	0.00052		0.00066	0.00200	0.00331
Vans																									
LHD1	Gasoline	3222	114822	5.13%	47,996	11.84%	3.70E-03	2.75E-01	8.20E-02	5.95E-01	3.78E+00	3.36E+00	1.40E-02	2.40E-02	3.91E-01	1.26E-03	0.00E+00	9.64E-05	8.00E-03	7.80E-02	1.16E-03	0.00E+00	8.86E-05	2.00E-03	2.73E-02
LHD1	Diesel	2011	72065	3.22%	25,292	6.24%	8.25E-02	1.10E-01	0.00E+00	2.03E-01	9.10E-01	0.00E+00	1.91E-01	8.24E-01	0.00E+00	1.68E-02	2.76E-02	0.00E+00	1.20E-02	7.80E-02	1.61E-02	2.64E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	4443	184789	8.25%	62,226	15.35%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	378	13144	0.59%	5,626	1.39%	3.33E-03	2.31E-01	6.91E-02	6.01E-01	3.78E+00	3.38E+00	1.84E-02	2.01E-02	3.24E-01	1.27E-03	0.00E+00	9.74E-05	8.00E-03	9.10E-02	1.17E-03	0.00E+00	8.96E-05	2.00E-03	3.19E-02
LHD2	Diesel	1012	34173	1.53%	12,731	3.14%	9.94E-02	1.10E-01	0.00E+00	2.49E-01	9.10E-01	0.00E+00	2.63E-01	9.34E-01	0.00E+00	2.08E-02	2.76E-02	0.00E+00	1.20E-02	9.10E-02	1.99E-02	2.64E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	1112	44790	2.00%	14,711	3.63%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	46519	1626624	72.62%	214,316	52.87%	5.21E-03	0.00E+00	1.63E-01	6.29E-01	0.00E+00	2.16E+00	2.45E-02	0.00E+00	2.15E-01	6.43E-04	0.00E+00	7.96E-04	8.00E-03	1.18E-02	5.91E-04	0.00E+00	7.32E-04	2.00E-03	4.15E-03
MDV	Diesel	515	17658	0.79%	2,350	0.58%	7.55E-03	0.00E+00	0.00E+00	2.49E-01	0.00E+00	0.00E+00	1.18E-02	0.00E+00	0.00E+00	9.91E-04	0.00E+00	0.00E+00	8.00E-03	1.19E-02	9.48E-04	0.00E+00	0.00E+00	2.00E-03	4.15E-03
MDV	Electricity	3050	81429	3.64%	14,205	3.50%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.54E-03
MDV	Plug-in Hybrid	1433	50274	2.24%	5,924	1.46%	1.62E-03	0.00E+00	1.76E-01	2.11E-01	0.00E+00	1.37E+00	3.29E-03	0.00E+00	1.17E-01	2.58E-04	0.00E+00	8.09E-04	8.00E-03	4.32E-03	2.37E-04	0.00E+00	7.44E-04	2.00E-03	1.51E-03
	Total:		2,239,769	100.00%	405,377	100.00%																			
				Weighted Average Emission Factors*:			0.00826		0.09940	0.50804		1.60481	0.02893		0.16609	0.00141		0.00045	0.00819	0.02151	0.00133		0.00041	0.00205	0.00753
Single Unit Trucks																									
T6TS	Gasoline	202	9642	5.11%	4,041	6.65%	1.03E-02	1.03E+00	1.84E-01	1.57E-01	1.53E+01	3.07E+00	6.48E-02	5.61E-02	4.90E-01	1.49E-03	0.00E+00	5.03E-04	1.20E-02	4.50E-02	1.37E-03	0.00E+00	4.62E-04	3.00E-03	1.58E-02
T6TS	Electricity	211	13077	6.94%	4,228	6.96%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	1608	58212	30.87%	20,652	34.00%	5.66E-03	1.73E-01	0.00E+00	4.62E-02	7.32E+00	0.00E+00	2.94E-01	5.85E+00	1.07E+00	2.54E-03	2.50E-03	0.00E+00	1.20E-02	4.60E-02	2.43E-03	2.39E-03	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	1996	77316	41.01%	25,642	42.22%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.05E-03
T6 instate small	Natural Gas	22	816	0.43%	287	0.47%	1.10E-02	1.69E-01	0.00E+00	3.17E+00	3.89E+01	0.00E+00	5.54E-02	5.15E+00	0.00E+00	1.76E-03	2.12E-02	0.00E+00	1.20E-02	4.60E-02	1.61E-03	1.95E-02	0.00E+00	3.00E-03	1.61E-02
T7 Single	Diesel	301	13125	6.96%	2,833	4.66%	9.45E-03	1.86E+00	0.00E+00	4.88E-02	2.75E+01	0.00E+00	9.70E-01	1.42E+01	2.50E+00	1.61E-02	7.94E-03	0.00E+00	3.60E-02	8.80E-02	1.54E-02	7.60E-03	0.00E+00	9.00E-03	3.08E-02
T7 Single	Electricity	305	15542	8.24%	2,874	4.73%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.55E-02
T7 Single	Natural Gas	19	814	0.43%	176	0.29%	1.52E-02	3.78E-01	0.00E+00	4.17E+00	8.41E+01	0.00E+00	1.74E-01	1.14E+01	0.00E+00	2.23E-03	4.59E-02	0.00E+00	3.60E-02	8.80E-02	2.05E-03	4.22E-02	0.00E+00	9.00E-03	3.08E-02
	Total:		188,543	100.00%	60,733	100.00%																			
				Weighted Average Emission Factors*:			0.00304		0.01223	0.05738		0.20445	0.16277		0.51325	0.00200		0.00003	0.01575	0.03787	0.00191		0.00003	0.00394	0.01326
Tractor Trailer Trucks																									
T7 tractor	Diesel	244	17968	76.14%	3,539	77.11%	1.02E-02	3.46E+00	0.00E+00	4.74E-02	5.11E+01	0.00E+00	1.17E+00	3.05E+01	3.32E+00	0.02168	1.47E-02	0.00E+00	3.60E-02	8.63E-02	2.07E-02	1.41E-02	0.00E+00	9.00E-03	3.02E-02
T7 tractor	Electricity	51	4066	17.23%	740	16.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.33E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.52E-02
T7 tractor	Natural Gas	21	1564	6.63%	310	6.76%	1.46E-02	7.04E-01	0.00E+00	3.88E+00	1.55E+02	0.00E+00	1.75E-01	2.11E+01	0.00E+00	0.0021	8.47E-02	0.00E+00	3.60E-02	8.61E-02	1.96E-03	7.79E-02	0.00E+00	9.00E-03	3.01E-02
	Total:		23,599		4,590	100.00%																			
				Weighted Average Emission Factors*:			0.00870		0.00000	0.29332		0.00000	0.90196		2.52951	0.01665		0.00000	0.03600	0.07885	0.01592		0.00000	0.00900	0.02760
Buses																									
UBUS	Gasoline	135	6722	8.59%	541	13.31%	3.47E-03	0.00E+00	9.31E-02	5.73E-01	0.00E+00	5.93E+00	1.65E-02	0.00E+00	2.85E-01	1.30E-03	0.00E+00	1.45E-04	8.00E-03	9.10E-02	1.20E-03	0.00E+00	1.34E-04	2.00E-03	3.19E-02
UBUS	Diesel	4	81	0.10%	15	0.37%	1.06E-01	0.00E+00	0.00E+00	2.79E-01	0.00E+00	0.00E+00	2.36E-01	0.00E+00	0.00E+00	2.15E-02	0.00E+00	0.00E+00	1.20E-02	9.10E-02	2.06E-02	0.00E+00	0.00E+00	3.00E-03	3.19E-02
UBUS	Electricity	877	71448	91.27%	3,506	86.17%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.48E-02	5.50E-02	0.00E+00	0.00E+00	0.00E+00	8.71E-03	1.93E-02
UBUS	Natural Gas	2	33	0.04%	6	0.15%	1.06E-01	0.00E+00	0.00E+00	2.79E-01	0.00E+00	0.00E+00	2.36E-01	0.00E+00	0.00E+00	2.15E-02	0.00E+00	0.00E+00	1.20E-02	9.10E-02	2.06E-02	0.00E+00	0.00E+00	3.00E-03	3.19E-02
	Total:		78,283		4,069	100.00%																			
				Weighted Average Emission Factors*:			0.00045		0.01238	0.04959		5.93103	0.00176		0.28459	0.00014		0.00015	0.03249	0.05814	0.00013		0.00013	0.00812	0.02035

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and D

Vehicle Category	Fuel	Population	% Population	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	201.969056	5.11%	1.028580008	15.30093521	0.056134148	0	0
T6TS	Electricity	211.3156206	6.94%	0	0	0	0	0
T6 instate small	Diesel	1607.905949	30.87%	0.172972261	7.323552996	5.845601524	0.002499776	0.002391636
T6 instate small	Electricity	1996.10306	41.01%	0	0	0	0	0
T6 instate small	Natural Gas	22.37985789	0.43%	0.169249026	38.88825663	5.146531163	0.021191155	0.019484484
T7 Single	Diesel	300.7186336	6.96%	1.862811244	27.51484633	14.17864087	0.00794105	0.007597524
T7 Single	Electricity	305.135155	8.24%	0	0	0	0	0
T7 Single	Natural Gas	18.66562609	0.43%	0.377720824	84.08917747	11.36083188	0.045918525	0.042220389
		Total:	100.00%					
		Weighted Average Emission Factors*:		0.23804	5.49017	2.86597	0.00161	0.00153
Tractor Trailer Trucks								
T7 tractor	Diesel	243.5751275	76.14%	3.456337398	51.06787039	30.50858638	0.01470981	0.01407347
T7 tractor	Electricity	50.93704931	17.23%	0	0	0	0	0
T7 tractor	Natural Gas	21.35273955	6.63%	0.704037841	155.042845	21.09728552	0.084726437	0.077902831
		Total:	100.00%					
		Weighted Average Emission Factors*:		2.67830	49.16115	24.62759	0.01682	0.01588

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Categ	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hyb	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hyb	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hyb	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
			Weighted Average Emission Factors*:					0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hyb	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hyb	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hyb	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
			Weighted Average Emission Factors*:					0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate sma	Aggregate	10	Diesel	2535.606712	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate sma	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate sma	Aggregate	10	Natural Ga	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1544878	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281077917	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Ga	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			3,645	100%							
			Weighted Average Emission Factors*:					0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
								*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.						
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Ga	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
								*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.						

Region	Calendar Y	Vehicle Categ	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hyb	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hyb	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hyb	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
			Total:			70,774	100%							
			Weighted Average Emission Factors*:					0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hyb	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hyb	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hyb	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
			Weighted Average Emission Factors*:					0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate sma	Aggregate	10	Diesel	2535.606712	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate sma	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate sma	Aggregate	10	Natural Ga	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482354	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99992888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Ga	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			4,287	100%							
			Weighted Average Emission Factors*:					0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Ga	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Eneenv Consume	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NH3 RUNEX	CO RUNEX	CO IDLEX	CO STREX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco	2050	LDA	Aggregate	Aggregate	Gasoline	127647	4734720	4734720	0	599892		0.020301106	0	0.157390415	0.000577528	0	0.000712866	0.000000001	0.003247586	0.000628114	0	0.000775306	0.008000002	0.009278817	0.003495229	0	0.117329462	0.013402295	0.126139001	0.762938644	0.005099318	0	0.128460992	0.032402295	0.126139001	0.762938644	0.041060056	0.502864655	0	1.633731329	0.002345726	0	0.000526452
San Francisco	2050	LDA	Aeneracels	Aeneracele	Diesel	81.3902	2751.25	2751.25	0	368.122		0.011683062	0	0	0.000928179	0	0	0.000000001	0.003252926	0.000970147	0	0	0.008000002	0.009294073	0.006870721	0	0	0	0	0.00782186	0	0	0	0	0	0.0031	0.220578716	0	0	0.001867976	0	0	0
San Francisco	2050	LDA	Aeneracels	Aeneracele	Electricity	17904.3	719351	0	719351	84517.8		0	0	0	0	0	0	0.000000001	0.001536601	0	0	0	0.008000002	0.004930288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LDA	Aggregate	Aggregate	Plug-in Hy	6031.69	227210	92485.6	134724	24941.1		0.003293981	0	0.116967433	0.000235597	0	0.000744193	0.000000001	0.001508424	0.000256233	0	0.000809378	0.008000002	0.004930783	0.001615196	0	0.175544867	0.016090828	0.069571695	0.741504381	0.00235689	0	0.192199534	0.036090828	0.069571695	0.741504381	0.017091167	0.21103873	0	1.369749453	0.001295286	0	0.0005478
San Francisco	2050	LDT1	Aeneracels	Aeneracele	Gasoline	9702.53	302650	302650	0	44698.5		0.022208557	0	0.175047871	0.00061027	0	0.000771029	0.000000001	0.004111849	0.000663725	0	0.000838564	0.008000002	0.011748139	0.003865839	0	0.12696865	0.046413403	0.206782639	1.242199063	0.054611023	0	0.13901469	0.046413403	0.206782639	1.242199063	0.041786564	0.547217007	0	1.737985524	0.002708156	0	0.000612014
San Francisco	2050	LDT1	Aeneracels	Aeneracele	Diesel	0.11257	3.63878	3.63878	0	0.52064		0.031075084	0	0	0.04676083	0	0	0.000000001	0.004095711	0.004976094	0	0	0.008000002	0.01170203	0.023341002	0	0	0	0	0.025433745	0	0	0	0	0	0.0031	0.23496464	0	0	0.003502778	0	0	0
San Francisco	2050	LDT1	Aggregate	Aggregate	Electricity	306.849	11880.8	0	11880.8	1430.93		0	0	0	0	0	0	0.000000001	0.00153895	0	0	0	0.008000002	0.004397129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LDT1	Aggregate	Aggregate	Plug-in Hy	233.008	7722.83	3141.53	4581.29	963.488		0.002898834	0	0.116967433	0.000234569	0	0.000729182	0.000000001	0.001511584	0.000255115	0	0.000793052	0.008000002	0.004118811	0.001614142	0	0.175544867	0.038666113	0.080370746	0.865681526	0.002355352	0	0.192199534	0.038666113	0.080370746	0.865681526	0.017094985	0.210885912	0	1.369749453	0.001294414	0	0.000628928
San Francisco	2050	LDT2	Aeneracels	Aeneracele	Gasoline	81242.2	2631128	2631128	0	375029		0.023706158	0	0.204888038	0.000595306	0	0.000741332	0.000000001	0.004084162	0.00064745	0	0.000806266	0.008000002	0.011668033	0.005045853	0	0.16093114	0.038663315	0.166692174	0.99977665	0.007362896	0	0.176201531	0.038663315	0.166692174	0.99977665	0.043911069	0.610724187	0	2.13335767	0.002822456	0	0.000646405
San Francisco	2050	LDT2	Aggregate	Aggregate	Diesel	316.387	10153.1	10153.1	0	1453.96		0.037167848	0	0	0.004743277	0	0	0.000000001	0.004087631	0.004957747	0	0	0.008000002	0.011678947	0.022308597	0	0	0	0	0.025396854	0	0	0	0	0	0.0031	0.233602626	0	0	0.002599832	0	0	0
San Francisco	2050	LDT2	Aggregate	Aggregate	Electricity	3307.4	89851.6	0	89851.6	15487.2		0	0	0	0	0	0	0.000000001	0.001538643	0	0	0	0.008000002	0.004396121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LDT2	Aeneracels	Aeneracele	Plug-in Hy	2244.69	71844	30866.6	43777.4	9281.79		0.003292891	0	0.116967433	0.00023691	0	0.000741341	0.000000001	0.001511286	0.000257661	0	0.000806276	0.008000002	0.004117961	0.001615642	0	0.175544867	0.038246236	0.078969344	0.841457842	0.002357541	0	0.192199534	0.038246236	0.078969344	0.841457842	0.017108573	0.211082651	0	1.369749453	0.001295618	0	0.000660532
San Francisco	2050	LHD1	Aggregate	Aggregate	Gasoline	3221.52	114822	114822	0	47995.9		0.014019024	0.023952927	0.391235186	0.001161133	0	8.86108E-05	0.000000001	0.027300008	0.001262838	0	9.63723E-05	0.008000002	0.078000022	0.003700378	0.275107547	0.081983249	0.019570593	0.199620876	2.153349812	0.005399583	0.401436287	0.089761339	0.019570593	0.199620876	2.153349812	0.045	0.594904859	1.781397237	0.357893168	0.007350073	0.001055157	0.000323343
San Francisco	2050	LHD1	Aggregate	Aggregate	Diesel	2010.69	72065.1	72065.1	0	25292		0.190587318	0.82412024	0	0.016104472	0.026415372	0	0.000000001	0.027300008	0.016812904	0.027609757	0	0.012000003	0.078000022	0.082498556	0.109759705	0	0	0	0	0	0	0.059919121	0.124954127	0	0	0	0	0.019738938	0.203027705	0.908745076	0	0.005670243	0.001074862	0
San Francisco	2050	LHD1	Aeneracels	Aeneracele	Electricity	4442.64	184789	0	184789	62225.8		0	0	0	0	0	0	0.000000001	0.011650004	0	0	0	0.008000002	0.019000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	LHD2	Aggregate	Aggregate	Gasoline	377.639	13144.2	13144.2	0	5626.25		0.013259172	0.020301344	0.324414413	0.001167134	0	8.95792E-05	0.000000001	0.031850009	0.001269365	0	9.74255E-05	0.008000002	0.091000026	0.00931852	0.2308708	0.069115086	0.019613045	0.208253129	2.248020457	0.004859888	0.33688633	0.075672319	0.019613045	0.208253129	2.248020457	0.045	0.600576376	1.781397237	0.383762263	0.008277334	0.001210987	0.000228466
San Francisco	2050	LHD2	Aggregate	Aggregate	Diesel	1012.1	34173.2	34173.2	0	12731		0.262523858	0.933582157	0	0.01994671	0	0	0.000000001	0.031850009	0.020848612	0.027579999	0	0.012000003	0.091000026	0.099403326	0.109759705	0	0	0	0	0	0	0.113164077	0.124954127	0	0	0	0	0.218087536	0.24922527	0.908745076	0	0.006632227	0.001761057	0
San Francisco	2050	LHD2	Aeneracels	Aeneracele	Electricity	1111.92	44790.3	0	44790.3	14711.3		0	0	0	0	0	0	0.000000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	MDV	Aggregate	Aggregate	Gasoline	46519.4	1626624	1626624	0	214316		0.024509864	0	0.21479517	0.000591114	0	0.000731966	0.000000001	0.004146575	0.000642891	0	0.000796608	0.008000002	0.011847158	0.005205269	0	0.162994788	0.039027483	0.175973901	1.043292799	0.007585517	0	0.178458777	0.039027483	0.175973901	1.043292799	0.041925596	0.629249154	0	2.156798268	0.003418493	0	0.000782389
San Francisco	2050	MDV	Aggregate	Aggregate	Diesel	514.907	17657.7	17657.7	0	2350.22		0.011801374	0	0	0.000947919	0	0	0.000000001	0.004154574	0.000999078	0	0	0.008000002	0.011870211	0.007548309	0	0	0	0	0.008593248	0	0	0	0	0	0.0031	0.248645122	0	0	0.003346064	0	0	0
San Francisco	2050	MDV	Aeneracels	Aeneracele	Electricity	3050.39	81429.3	0	81429.3	14204.8		0	0	0	0	0	0	0.000000001	0.001540579	0	0	0	0.008000002	0.004401655	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	MDV	Aeneracels	Aeneracele	Plug-in Hy	1432.63	50274	20467.3	29806.8	5923.94		0.003292494	0	0.116967433	0.000237418	0	0.000744227	0.000000001	0.001513312	0.000258214	0	0.000809414	0.008000002	0.0043232	0.001615447	0	0.175544867	0.039955428	0.086577594	0.918460373	0.002357257	0	0.192199534	0.039955428	0.086577594	0.918460373	0.017098802	0.211056128	0	1.369749453	0.001295546	0	0.000802295
San Francisco	2050	T6 Instate small	Aggregate	Aggregate	Diesel	1607.91	58211.9	58211.9	0	20651.9		0.294492281	5.845801524	1.071117377	0.002431459	0.002391636	0	0.000000001	0.016111434	0.00254549	0.002499776	0	0.012000003	0.040032668	0.005656285	0.173972261	0	0	0	0.00643925	0.196915752	0	0	0	0	0	0.219999966	0.046193338	7.323552986	0	0.003642518	0.017082579	0
San Francisco	2050	T6 Instate small	Aeneracels	Aeneracele	Electricity	1996.1	77315.7	0	77315.7	25642.2		0	0	0	0	0	0	0.000000001	0.008051321	0	0	0	0.012000003	0.023003775	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	T6 Instate small	Aeneracels	Aeneracele	Natural G	22.3799	816.38	816.38	0	287.455		0.05542218	5.146531163	0	0.001641393	0.019484484	0	0.000000001	0.016110107	0.0017558	0.021191155	0	0.012000003	0.040028878	0.013048033	0.169249026	0	0	0	0	0.789145184	12.08921612	0	0	0	0	1.06	3.166431806	38.88825683	0	0.035480028	0	0	0
San Francisco	2050	T6TS	Aggregate	Aggregate	Gasoline	201.969	9641.71	9641.71	0	4041		0.064832629	0.056134148	0.490092749	0.001371266	0	0.000462489	0.000000001	0.015756104	0.001491377	0	0.000502998	0.012000003	0.04502744	0.010304534	1.028580008	0.183818219	0.014175795	0.215001087	2.162223816	0.015093151	1.500925533	0.201257812	0.014175795	0.215001087	2.162223816	0.045	0.156928846	15.30093521	3.072717588	0.015129407	0.004545742	0.000360047
San Francisco	2050	T6TS	Aeneracels	Aeneracele	Electricity	211.316	13076.7	0	13076.7	4228		0	0	0	0	0	0	0.000000001	0.007878052	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	T7 Single	Aeneracels	Aeneracele	Diesel	300.719	13124.6	13124.6	0	2832.77		0.970260197	14.17864087	2.495974406	0.015417077	0.007597524	0	0.000000003	0.033806314	0.016114169	0.00794105	0	0.01600001	0.088018039	0.009447068	1.862811244	0	0	0	0	0.010754768	2.120668802	0	0	0	0	0.219999180	0.048779809	27.51484633	0	0.013834856	0.035480028	0
San Francisco	2050	T7 Single	Aggregate	Aggregate	Electricity	305.135	15542	0	15542	2874.37		0	0	0	0	0	0	0.000000003	0.01553463	0	0	0	0.03600001	0.044384656	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	T7 Single	Aeneracels	Aeneracele	Natural G	18.6656	813.636	813.636	0	175.83		0.173607754	11.36831188	0	0.00205475	0.042220389	0	0.000000003	0.03078586	0.002234728	0.045918525	0	0.03600001	0.087959601	0.015242291	0.377720824	0	0	0	0	1.088735061	26.98005886	0	0	0	0	1.06	4.168581005	84.08917747	0	0	0	0
San Francisco	2050	T7 Tractor	Aeneracels	Aeneracele	Diesel	240.575	17987.9	17987.9	0	3539.15		1.169365257	30.50858638	3.322223867	0.037395559	0.01407347	0	0.000000003	0.038195135	0.02167731	0.01470981	0	0.03600001	0.086271813	0.010160002	3.456337998	0	0	0	0	0.011566388	3.954778227	0	0	0	0	0.219999981	0.047370133	51.06787039	0	0.013977347	0.062778986	0
San Francisco	2050	T7 Tractor	Aggregate	Aggregate	Electricity	50.937	4066.43	0	4066.43	740.115		0	0	0	0	0	0	0.000000003	0.015153939	0	0	0	0.03600001	0.043296968	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	T7 Tractor	Aggregate	Aggregate	Natural G	21.3527	1564.48	1564.48	0	310.255		0.175199897	21.09728552	0	0.001960187	0.077902831	0	0.000000003	0.030128004	0.002131882	0.084726437	0	0.03600001	0.086080011	0.014576334	0.704037841	0	0	0	0	1.040166733	50.28841722	0	0	0	0	1.06	3.880385842	155.042845	0	0	0	0
San Francisco	2050	UBUS	Aeneracels	Aeneracele	Gasoline	135.338	6721.61	6721.61	0	541.35		0.018519352	0	0.284586359	0.001197477	0	0.001597477	0.000000001	0.031850009	0.001302166	0	0.000145459	0.008000002	0.091000026	0.01914734	0.039078082	0.025062527	0.101460108	0.366119218	0.085065955	0	0.101908764	0.025062527	0.101460108	0.366119218	0.045	0.572865245	0	5.93103296	0.00849047	0	0.000341647
San Francisco	2050	UBUS	Aggregate	Aggregate	Diesel	3.76524	81.0506	81.0506	0	15.061		0.23558078	0	0	0.020585689	0	0	0.000000001	0.031850009	0.023516483	0	0	0.012000003	0.091000026	0.106156946	0	0	0	0	0.130852625	0	0	0	0	0	0.22	0.279121736	0	0	0.006326663	0	0	0
San Francisco	2050	UBUS	Aeneracels	Aeneracele	Electricity	876.522	71447.6	0	71447.6	3506.09		0	0	0	0	0	0	0.000000001	0.038705287	0.032500006	0	0	0.03482149	0.055000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2050	UBUS	Aeneracels	Aeneracele	Natural G	1.52138	32.7492	32.7492	0	6.08552		0.23558078	0	0	0.020585689	0	0	0.000000001	0.031850009	0.023516483	0	0	0.012000003	0.091000026	0.106156946	0	0	0	0	0.130852625	0	0	0	0	0	0.97	0.279121736	0	0	0	0	0	0

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUNEX	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	SOx_RUNEX	NH3_RUNEX	PM10_PMBW	PM2.5_PMBW
San Francis	2025	LDA	Aggregate	5	Gasoline	8739.639801	8739.639801	0	0.06644666	0.008217386	0.008937157	0.053252822	0.077706393	1.243654057	0.006407956	0.036297666	0.005934447	0.002077056
San Francis	2025	LDA	Aggregate	5	Diesel	25.38011785	25.38011785	0	0.242947064	0.060487048	0.063222004	0.28036965	0.319182207	4.577890502	0.0056644	0.0031	0.006082721	0.002128952
San Francis	2025	LDA	Aggregate	5	Electricity	11804.15664	0	11804.15664	0	0	0	0	0	0	0	0	0.001328455	0.000464959
San Francis	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	160.5402144	1215.899454	0.002995733	0.000975218	0.001060639	0.003083172	0.004498957	0.227121668	0.000942963	0.004649882	0.001327743	0.00046471
San Francis	2025	LDT1	Aggregate	5	Gasoline	753.5079324	753.5079324	0	0.150908984	0.010142381	0.011030765	0.109044032	0.159116796	1.972378353	0.00763848	0.035111814	0.008465677	0.002962987
San Francis	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.134420127	0	1.129429317	1.006979635	1.052510786	1.271040834	1.446995485	4.646631021	0.010032718	0.0031	0.009735317	0.003407361
San Francis	2025	LDT1	Aggregate	5	Electricity	42.79927237	0	42.79927237	0	0	0	0	0	0	0	0	0.001330607	0.000465712
San Francis	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.812624128	7.411069909	0.002538045	0.00058547	0.000636752	0.002612124	0.003811605	0.19242198	0.000798897	0.004150229	0.001322982	0.000463044
San Francis	2025	LDT2	Aggregate	5	Gasoline	4343.509779	4343.509779	0	0.092343235	0.008688678	0.00944973	0.059178577	0.08635324	1.350612031	0.00795176	0.037420442	0.008153693	0.002853793
San Francis	2025	LDT2	Aggregate	5	Diesel	21.17206242	21.17206242	0	0.160039934	0.012660791	0.013233255	0.271791869	0.309416972	2.861570884	0.007533639	0.0031	0.0083074	0.00290759
San Francis	2025	LDT2	Aggregate	5	Electricity	422.1930384	0	422.1930384	0	0	0	0	0	0	0	0	0.001323608	0.000463263
San Francis	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	21.4995052	178.5733874	0.002760048	0.000759009	0.000825491	0.002840608	0.004145008	0.209253207	0.000868777	0.00450717	0.001325334	0.000463867
San Francis	2025	LHD1	Aggregate	5	Gasoline	5987.57561	5987.57561	0	0.163885328	0.003111213	0.003383728	0.09119699	0.133074434	2.182537662	0.014892352	0.044945055	0.078000022	0.027300008
San Francis	2025	LHD1	Aggregate	5	Diesel	1550.529271	1550.529271	0	1.202058493	0.050687102	0.052978948	0.249377579	0.283899794	0.746203493	0.010879352	0.197938322	0.078000022	0.027300008
San Francis	2025	LHD1	Aggregate	5	Electricity	80.58261108	0	80.58261108	0	0	0	0	0	0	0	0	0.039000011	0.013650004
San Francis	2025	LHD2	Aggregate	5	Gasoline	722.2679754	722.2679754	0	0.183254222	0.002930739	0.003187446	0.068388351	0.099792121	1.679265545	0.016812128	0.044983621	0.091000026	0.031850009
San Francis	2025	LHD2	Aggregate	5	Diesel	872.5903988	872.5903988	0	1.299445569	0.050815815	0.0531134	0.240395622	0.273674433	0.745223206	0.013080335	0.200558839	0.091000026	0.031850009
San Francis	2025	LHD2	Aggregate	5	Electricity	17.36091405	0	17.36091405	0	0	0	0	0	0	0	0	0.045500013	0.015925005
San Francis	2025	MDV	Aggregate	5	Gasoline	2032.004843	2032.004843	0	0.109334957	0.007947495	0.008643608	0.070020657	0.102165031	1.390117487	0.009478538	0.037871122	0.008114629	0.00284012
San Francis	2025	MDV	Aggregate	5	Diesel	35.31338882	35.31338882	0	0.137473529	0.013771799	0.014394498	0.199240937	0.226822561	4.061952141	0.009210864	0.0031	0.008407202	0.002942521
San Francis	2025	MDV	Aggregate	5	Electricity	450.0220744	0	450.0220744	0	0	0	0	0	0	0	0	0.001323447	0.000463206
San Francis	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	12.4961622	104.4493632	0.00274454	0.000792405	0.000861813	0.002824646	0.004121717	0.20807742	0.000863895	0.004487891	0.001325461	0.000463911
San Francis	2025	T6TS	Aggregate	5	Gasoline	810.1544878	810.1544878	0	0.673849856	0.005698018	0.006197115	0.302121193	0.440854536	2.402500187	0.038792537	0.044991097	0.061495877	0.021523557
San Francis	2025	T6TS	Aggregate	5	Electricity	7.281077917	0	7.281077917	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Francis	2025	LDA	Aggregate	10	Gasoline	28295.20688	28295.20688	0	0.056936086	0.005178359	0.005631938	0.033777583	0.04928817	1.130735574	0.005205436	0.036297666	0.007339337	0.002568768
San Francis	2025	LDA	Aggregate	10	Diesel	82.16994083	82.16994083	0	0.225477885	0.044214919	0.046214122	0.206120062	0.234653987	3.412073895	0.00471898	0.0031	0.007522712	0.002632949
San Francis	2025	LDA	Aggregate	10	Electricity	18884.46515	0	18884.46515	0	0	0	0	0	0	0	0	0.0023506	0.00082271
San Francis	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	519.7603888	4861.64681	0.001571889	0.000508124	0.000552631	0.001224104	0.001786209	0.113580579	0.000549004	0.003805049	0.002349291	0.000822252
San Francis	2025	LDT1	Aggregate	10	Gasoline	2439.535647	2439.535647	0	0.127105592	0.006429829	0.006993025	0.070280885	0.102553703	1.77275398	0.006204844	0.035111814	0.010532756	0.003686465
San Francis	2025	LDT1	Aggregate	10	Diesel	0.435194742	0.435194742	0	1.186607791	0.701031401	0.73272893	0.885063016	1.007585401	3.301696117	0.008445206	0.0031	0.012112407	0.004239342
San Francis	2025	LDT1	Aggregate	10	Electricity	68.47091172	0	68.47091172	0	0	0	0	0	0	0	0	0.002354408	0.000824043
San Francis	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	2.630928545	29.632388	0.001327133	0.000303997	0.000330624	0.001033501	0.001508082	0.095895184	0.00046352	0.003424911	0.002340902	0.000819316
San Francis	2025	LDT2	Aggregate	10	Gasoline	14062.42255	14062.42255	0	0.07879064	0.005473985	0.005953458	0.037634146	0.054915658	1.226757895	0.006458749	0.037420442	0.010144595	0.003550608
San Francis	2025	LDT2	Aggregate	10	Diesel	68.54606138	68.54606138	0	0.134436438	0.011048481	0.011548044	0.203187476	0.231315432	2.141054569	0.006341565	0.0031	0.010335833	0.003617541
San Francis	2025	LDT2	Aggregate	10	Electricity	675.4306945	0	675.4306945	0	0	0	0	0	0	0	0	0.002342023	0.000819708
San Francis	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	69.60618074	714.0070147	0.001445642	0.000394766	0.000429344	0.001125789	0.001642748	0.104458268	0.00050491	0.003725716	0.00234505	0.000820767
San Francis	2025	LHD1	Aggregate	10	Gasoline	13095.76457	13095.76457	0	0.146244745	0.002310545	0.002512928	0.06223305	0.090810321	1.701207424	0.01270639	0.044945055	0.078000022	0.027300008
San Francis	2025	LHD1	Aggregate	10	Diesel	3968.830906	3968.830906	0	1.086348373	0.042054042	0.04395554	0.211476352	0.240751766	0.6048385	0.009464418	0.197938322	0.078000022	0.027300008
San Francis	2025	LHD1	Aggregate	10	Electricity	185.3866055	0	185.3866055	0	0	0	0	0	0	0	0	0.039000011	0.013650004
San Francis	2025	LHD2	Aggregate	10	Gasoline	1579.713055	1579.713055	0	0.160656361	0.002170053	0.002360131	0.045738635	0.066741708	1.357863216	0.01433836	0.044983621	0.091000026	0.031850009
San Francis	2025	LHD2	Aggregate	10	Diesel	2233.536514	2233.536514	0	1.141968008	0.042692187	0.044622538	0.208022651	0.236819957	0.612235084	0.011405167	0.200558839	0.091000026	0.031850009
San Francis	2025	LHD2	Aggregate	10	Electricity	41.96931284	0	41.96931284	0	0	0	0	0	0	0	0	0.045500013	0.015925005
San Francis	2025	MDV	Aggregate	10	Gasoline	6578.760535	6578.760535	0	0.0931103	0.005011149	0.005450069	0.04463595	0.065126498	1.258739112	0.007698089	0.037871122	0.010095992	0.003533597
San Francis	2025	MDV	Aggregate	10	Diesel	114.3296137	114.3296137	0	0.11779779	0.011431576	0.011948461	0.148634791	0.169210828	3.03847519	0.007822266	0.0031	0.010460003	0.003661001
San Francis	2025	MDV	Aggregate	10	Electricity	719.9519998	0	719.9519998	0	0	0	0	0	0	0	0	0.002341738	0.000819608
San Francis	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	40.45721595	417.6298556	0.00143735	0.000412087	0.000448183	0.001119332	0.001633326	0.103859138	0.000502014	0.003709345	0.002345262	0.000820842
San Francis	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	2535.606712	0	2.497668002	0.039888068	0.041691629	0.172548192	0.196432982	0.387595682	0.018832163	0.215368856	0.061495877	0.021523557
San Francis	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	0	22.91289675	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Francis	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	11.29555486	0	0.309957451	0.003696949	0.00402077	0.03629014	2.592152847	7.617796827	0	1.06	0.061495877	0.021523557
San Francis	2025	T6TS	Aggregate	10	Gasoline	1446.482354	1446.482354	0	0.586535243	0.003591998	0.003906625	0.191398523	0.279288275	2.120297567	0.031491387	0.044991097	0.061495877	0.021523557
San Francis	2025	T6TS	Aggregate	10	Electricity	12.99992888	0	12.99992888	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Francis	2025	T7 Single	Aggregate	10	Diesel	239.3560355	239.3560355	0	5.741149077	0.007393932	0.007728253	0.067350005	0.076672854	0.647096954	0.026897591	0.219870805	0.137175535	0.048011437
San Francis	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0	2.815018601	0	0	0	0	0	0	0	0	0.068895779	0.024113523
San Francis	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	15.69475867	0	1.446023995	0.007124619	0.007748673	0.078097554	5.578396745	21.73995533	0	1.06	0.137141137	0.047999398
San Francis	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	92.10940499	0	7.332150843	0.008126013	0.008493436	0.073038828	0.083149146	0.745965733	0.025662703	0.219983645	0.137175407	0.048011392
San Francis	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0	0.522153817	0	0	0	0	0	0	0	0	0.069354736	0.024274158
San Francis	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	17.64099572	0	3.13107158	0.005215433	0.005672259	0.090097242	6.435517297	22.70463004	0	1.06	0.137123085	0.04799308

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5
ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Days per year operations: 264 *If this changes, need to also change in the 'Manufactr_Maker Industry TACs' tab.

Hours per day operations: 12

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
3.07E+04	Carbon Dioxide, non-biogenic CO2 (6960)	2.56E+03	8.10E+06		CO2
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
4.74E-01	Methane (CH4) (6970)	3.95E-02	1.25E+02		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
5.76E-02	Nitrous Oxide (N2O) (2030)	4.80E-03	1.52E+01		N2O
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG	Column1	
24026884000000	0	2204	0.925	0.96	517	1	1		<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

Attachment B

Health Risk Assessment and $PM_{2.5}$ Modeling Inputs

Construction Road Segments

Road	Road Width (ft)	Road Width (m)	Base Elevation	SourceID	Line Volume Src Type	Release Height from	Initial Lateral Dimensio	Initial Vertical Dimensio	# Volume Sources	Total Length (m)	g/s per vol (1 g/s)	Route	Multiplier (1=one-way, 2=two-way)	Route	Notes
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	29.11	8.87	varies - AERMAP	TOLAN1	Adjacent	2.00	varies - based on	2.30	10	155.7	1.0000E-01	Inbound and Outbound	2	both	Constr Route
Oakdale Ave (West of Toland St and East of Loomis St)	41.48	12.64	varies - AERMAP	OAKD1	Adjacent	2.00	varies - based on	2.30	21	395	4.7619E-02	Inbound and Outbound	2	both	Constr Route
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	37.50	11.43	varies - AERMAP	INDUS1	Adjacent	2.00	varies - based on	2.30	18	310.6	5.5556E-02	Outbound	1	r1	Constr Route
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	29.11	8.87	varies - AERMAP	TOLAN2	Adjacent	2.00	varies - based on	2.30	12	173	8.3333E-02	Inbound and Outbound	2	both	Constr Route
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	29.11	8.87	varies - AERMAP	TOLAN3	Adjacent	2.00	varies - based on	2.30	6	90.8	1.6667E-01	Inbound and Outbound	2	r3	Concrete Route
Toland Street (North of Jerrold Ave and South of Galvez Ave)	29.11	8.87	varies - AERMAP	TOLAN4	Adjacent	2.00	varies - based on	2.30	29	428.2	3.4483E-02	Inbound and Outbound	2	r3	Concrete Route
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	63	19.07	varies - AERMAP	BAYSH1	Adjacent	2.00	varies - based on	2.30	24	596	4.1667E-02	Inbound and Outbound	2	r1	Constr Route
Off-ramp of US 101 onto Industrial St	44	13.37	varies - AERMAP	INDUS2	Adjacent	2.00	varies - based on	2.30	9	172.7	1.1111E-01	Inbound	1	r1	Constr Route
Onramp to US 101 from Industrial St	30	9.16	varies - AERMAP	INDUS3	Adjacent	2.00	varies - based on	2.30	27	408.3	3.7037E-02	Outbound	1	r1	Constr Route
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	63	19.07	varies - AERMAP	BAYSH2	Adjacent	2.00	varies - based on	2.30	11	267.7	9.0909E-02	Inbound and Outbound	2	both	Constr Route
Onramp to US 101 from Bayshore Blvd	42	12.84	varies - AERMAP	BAYSH3	Adjacent	2.00	varies - based on	2.30	18	331.9	5.5556E-02	Outbound	1	r2	Constr Route
Off-ramp of US 101 onto Bayshore Blvd	21	6.27	varies - AERMAP	BAYSH4	Adjacent	2.00	varies - based on	2.30	34	422.6	2.9412E-02	Inbound	1	r2	Constr Route
Evans Ave (East of Toland St and West of 3rd St)	44	13.55	varies - AERMAP	EVAN1	Adjacent	2.00	varies - based on	2.30	43	849.4	2.3256E-02	Inbound and Outbound	2	r3	Concrete Route
3rd Street (North of Evans and South of Cargo Way)	76	23.16	varies - AERMAP	THRD1	Adjacent	2.00	varies - based on	2.30	13	388.4	7.6923E-02	Inbound and Outbound	2	r3	Concrete Route
Amador Street (East of 3rd Street)	40	12.19	varies - AERMAP	AMA1	Adjacent	2.00	varies - based on	2.30	26	465.1	3.8462E-02	Inbound and Outbound	2	r3	Concrete Route

2022 Exhaust DPM (lb/yr)	2022 Total PM2.5 (lb/yr)	2023 Exhaust DPM (lb/yr)	2023 Total PM2.5 (lb/yr)	2024 Exhaust DPM (lb/yr)	2024 Total PM2.5 (lb/yr)	2022 Total PM2.5 (g/s/vol)	2023 Total PM2.5 (g/s/vol)	2024 Total PM2.5 (g/s/vol)	2022 ROG (ton/yr)	2023 ROG (ton/yr)	2024 ROG (ton/yr)
9.16E-02	3.79E-01	6.94E-02	4.44E-01	6.76E-02	4.31E-01	1.53131E-06	1.79215E-06	1.74097E-06	2.88E-05	1.83E-04	1.77E-04
2.32E-01	9.62E-01	1.76E-01	1.13E+00	1.71E-01	1.09E+00	1.84991E-06	2.16503E-06	2.10320E-06	7.30E-05	4.64E-04	4.50E-04
4.75E-02	1.97E-01	3.60E-02	2.30E-01	3.50E-02	2.24E-01	4.41241E-07	5.16402E-07	5.01655E-07	1.49E-05	9.49E-05	9.19E-05
1.02E-01	4.21E-01	7.71E-02	4.93E-01	7.51E-02	4.79E-01	1.41788E-06	1.65940E-06	1.61201E-06	3.20E-05	2.03E-04	1.97E-04
1.00E-02	5.23E-02	3.49E-02	1.82E-01	5.62E-03	2.93E-02	3.52067E-07	1.22581E-06	1.97114E-07	0.00E+00	0.00E+00	0.00E+00
4.73E-02	2.47E-01	1.65E-01	8.59E-01	2.65E-02	1.38E-01	3.43510E-07	1.19602E-06	1.92323E-07	0.00E+00	0.00E+00	0.00E+00
1.82E-01	7.55E-01	1.38E-01	8.83E-01	1.34E-01	8.58E-01	1.27002E-06	1.48636E-06	1.44391E-06	5.73E-05	3.64E-04	3.53E-04
2.64E-02	1.09E-01	2.00E-02	1.28E-01	1.95E-02	1.24E-01	4.90678E-07	5.74260E-07	5.57861E-07	8.29E-06	5.28E-05	5.11E-05
6.25E-02	2.59E-01	4.73E-02	3.03E-01	4.61E-02	2.94E-01	3.86690E-07	4.52558E-07	4.39634E-07	1.96E-05	1.25E-04	1.21E-04
1.58E-01	6.52E-01	1.19E-01	7.63E-01	1.16E-01	7.41E-01	2.39348E-06	2.80118E-06	2.72119E-06	4.95E-05	3.15E-04	3.05E-04
6.05E-02	2.50E-01	4.58E-02	2.93E-01	4.46E-02	2.85E-01	5.61429E-07	6.57062E-07	6.38298E-07	1.90E-05	1.21E-04	1.17E-04
7.70E-02	3.19E-01	5.83E-02	3.73E-01	5.68E-02	3.62E-01	3.78452E-07	4.42917E-07	4.30269E-07	2.42E-05	1.54E-04	1.49E-04
9.39E-02	4.89E-01	3.27E-01	1.70E+00	5.26E-02	2.74E-01	4.59552E-07	1.60005E-06	2.57292E-07	0.00E+00	0.00E+00	0.00E+00
4.29E-02	2.24E-01	1.49E-01	7.79E-01	2.40E-02	1.25E-01	6.95068E-07	2.42005E-06	3.89151E-07	0.00E+00	0.00E+00	0.00E+00
5.14E-02	2.68E-01	1.79E-01	9.33E-01	2.88E-02	1.50E-01	4.16164E-07	1.44898E-06	2.33000E-07	0.00E+00	0.00E+00	0.00E+00

Route Length	2022-2024 meters	2022-2024 miles	
Outbound South	2038.6	1.266727	
Outbound North	1323.3	0.82226	
Inbound South	1492.4	0.927334	
Inbound North	1414	0.878619	
Concrete (r3)	2221.9	1.380625	
Route 1	3531	2.194062	South
Route 2	2737.3	1.700879	North
Route 3	4443.8	2.761249	Concrete

Route 1 %	52% r1
Route 2 %	48% r2
Route 3 %	100% r3
Total	100% both
Total Hours/12 months of Construction	3120

CONSTRUCTION YEAR 2022																
Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Toland Street (North of Jerrold Ave and South of Galvez Ave)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Off-ramp of US 101 onto Industrial St	Onramp to US 101 from Industrial St	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Off-ramp of US 101 onto Bayshore Blvd	Evans Ave (East of Toland St and West of 3rd St)	Evans Ave (East of 3rd St and West of Mendell St)	Mendell St (North of Evans Ave and South of Cargo Way)
	(% of TOG)	TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	TOLAN4	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	EVAN1	THRD1	AMA1
Acetaldehyde	0.28%	1.61E-04	4.09E-04	8.35E-05	1.79E-04	0.00E+00	0.00E+00	3.21E-04	4.65E-05	1.10E-04	2.77E-04	1.06E-04	1.35E-04	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.13%	7.48E-05	1.90E-04	3.88E-05	8.31E-05	0.00E+00	0.00E+00	1.49E-04	2.16E-05	5.10E-05	1.29E-04	4.94E-05	6.28E-05	0.00E+00	0.00E+00	0.00E+00
Benzene	2.47%	1.42E-03	3.60E-03	7.37E-04	1.58E-03	0.00E+00	0.00E+00	2.83E-03	4.10E-04	9.69E-04	2.44E-03	9.38E-04	1.19E-03	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.55%	3.16E-04	8.03E-04	1.64E-04	3.52E-04	0.00E+00	0.00E+00	6.30E-04	9.12E-05	2.16E-04	5.44E-04	2.09E-04	2.66E-04	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	1.05%	6.04E-04	1.53E-03	3.13E-04	6.71E-04	0.00E+00	0.00E+00	1.20E-03	1.74E-04	4.12E-04	1.04E-03	3.99E-04	5.08E-04	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.58%	9.09E-04	2.31E-03	4.71E-04	1.01E-03	0.00E+00	0.00E+00	1.81E-03	2.62E-04	6.20E-04	1.56E-03	6.00E-04	7.64E-04	0.00E+00	0.00E+00	0.00E+00
Hexane	1.60%	9.20E-04	2.33E-03	4.77E-04	1.02E-03	0.00E+00	0.00E+00	1.83E-03	2.65E-04	6.28E-04	1.58E-03	6.07E-04	7.73E-04	0.00E+00	0.00E+00	0.00E+00
Methanol	0.12%	6.90E-05	1.75E-04	3.58E-05	7.67E-05	0.00E+00	0.00E+00	1.37E-04	1.99E-05	4.71E-05	1.19E-04	4.56E-05	5.80E-05	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	0.02%	1.15E-05	2.92E-05	5.97E-06	1.28E-05	0.00E+00	0.00E+00	2.29E-05	3.32E-06	7.84E-06	1.98E-05	7.59E-06	9.67E-06	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.05%	2.88E-05	7.30E-05	1.49E-05	3.20E-05	0.00E+00	0.00E+00	5.73E-05	8.29E-06	1.96E-05	4.95E-05	1.90E-05	2.42E-05	0.00E+00	0.00E+00	0.00E+00
Propylene	3.06%	1.76E-03	4.47E-03	9.13E-04	1.96E-03	0.00E+00	0.00E+00	3.50E-03	5.08E-04	1.20E-03	3.03E-03	1.16E-03	1.48E-03	0.00E+00	0.00E+00	0.00E+00
Styrene	0.12%	6.90E-05	1.75E-04	3.58E-05	7.67E-05	0.00E+00	0.00E+00	1.37E-04	1.99E-05	4.71E-05	1.19E-04	4.56E-05	5.80E-05	0.00E+00	0.00E+00	0.00E+00
Toluene	5.76%	3.31E-03	8.41E-03	1.72E-03	3.68E-03	0.00E+00	0.00E+00	6.60E-03	9.56E-04	2.26E-03	5.70E-03	2.19E-03	2.78E-03	0.00E+00	0.00E+00	0.00E+00
Xylenes	4.80%	2.76E-03	7.00E-03	1.43E-03	3.07E-03	0.00E+00	0.00E+00	5.50E-03	7.96E-04	1.88E-03	4.75E-03	1.82E-03	2.32E-03	0.00E+00	0.00E+00	0.00E+00

lb/hr		TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	TOLAN4	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	EVAN1	THRD1	AMA1
Acetaldehyde	0.28%	1.84E-08	4.66E-08	9.54E-09	2.04E-08	0.00E+00	0.00E+00	3.66E-08	5.30E-09	1.25E-08	3.16E-08	1.21E-08	1.55E-08	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.13%	8.54E-09	2.17E-08	4.43E-09	9.49E-09	0.00E+00	0.00E+00	1.70E-08	2.46E-09	5.82E-09	1.47E-08	5.63E-09	7.17E-09	0.00E+00	0.00E+00	0.00E+00
Benzene	2.47%	1.62E-07	4.11E-07	8.41E-08	1.80E-07	0.00E+00	0.00E+00	3.23E-07	4.68E-08	1.11E-07	2.79E-07	1.07E-07	1.36E-07	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.55%	3.61E-08	9.16E-08	1.87E-08	4.01E-08	0.00E+00	0.00E+00	7.19E-08	1.04E-08	2.46E-08	6.21E-08	2.38E-08	3.03E-08	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	1.05%	6.90E-08	1.75E-07	3.58E-08	7.66E-08	0.00E+00	0.00E+00	1.37E-07	1.99E-08	4.70E-08	1.19E-07	4.55E-08	5.79E-08	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.58%	1.04E-07	2.63E-07	5.38E-08	1.15E-07	0.00E+00	0.00E+00	2.07E-07	2.99E-08	7.07E-08	1.78E-07	6.85E-08	8.72E-08	0.00E+00	0.00E+00	0.00E+00
Hexane	1.60%	1.05E-07	2.67E-07	5.45E-08	1.17E-07	0.00E+00	0.00E+00	2.09E-07	3.03E-08	7.16E-08	1.81E-07	6.93E-08	8.83E-08	0.00E+00	0.00E+00	0.00E+00
Methanol	0.12%	7.88E-09	2.00E-08	4.09E-09	8.76E-09	0.00E+00	0.00E+00	1.57E-08	2.27E-09	5.37E-09	1.35E-08	5.20E-09	6.62E-09	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	0.02%	1.31E-09	3.33E-09	6.81E-10	1.46E-09	0.00E+00	0.00E+00	2.61E-09	3.79E-10	8.95E-10	2.26E-09	8.67E-10	1.10E-09	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.05%	3.28E-09	8.33E-09	1.70E-09	3.65E-09	0.00E+00	0.00E+00	6.54E-09	9.47E-10	2.24E-09	5.65E-09	2.17E-09	2.76E-09	0.00E+00	0.00E+00	0.00E+00
Propylene	3.06%	2.01E-07	5.10E-07	1.04E-07	2.23E-07	0.00E+00	0.00E+00	4.00E-07	5.79E-08	1.37E-07	3.45E-07	1.33E-07	1.69E-07	0.00E+00	0.00E+00	0.00E+00
Styrene	0.12%	7.88E-09	2.00E-08	4.09E-09	8.76E-09	0.00E+00	0.00E+00	1.57E-08	2.27E-09	5.37E-09	1.35E-08	5.20E-09	6.62E-09	0.00E+00	0.00E+00	0.00E+00
Toluene	5.76%	3.78E-07	9.60E-07	1.96E-07	4.20E-07	0.00E+00	0.00E+00	7.53E-07	1.09E-07	2.58E-07	6.50E-07	2.50E-07	3.18E-07	0.00E+00	0.00E+00	0.00E+00
Xylenes	4.80%	3.15E-07	8.00E-07	1.63E-07	3.50E-07	0.00E+00	0.00E+00	6.27E-07	9.09E-08	2.15E-07	5.42E-07	2.08E-07	2.65E-07	0.00E+00	0.00E+00	0.00E+00

CONSTRUCTION YEAR 2023																
Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Toland Street (North of Jerrold Ave and South of Galvez Ave)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Off-ramp of US 101 onto Industrial St	Onramp to US 101 from Industrial St	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Off-ramp of US 101 onto Bayshore Blvd	Evans Ave (East of Toland St and West of 3rd St)	Evans Ave (East of 3rd St and West of Mendell St)	Mendell St (North of Evans Ave and South of Cargo Way)
	(% of TOG)	TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	TOLAN4	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	EVAN1	THRD1	AMA1
Acetaldehyde	0.28%	1.02E-03	2.60E-03	5.31E-04	1.14E-03	0.00E+00	0.00E+00	2.04E-03	2.95E-04	6.99E-04	1.76E-03	6.76E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.13%	4.76E-04	1.21E-03	2.47E-04	5.29E-04	0.00E+00	0.00E+00	9.47E-04	1.37E-04	3.24E-04	8.18E-04	3.14E-04	4.00E-04	0.00E+00	0.00E+00	0.00E+00
Benzene	2.47%	9.04E-03	2.29E-02	4.69E-03	1.00E-02	0.00E+00	0.00E+00	1.80E-02	2.61E-03	6.16E-03	1.55E-02	5.96E-03	7.59E-03	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.55%	2.01E-03	5.11E-03	1.04E-03	2.24E-03	0.00E+00	0.00E+00	4.01E-03	5.80E-04	1.37E-03	3.46E-03	1.33E-03	1.69E-03	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	1.05%	3.84E-03	9.75E-03	1.99E-03	4.27E-03	0.00E+00	0.00E+00	7.65E-03	1.11E-03	2.62E-03	6.61E-03	2.54E-03	3.23E-03	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.58%	5.78E-03	1.47E-02	3.00E-03	6.42E-03	0.00E+00	0.00E+00	1.15E-02	1.67E-03	3.94E-03	9.94E-03	3.82E-03	4.86E-03	0.00E+00	0.00E+00	0.00E+00
Hexane	1.60%	5.85E-03	1.49E-02	3.04E-03	6.51E-03	0.00E+00	0.00E+00	1.17E-02	1.69E-03	3.99E-03	1.01E-02	3.86E-03	4.92E-03	0.00E+00	0.00E+00	0.00E+00
Methanol	0.12%	4.39E-04	1.11E-03	2.28E-04	4.88E-04	0.00E+00	0.00E+00	8.74E-04	1.27E-04	2.99E-04	7.55E-04	2.90E-04	3.69E-04	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	0.02%	7.32E-05	1.86E-04	3.80E-05	8.13E-05	0.00E+00	0.00E+00	1.46E-04	2.11E-05	4.99E-05	1.26E-04	4.83E-05	6.15E-05	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.05%	1.83E-04	4.64E-04	9.49E-05	2.03E-04	0.00E+00	0.00E+00	3.64E-04	5.28E-05	1.25E-04	3.15E-04	1.21E-04	1.54E-04	0.00E+00	0.00E+00	0.00E+00
Propylene	3.06%	1.12E-02	2.84E-02	5.81E-03	1.24E-02	0.00E+00	0.00E+00	2.23E-02	3.23E-03	7.63E-03	1.93E-02	7.39E-03	9.41E-03	0.00E+00	0.00E+00	0.00E+00
Styrene	0.12%	4.39E-04	1.11E-03	2.28E-04	4.88E-04	0.00E+00	0.00E+00	8.74E-04	1.27E-04	2.99E-04	7.55E-04	2.90E-04	3.69E-04	0.00E+00	0.00E+00	0.00E+00
Toluene	5.76%	2.11E-02	5.35E-02	1.09E-02	2.34E-02	0.00E+00	0.00E+00	4.20E-02	6.08E-03	1.44E-02	3.62E-02	1.39E-02	1.77E-02	0.00E+00	0.00E+00	0.00E+00
Xylenes	4.80%	1.76E-02	4.46E-02	9.11E-03	1.95E-02	0.00E+00	0.00E+00	3.50E-02	5.07E-03	1.20E-02	3.02E-02	1.16E-02	1.48E-02	0.00E+00	0.00E+00	0.00E+00

lb/hr		TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	TOLAN4	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	EVAN1	THRD1	AMA1
Acetaldehyde	0.28%	1.17E-07	2.97E-07	6.07E-08	1.30E-07	0.00E+00	0.00E+00	2.33E-07	3.37E-08	7.97E-08	2.01E-07	7.72E-08	9.83E-08	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.13%	5.43E-08	1.38E-07	2.82E-08	6.03E-08	0.00E+00	0.00E+00	1.08E-07	1.57E-08	3.70E-08	9.34E-08	3.58E-08	4.56E-08	0.00E+00	0.00E+00	0.00E+00
Benzene	2.47%	1.03E-06	2.62E-06	5.35E-07	1.15E-06	0.00E+00	0.00E+00	2.05E-06	2.98E-07	7.03E-07	1.77E-06	6.81E-07	8.67E-07	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.55%	2.30E-07	5.83E-07	1.19E-07	2.55E-07	0.00E+00	0.00E+00	4.57E-07	6.63E-08	1.57E-07	3.95E-07	1.52E-07	1.93E-07	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	1.05%	4.39E-07	1.11E-06	2.27E-07	4.87E-07	0.00E+00	0.00E+00	8.73E-07	1.26E-07	2.99E-07	7.54E-07	2.89E-07	3.69E-07	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.58%	6.60E-07	1.67E-06	3.42E-07	7.33E-07	0.00E+00	0.00E+00	1.31E-06	1.90E-07	4.50E-07	1.13E-06	4.36E-07	5.55E-07	0.00E+00	0.00E+00	0.00E+00
Hexane	1.60%	6.68E-07	1.70E-06	3.47E-07	7.43E-07	0.00E+00	0.00E+00	1.33E-06	1.93E-07	4.56E-07	1.15E-06	4.41E-07	5.62E-07	0.00E+00	0.00E+00	0.00E+00
Methanol	0.12%	5.01E-08	1.27E-07	2.60E-08	5.57E-08	0.00E+00	0.00E+00	9.98E-08	1.45E-08	3.42E-08	8.62E-08	3.31E-08	4.21E-08	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	0.02%	8.35E-09	2.12E-08	4.33E-09	9.28E-09	0.00E+00	0.00E+00	1.66E-08	2.41E-09	5.70E-09	1.44E-08	5.51E-09	7.02E-09	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.05%	2.09E-08	5.30E-08	1.08E-08	2.32E-08	0.00E+00	0.00E+00	4.16E-08	6.02E-09	1.42E-08	3.59E-08	1.38E-08	1.75E-08	0.00E+00	0.00E+00	0.00E+00
Propylene	3.06%	1.28E-06	3.24E-06	6.63E-07	1.42E-06	0.00E+00	0.00E+00	2.54E-06	3.69E-07	8.71E-07	2.20E-06	8.44E-07	1.07E-06	0.00E+00	0.00E+00	0.00E+00
Styrene	0.12%	5.01E-08	1.27E-07	2.60E-08	5.57E-08	0.00E+00	0.00E+00	9.98E-08	1.45E-08	3.42E-08	8.62E-08	3.31E-08	4.21E-08	0.00E+00	0.00E+00	0.00E+00
Toluene	5.76%	2.41E-06	6.10E-06	1.25E-06	2.67E-06	0.00E+00	0.00E+00	4.79E-06	6.94E-07	1.64E-06	4.14E-06	1.59E-06	2.02E-06	0.00E+00	0.00E+00	0.00E+00
Xylenes	4.80%	2.01E-06	5.09E-06	1.04E-06	2.23E-06	0.00E+00	0.00E+00	3.99E-06	5.78E-07	1.37E-06	3.45E-06	1.32E-06	1.68E-06	0.00E+00	0.00E+00	0.00E+00

CONSTRUCTION YEAR 2024																
Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Toland Street (North of Jerrold Ave and South of Galvez Ave)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Off-ramp of US 101 onto Industrial St	Onramp to US 101 from Industrial St	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Off-ramp of US 101 onto Bayshore Blvd	Evans Ave (East of Toland St and West of 3rd St)	Evans Ave (East of 3rd St and West of Mendell St)	Mendell St (North of Evans Ave and South of Cargo Way)
	(% of TOG)	TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	TOLAN4	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	EVAN1	THRD1	AMA1
Acetaldehyde	0.28%	9.93E-04	2.52E-03	5.15E-04	1.10E-03	0.00E+00	0.00E+00	1.98E-03	2.86E-04	6.77E-04	1.71E-03	6.55E-04	8.34E-04	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.13%	4.61E-04	1.17E-03	2.39E-04	5.12E-04	0.00E+00	0.00E+00	9.17E-04	1.33E-04	3.14E-04	7.92E-04	3.04E-04	3.87E-04	0.00E+00	0.00E+00	0.00E+00
Benzene	2.47%	8.76E-03	2.22E-02	4.54E-03	9.73E-03	0.00E+00	0.00E+00	1.74E-02	2.53E-03	5.97E-03	1.51E-02	5.78E-03	7.36E-03	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.55%	1.95E-03	4.95E-03	1.01E-03	2.17E-03	0.00E+00	0.00E+00	3.88E-03	5.62E-04	1.33E-03	3.35E-03	1.29E-03	1.64E-03	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	1.05%	3.72E-03	9.44E-03	1.93E-03	4.14E-03	0.00E+00	0.00E+00	7.41E-03	1.07E-03	2.54E-03	6.40E-03	2.46E-03	3.13E-03	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.58%	5.60E-03	1.42E-02	2.91E-03	6.22E-03	0.00E+00	0.00E+00	1.12E-02	1.62E-03	3.82E-03	9.63E-03	3.70E-03	4.71E-03	0.00E+00	0.00E+00	0.00E+00
Hexane	1.60%	5.67E-03	1.44E-02	2.94E-03	6.30E-03	0.00E+00	0.00E+00	1.13E-02	1.64E-03	3.87E-03	9.75E-03	3.74E-03	4.77E-03	0.00E+00	0.00E+00	0.00E+00
Methanol	0.12%	4.25E-04	1.08E-03	2.21E-04	4.73E-04	0.00E+00	0.00E+00	8.47E-04	1.23E-04	2.90E-04	7.31E-04	2.81E-04	3.57E-04	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	0.02%	7.09E-05	1.80E-04	3.68E-05	7.88E-05	0.00E+00	0.00E+00	1.41E-04	2.04E-05	4.83E-05	1.22E-04	4.68E-05	5.96E-05	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.05%	1.77E-04	4.50E-04	9.19E-05	1.97E-04	0.00E+00	0.00E+00	3.53E-04	5.11E-05	1.21E-04	3.05E-04	1.17E-04	1.49E-04	0.00E+00	0.00E+00	0.00E+00
Propylene	3.06%	1.08E-02	2.75E-02	5.63E-03	1.21E-02	0.00E+00	0.00E+00	2.16E-02	3.13E-03	7.40E-03	1.87E-02	7.16E-03	9.12E-03	0.00E+00	0.00E+00	0.00E+00
Styrene	0.12%	4.25E-04	1.08E-03	2.21E-04	4.73E-04	0.00E+00	0.00E+00	8.47E-04	1.23E-04	2.90E-04	7.31E-04	2.81E-04	3.57E-04	0.00E+00	0.00E+00	0.00E+00
Toluene	5.76%	2.04E-02	5.18E-02	1.06E-02	2.27E-02	0.00E+00	0.00E+00	4.06E-02	5.89E-03	1.39E-02	3.51E-02	1.35E-02	1.72E-02	0.00E+00	0.00E+00	0.00E+00
Xylenes	4.80%	1.70E-02	4.32E-02	8.83E-03	1.89E-02	0.00E+00	0.00E+00	3.39E-02	4.91E-03	1.16E-02	2.93E-02	1.12E-02	1.43E-02	0.00E+00	0.00E+00	0.00E+00

lb/hr		TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	TOLAN4	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	EVAN1	THRD1	AMA1
Acetaldehyde	0.28%	1.13E-07	2.87E-07	5.88E-08	1.26E-07	0.00E+00	0.00E+00	2.26E-07	3.27E-08	7.73E-08	1.95E-07	7.48E-08	9.52E-08	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.13%	5.26E-08	1.33E-07	2.73E-08	5.85E-08	0.00E+00	0.00E+00	1.05E-07	1.52E-08	3.59E-08	9.05E-08	3.47E-08	4.42E-08	0.00E+00	0.00E+00	0.00E+00
Benzene	2.47%	1.00E-06	2.54E-06	5.18E-07	1.11E-06	0.00E+00	0.00E+00	1.99E-06	2.88E-07	6.82E-07	1.72E-06	6.60E-07	8.40E-07	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.55%	2.23E-07	5.65E-07	1.15E-07	2.47E-07	0.00E+00	0.00E+00	4.43E-07	6.42E-08	1.52E-07	3.83E-07	1.47E-07	1.87E-07	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	1.05%	4.25E-07	1.08E-06	2.20E-07	4.72E-07	0.00E+00	0.00E+00	8.46E-07	1.23E-07	2.90E-07	7.31E-07	2.80E-07	3.57E-07	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.58%	6.39E-07	1.62E-06	3.32E-07	7.11E-07	0.00E+00	0.00E+00	1.27E-06	1.84E-07	4.36E-07	1.10E-06	4.22E-07	5.37E-07	0.00E+00	0.00E+00	0.00E+00
Hexane	1.60%	6.48E-07	1.64E-06	3.36E-07	7.20E-07	0.00E+00	0.00E+00	1.29E-06	1.87E-07	4.42E-07	1.11E-06	4.27E-07	5.44E-07	0.00E+00	0.00E+00	0.00E+00
Methanol	0.12%	4.86E-08	1.23E-07	2.52E-08	5.40E-08	0.00E+00	0.00E+00	9.67E-08	1.40E-08	3.31E-08	8.35E-08	3.21E-08	4.08E-08	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	0.02%	8.09E-09	2.05E-08	4.20E-09	8.99E-09	0.00E+00	0.00E+00	1.61E-08	2.33E-09	5.52E-09	1.39E-08	5.34E-09	6.80E-09	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.05%	2.02E-08	5.13E-08	1.05E-08	2.25E-08	0.00E+00	0.00E+00	4.03E-08	5.84E-09	1.38E-08	3.48E-08	1.34E-08	1.70E-08	0.00E+00	0.00E+00	0.00E+00
Propylene	3.06%	1.24E-06	3.14E-06	6.42E-07	1.38E-06	0.00E+00	0.00E+00	2.47E-06	3.57E-07	8.44E-07	2.13E-06	8.17E-07	1.04E-06	0.00E+00	0.00E+00	0.00E+00
Styrene	0.12%	4.86E-08	1.23E-07	2.52E-08	5.40E-08	0.00E+00	0.00E+00	9.67E-08	1.40E-08	3.31E-08	8.35E-08	3.21E-08	4.08E-08	0.00E+00	0.00E+00	0.00E+00
Toluene	5.76%	2.33E-06	5.91E-06	1.21E-06	2.59E-06	0.00E+00	0.00E+00	4.64E-06	6.72E-07	1.59E-06	4.01E-06	1.54E-06	1.96E-06	0.00E+00	0.00E+00	0.00E+00
Xylenes	4.80%	1.94E-06	4.93E-06	1.01E-06	2.16E-06	0.00E+00	0.00E+00	3.87E-06	5.60E-07	1.32E-06	3.34E-06	1.28E-06	1.63E-06	0.00E+00	0.00E+00	0.00E+00

SRC ID	SRC No.	CAS	Pollutant	2022		2023		2024	
				lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
DEM_NC	1	9901	DieselExhPM	4.15E+01	0.00E+00	1.25E+02	0.00E+00	8.03E+01	0.00E+00
TOLAN1	2	9901	DieselExhPM	9.16E-02	0.00E+00	6.94E-02	0.00E+00	6.76E-02	0.00E+00
OAKD1	3	9901	DieselExhPM	2.32E-01	0.00E+00	1.76E-01	0.00E+00	1.71E-01	0.00E+00
INDUS1	4	9901	DieselExhPM	4.75E-02	0.00E+00	3.60E-02	0.00E+00	3.50E-02	0.00E+00
TOLAN2	5	9901	DieselExhPM	1.02E-01	0.00E+00	7.71E-02	0.00E+00	7.51E-02	0.00E+00
TOLAN3	6	9901	DieselExhPM	1.00E-02	0.00E+00	3.49E-02	0.00E+00	5.62E-03	0.00E+00
TOLAN4	7	9901	DieselExhPM	4.73E-02	0.00E+00	1.65E-01	0.00E+00	2.65E-02	0.00E+00
BAYSH1	8	9901	DieselExhPM	1.82E-01	0.00E+00	1.38E-01	0.00E+00	1.34E-01	0.00E+00
INDUS2	9	9901	DieselExhPM	2.64E-02	0.00E+00	2.00E-02	0.00E+00	1.95E-02	0.00E+00
INDUS3	10	9901	DieselExhPM	6.25E-02	0.00E+00	4.73E-02	0.00E+00	4.61E-02	0.00E+00
BAYSH2	11	9901	DieselExhPM	1.58E-01	0.00E+00	1.19E-01	0.00E+00	1.16E-01	0.00E+00
BAYSH3	12	9901	DieselExhPM	6.05E-02	0.00E+00	4.58E-02	0.00E+00	4.46E-02	0.00E+00
BAYSH4	13	9901	DieselExhPM	7.70E-02	0.00E+00	5.83E-02	0.00E+00	5.68E-02	0.00E+00
EVAN1	14	9901	DieselExhPM	9.39E-02	0.00E+00	3.27E-01	0.00E+00	5.26E-02	0.00E+00
THRD1	15	9901	DieselExhPM	4.29E-02	0.00E+00	1.49E-01	0.00E+00	2.40E-02	0.00E+00
AMA1	16	9901	DieselExhPM	5.14E-02	0.00E+00	1.79E-01	0.00E+00	2.88E-02	0.00E+00
TOLAN1	2	75070	Acetaldehyde	1.61E-04	1.84E-08	1.02E-03	1.17E-07	9.93E-04	1.13E-07
TOLAN1	2	107028	Acrolein	7.48E-05	8.54E-09	4.76E-04	5.43E-08	4.61E-04	5.26E-08
TOLAN1	2	71432	Benzene	1.42E-03	1.62E-07	9.04E-03	1.03E-06	8.76E-03	1.00E-06
TOLAN1	2	106990	1,3-Butadiene	3.16E-04	3.61E-08	2.01E-03	2.30E-07	1.95E-03	2.23E-07
TOLAN1	2	100414	Ethylbenzene	6.04E-04	6.90E-08	3.84E-03	4.39E-07	3.72E-03	4.25E-07
TOLAN1	2	50000	Formaldehyde	9.09E-04	1.04E-07	5.78E-03	6.60E-07	5.60E-03	6.39E-07
TOLAN1	2	110543	Hexane	9.20E-04	1.05E-07	5.85E-03	6.68E-07	5.67E-03	6.48E-07
TOLAN1	2	67561	Methanol	6.90E-05	7.88E-09	4.39E-04	5.01E-08	4.25E-04	4.86E-08
TOLAN1	2	78933	Methyl Ethyl Ketone	1.15E-05	1.31E-09	7.32E-05	8.35E-09	7.09E-05	8.09E-09
TOLAN1	2	91203	Naphthalene	2.88E-05	3.28E-09	1.83E-04	2.09E-08	1.77E-04	2.02E-08
TOLAN1	2	115071	Propylene	1.76E-03	2.01E-07	1.12E-02	1.28E-06	1.08E-02	1.24E-06
TOLAN1	2	100425	Styrene	6.90E-05	7.88E-09	4.39E-04	5.01E-08	4.25E-04	4.86E-08
TOLAN1	2	108883	Toluene	3.31E-03	3.78E-07	2.11E-02	2.41E-06	2.04E-02	2.33E-06
TOLAN1	2	1330207	Xylenes	2.76E-03	3.15E-07	1.76E-02	2.01E-06	1.70E-02	1.94E-06
OAKD1	3	75070	Acetaldehyde	4.09E-04	4.66E-08	2.60E-03	2.97E-07	2.52E-03	2.87E-07
OAKD1	3	107028	Acrolein	1.90E-04	2.17E-08	1.21E-03	1.38E-07	1.17E-03	1.33E-07
OAKD1	3	71432	Benzene	3.60E-03	4.11E-07	2.29E-02	2.62E-06	2.22E-02	2.54E-06
OAKD1	3	106990	1,3-Butadiene	8.03E-04	9.16E-08	5.11E-03	5.83E-07	4.95E-03	5.65E-07
OAKD1	3	100414	Ethylbenzene	1.53E-03	1.75E-07	9.75E-03	1.11E-06	9.44E-03	1.08E-06
OAKD1	3	50000	Formaldehyde	2.31E-03	2.63E-07	1.47E-02	1.67E-06	1.42E-02	1.62E-06
OAKD1	3	110543	Hexane	2.33E-03	2.67E-07	1.49E-02	1.70E-06	1.44E-02	1.64E-06
OAKD1	3	67561	Methanol	1.75E-04	2.00E-08	1.11E-03	1.27E-07	1.08E-03	1.23E-07
OAKD1	3	78933	Methyl Ethyl Ketone	2.92E-05	3.33E-09	1.86E-04	2.12E-08	1.80E-04	2.05E-08
OAKD1	3	91203	Naphthalene	7.30E-05	8.33E-09	4.64E-04	5.30E-08	4.50E-04	5.13E-08
OAKD1	3	115071	Propylene	4.47E-03	5.10E-07	2.84E-02	3.24E-06	2.75E-02	3.14E-06
OAKD1	3	100425	Styrene	1.75E-04	2.00E-08	1.11E-03	1.27E-07	1.08E-03	1.23E-07
OAKD1	3	108883	Toluene	8.41E-03	9.60E-07	5.35E-02	6.10E-06	5.18E-02	5.91E-06
OAKD1	3	1330207	Xylenes	7.00E-03	8.00E-07	4.46E-02	5.09E-06	4.32E-02	4.93E-06
INDUS1	4	75070	Acetaldehyde	8.35E-05	9.54E-09	5.31E-04	6.07E-08	5.15E-04	5.88E-08
INDUS1	4	107028	Acrolein	3.88E-05	4.43E-09	2.47E-04	2.82E-08	2.39E-04	2.73E-08
INDUS1	4	71432	Benzene	7.37E-04	8.41E-08	4.69E-03	5.35E-07	4.54E-03	5.18E-07
INDUS1	4	106990	1,3-Butadiene	1.64E-04	1.87E-08	1.04E-03	1.19E-07	1.01E-03	1.15E-07
INDUS1	4	100414	Ethylbenzene	3.13E-04	3.58E-08	1.99E-03	2.27E-07	1.93E-03	2.20E-07
INDUS1	4	50000	Formaldehyde	4.71E-04	5.38E-08	3.00E-03	3.42E-07	2.91E-03	3.32E-07

INDUS1	4	110543	Hexane	4.77E-04	5.45E-08	3.04E-03	3.47E-07	2.94E-03	3.36E-07
INDUS1	4	67561	Methanol	3.58E-05	4.09E-09	2.28E-04	2.60E-08	2.21E-04	2.52E-08
INDUS1	4	78933	Methyl Ethyl Ketone	5.97E-06	6.81E-10	3.80E-05	4.33E-09	3.68E-05	4.20E-09
INDUS1	4	91203	Naphthalene	1.49E-05	1.70E-09	9.49E-05	1.08E-08	9.19E-05	1.05E-08
INDUS1	4	115071	Propylene	9.13E-04	1.04E-07	5.81E-03	6.63E-07	5.63E-03	6.42E-07
INDUS1	4	100425	Styrene	3.58E-05	4.09E-09	2.28E-04	2.60E-08	2.21E-04	2.52E-08
INDUS1	4	108883	Toluene	1.72E-03	1.96E-07	1.09E-02	1.25E-06	1.06E-02	1.21E-06
INDUS1	4	1330207	Xylenes	1.43E-03	1.63E-07	9.11E-03	1.04E-06	8.83E-03	1.01E-06
TOLAN2	5	75070	Acetaldehyde	1.79E-04	2.04E-08	1.14E-03	1.30E-07	1.10E-03	1.26E-07
TOLAN2	5	107028	Acrolein	8.31E-05	9.49E-09	5.29E-04	6.03E-08	5.12E-04	5.85E-08
TOLAN2	5	71432	Benzene	1.58E-03	1.80E-07	1.00E-02	1.15E-06	9.73E-03	1.11E-06
TOLAN2	5	106990	1,3-Butadiene	3.52E-04	4.01E-08	2.24E-03	2.55E-07	2.17E-03	2.47E-07
TOLAN2	5	100414	Ethylbenzene	6.71E-04	7.66E-08	4.27E-03	4.87E-07	4.14E-03	4.72E-07
TOLAN2	5	50000	Formaldehyde	1.01E-03	1.15E-07	6.42E-03	7.33E-07	6.22E-03	7.11E-07
TOLAN2	5	110543	Hexane	1.02E-03	1.17E-07	6.51E-03	7.43E-07	6.30E-03	7.20E-07
TOLAN2	5	67561	Methanol	7.67E-05	8.76E-09	4.88E-04	5.57E-08	4.73E-04	5.40E-08
TOLAN2	5	78933	Methyl Ethyl Ketone	1.28E-05	1.46E-09	8.13E-05	9.28E-09	7.88E-05	8.99E-09
TOLAN2	5	91203	Naphthalene	3.20E-05	3.65E-09	2.03E-04	2.32E-08	1.97E-04	2.25E-08
TOLAN2	5	115071	Propylene	1.96E-03	2.23E-07	1.24E-02	1.42E-06	1.21E-02	1.38E-06
TOLAN2	5	100425	Styrene	7.67E-05	8.76E-09	4.88E-04	5.57E-08	4.73E-04	5.40E-08
TOLAN2	5	108883	Toluene	3.68E-03	4.20E-07	2.34E-02	2.67E-06	2.27E-02	2.59E-06
TOLAN2	5	1330207	Xylenes	3.07E-03	3.50E-07	1.95E-02	2.23E-06	1.89E-02	2.16E-06
BAYSH1	8	75070	Acetaldehyde	3.21E-04	3.66E-08	2.04E-03	2.33E-07	1.98E-03	2.26E-07
BAYSH1	8	107028	Acrolein	1.49E-04	1.70E-08	9.47E-04	1.08E-07	9.17E-04	1.05E-07
BAYSH1	8	71432	Benzene	2.83E-03	3.23E-07	1.80E-02	2.05E-06	1.74E-02	1.99E-06
BAYSH1	8	106990	1,3-Butadiene	6.30E-04	7.19E-08	4.01E-03	4.57E-07	3.88E-03	4.43E-07
BAYSH1	8	100414	Ethylbenzene	1.20E-03	1.37E-07	7.65E-03	8.73E-07	7.41E-03	8.46E-07
BAYSH1	8	50000	Formaldehyde	1.81E-03	2.07E-07	1.15E-02	1.31E-06	1.12E-02	1.27E-06
BAYSH1	8	110543	Hexane	1.83E-03	2.09E-07	1.17E-02	1.33E-06	1.13E-02	1.29E-06
BAYSH1	8	67561	Methanol	1.37E-04	1.57E-08	8.74E-04	9.98E-08	8.47E-04	9.67E-08
BAYSH1	8	78933	Methyl Ethyl Ketone	2.29E-05	2.61E-09	1.46E-04	1.66E-08	1.41E-04	1.61E-08
BAYSH1	8	91203	Naphthalene	5.73E-05	6.54E-09	3.64E-04	4.16E-08	3.53E-04	4.03E-08
BAYSH1	8	115071	Propylene	3.50E-03	4.00E-07	2.23E-02	2.54E-06	2.16E-02	2.47E-06
BAYSH1	8	100425	Styrene	1.37E-04	1.57E-08	8.74E-04	9.98E-08	8.47E-04	9.67E-08
BAYSH1	8	108883	Toluene	6.60E-03	7.53E-07	4.20E-02	4.79E-06	4.06E-02	4.64E-06
BAYSH1	8	1330207	Xylenes	5.50E-03	6.27E-07	3.50E-02	3.99E-06	3.39E-02	3.87E-06
INDUS2	9	75070	Acetaldehyde	4.65E-05	5.30E-09	2.95E-04	3.37E-08	2.86E-04	3.27E-08
INDUS2	9	107028	Acrolein	2.16E-05	2.46E-09	1.37E-04	1.57E-08	1.33E-04	1.52E-08
INDUS2	9	71432	Benzene	4.10E-04	4.68E-08	2.61E-03	2.98E-07	2.53E-03	2.88E-07
INDUS2	9	106990	1,3-Butadiene	9.12E-05	1.04E-08	5.80E-04	6.63E-08	5.62E-04	6.42E-08
INDUS2	9	100414	Ethylbenzene	1.74E-04	1.99E-08	1.11E-03	1.26E-07	1.07E-03	1.23E-07
INDUS2	9	50000	Formaldehyde	2.62E-04	2.99E-08	1.67E-03	1.90E-07	1.62E-03	1.84E-07
INDUS2	9	110543	Hexane	2.65E-04	3.03E-08	1.69E-03	1.93E-07	1.64E-03	1.87E-07
INDUS2	9	67561	Methanol	1.99E-05	2.27E-09	1.27E-04	1.45E-08	1.23E-04	1.40E-08
INDUS2	9	78933	Methyl Ethyl Ketone	3.32E-06	3.79E-10	2.11E-05	2.41E-09	2.04E-05	2.33E-09
INDUS2	9	91203	Naphthalene	8.29E-06	9.47E-10	5.28E-05	6.02E-09	5.11E-05	5.84E-09
INDUS2	9	115071	Propylene	5.08E-04	5.79E-08	3.23E-03	3.69E-07	3.13E-03	3.57E-07
INDUS2	9	100425	Styrene	1.99E-05	2.27E-09	1.27E-04	1.45E-08	1.23E-04	1.40E-08
INDUS2	9	108883	Toluene	9.56E-04	1.09E-07	6.08E-03	6.94E-07	5.89E-03	6.72E-07
INDUS2	9	1330207	Xylenes	7.96E-04	9.09E-08	5.07E-03	5.78E-07	4.91E-03	5.60E-07
INDUS3	10	75070	Acetaldehyde	1.10E-04	1.25E-08	6.99E-04	7.97E-08	6.77E-04	7.73E-08
INDUS3	10	107028	Acrolein	5.10E-05	5.82E-09	3.24E-04	3.70E-08	3.14E-04	3.59E-08

INDUS3	10	71432	Benzene	9.69E-04	1.11E-07	6.16E-03	7.03E-07	5.97E-03	6.82E-07
INDUS3	10	106990	1,3-Butadiene	2.16E-04	2.46E-08	1.37E-03	1.57E-07	1.33E-03	1.52E-07
INDUS3	10	100414	Ethylbenzene	4.12E-04	4.70E-08	2.62E-03	2.99E-07	2.54E-03	2.90E-07
INDUS3	10	50000	Formaldehyde	6.20E-04	7.07E-08	3.94E-03	4.50E-07	3.82E-03	4.36E-07
INDUS3	10	110543	Hexane	6.28E-04	7.16E-08	3.99E-03	4.56E-07	3.87E-03	4.42E-07
INDUS3	10	67561	Methanol	4.71E-05	5.37E-09	2.99E-04	3.42E-08	2.90E-04	3.31E-08
INDUS3	10	78933	Methyl Ethyl Ketone	7.84E-06	8.95E-10	4.99E-05	5.70E-09	4.83E-05	5.52E-09
INDUS3	10	91203	Naphthalene	1.96E-05	2.24E-09	1.25E-04	1.42E-08	1.21E-04	1.38E-08
INDUS3	10	115071	Propylene	1.20E-03	1.37E-07	7.63E-03	8.71E-07	7.40E-03	8.44E-07
INDUS3	10	100425	Styrene	4.71E-05	5.37E-09	2.99E-04	3.42E-08	2.90E-04	3.31E-08
INDUS3	10	108883	Toluene	2.26E-03	2.58E-07	1.44E-02	1.64E-06	1.39E-02	1.59E-06
INDUS3	10	1330207	Xylenes	1.88E-03	2.15E-07	1.20E-02	1.37E-06	1.16E-02	1.32E-06
BAYSH2	11	75070	Acetaldehyde	2.77E-04	3.16E-08	1.76E-03	2.01E-07	1.71E-03	1.95E-07
BAYSH2	11	107028	Acrolein	1.29E-04	1.47E-08	8.18E-04	9.34E-08	7.92E-04	9.05E-08
BAYSH2	11	71432	Benzene	2.44E-03	2.79E-07	1.55E-02	1.77E-06	1.51E-02	1.72E-06
BAYSH2	11	106990	1,3-Butadiene	5.44E-04	6.21E-08	3.46E-03	3.95E-07	3.35E-03	3.83E-07
BAYSH2	11	100414	Ethylbenzene	1.04E-03	1.19E-07	6.61E-03	7.54E-07	6.40E-03	7.31E-07
BAYSH2	11	50000	Formaldehyde	1.56E-03	1.78E-07	9.94E-03	1.13E-06	9.63E-03	1.10E-06
BAYSH2	11	110543	Hexane	1.58E-03	1.81E-07	1.01E-02	1.15E-06	9.75E-03	1.11E-06
BAYSH2	11	67561	Methanol	1.19E-04	1.35E-08	7.55E-04	8.62E-08	7.31E-04	8.35E-08
BAYSH2	11	78933	Methyl Ethyl Ketone	1.98E-05	2.26E-09	1.26E-04	1.44E-08	1.22E-04	1.39E-08
BAYSH2	11	91203	Naphthalene	4.95E-05	5.65E-09	3.15E-04	3.59E-08	3.05E-04	3.48E-08
BAYSH2	11	115071	Propylene	3.03E-03	3.45E-07	1.93E-02	2.20E-06	1.87E-02	2.13E-06
BAYSH2	11	100425	Styrene	1.19E-04	1.35E-08	7.55E-04	8.62E-08	7.31E-04	8.35E-08
BAYSH2	11	108883	Toluene	5.70E-03	6.50E-07	3.62E-02	4.14E-06	3.51E-02	4.01E-06
BAYSH2	11	1330207	Xylenes	4.75E-03	5.42E-07	3.02E-02	3.45E-06	2.93E-02	3.34E-06
BAYSH3	12	75070	Acetaldehyde	1.06E-04	1.21E-08	6.76E-04	7.72E-08	6.55E-04	7.48E-08
BAYSH3	12	107028	Acrolein	4.94E-05	5.63E-09	3.14E-04	3.58E-08	3.04E-04	3.47E-08
BAYSH3	12	71432	Benzene	9.38E-04	1.07E-07	5.96E-03	6.81E-07	5.78E-03	6.60E-07
BAYSH3	12	106990	1,3-Butadiene	2.09E-04	2.38E-08	1.33E-03	1.52E-07	1.29E-03	1.47E-07
BAYSH3	12	100414	Ethylbenzene	3.99E-04	4.55E-08	2.54E-03	2.89E-07	2.46E-03	2.80E-07
BAYSH3	12	50000	Formaldehyde	6.00E-04	6.85E-08	3.82E-03	4.36E-07	3.70E-03	4.22E-07
BAYSH3	12	110543	Hexane	6.07E-04	6.93E-08	3.86E-03	4.41E-07	3.74E-03	4.27E-07
BAYSH3	12	67561	Methanol	4.56E-05	5.20E-09	2.90E-04	3.31E-08	2.81E-04	3.21E-08
BAYSH3	12	78933	Methyl Ethyl Ketone	7.59E-06	8.67E-10	4.83E-05	5.51E-09	4.68E-05	5.34E-09
BAYSH3	12	91203	Naphthalene	1.90E-05	2.17E-09	1.21E-04	1.38E-08	1.17E-04	1.34E-08
BAYSH3	12	115071	Propylene	1.16E-03	1.33E-07	7.39E-03	8.44E-07	7.16E-03	8.17E-07
BAYSH3	12	100425	Styrene	4.56E-05	5.20E-09	2.90E-04	3.31E-08	2.81E-04	3.21E-08
BAYSH3	12	108883	Toluene	2.19E-03	2.50E-07	1.39E-02	1.59E-06	1.35E-02	1.54E-06
BAYSH3	12	1330207	Xylenes	1.82E-03	2.08E-07	1.16E-02	1.32E-06	1.12E-02	1.28E-06
BAYSH4	13	75070	Acetaldehyde	1.35E-04	1.55E-08	8.61E-04	9.83E-08	8.34E-04	9.52E-08
BAYSH4	13	107028	Acrolein	6.28E-05	7.17E-09	4.00E-04	4.56E-08	3.87E-04	4.42E-08
BAYSH4	13	71432	Benzene	1.19E-03	1.36E-07	7.59E-03	8.67E-07	7.36E-03	8.40E-07
BAYSH4	13	106990	1,3-Butadiene	2.66E-04	3.03E-08	1.69E-03	1.93E-07	1.64E-03	1.87E-07
BAYSH4	13	100414	Ethylbenzene	5.08E-04	5.79E-08	3.23E-03	3.69E-07	3.13E-03	3.57E-07
BAYSH4	13	50000	Formaldehyde	7.64E-04	8.72E-08	4.86E-03	5.55E-07	4.71E-03	5.37E-07
BAYSH4	13	110543	Hexane	7.73E-04	8.83E-08	4.92E-03	5.62E-07	4.77E-03	5.44E-07
BAYSH4	13	67561	Methanol	5.80E-05	6.62E-09	3.69E-04	4.21E-08	3.57E-04	4.08E-08
BAYSH4	13	78933	Methyl Ethyl Ketone	9.67E-06	1.10E-09	6.15E-05	7.02E-09	5.96E-05	6.80E-09
BAYSH4	13	91203	Naphthalene	2.42E-05	2.76E-09	1.54E-04	1.75E-08	1.49E-04	1.70E-08
BAYSH4	13	115071	Propylene	1.48E-03	1.69E-07	9.41E-03	1.07E-06	9.12E-03	1.04E-06
BAYSH4	13	100425	Styrene	5.80E-05	6.62E-09	3.69E-04	4.21E-08	3.57E-04	4.08E-08

BAYSH4	13	108883	Toluene	2.78E-03	3.18E-07	1.77E-02	2.02E-06	1.72E-02	1.96E-06
BAYSH4	13	1330207	Xylenes	2.32E-03	2.65E-07	1.48E-02	1.68E-06	1.43E-02	1.63E-06

On-Site Emergency Generator Emissions

		Emissions (lb/day)	Emissions (tons/year)
Equipment Type	No.	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust
400KV Backup Generator	2	0.211183793	0.005279595

		Emissions (lb/day)	Emissions (tons/year)	Emissions (lbs/year)	Annual Emissions (g/s)
Equipment Type	Model ID	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust
400KV Backup Generator	Gen A1	1.06E-01	2.64E-03	5.28E+00	7.59380E-05
400KV Backup Generator	Gen B1	1.06E-01	2.64E-03	5.28E+00	7.59380E-05

tons/yr assumes 264 days & 12 hrs day per year

On-Site Makerspace Emissions

Emissions = Total (Building A + B)

		Emissions (lb/day)	Emissions (tons/year)	Emissions (lbs/year)	Annual Emissions (g/s)
Description	Model ID	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust
Makerspace	MKSPACE	1.087362343	0.143531829	2.87E+02	4.12893E-03

Annual Emissions (g/s) per building (used in model)

$PM_{2.5}$ Exhaust	
5.16116E-04	<-- 4 exhaust vents per building

Description	Model ID	Pollutant ID	TAC	lb/hr	lb/yr
Makerspace	MKSPACE	71432	Benzene	1.33E-04	4.20E-01
Makerspace	MKSPACE	50000	Formaldehyde	1.56E-03	4.94E+00
Makerspace	MKSPACE	1115	Glycol Ethers	2.33E-02	7.39E+01
Makerspace	MKSPACE	67630	Isopropyl Alcoh	9.33E-03	2.96E+01
Makerspace	MKSPACE	108883	Toluene	1.13E-04	3.57E-01
Makerspace	MKSPACE	100414	Ethyl Benzene	2.94E-05	9.32E-02
Makerspace	MKSPACE	95476	o-Xylene	1.32E-04	4.18E-01
Makerspace	MKSPACE	108383	m-Xylene	1.91E-04	6.04E-01
Makerspace	MKSPACE	108907	Chlorobenzn	2.24E-05	7.10E-02
Makerspace	MKSPACE	91203	Naphthalene	2.94E-05	9.32E-02

Emissions from: *[Manufactr_Maker Industry TACs] tab in SF Gateway Ops Uncontrolled Emissions_21July2022.xlsx*

Operations Truck (Delivery) Traffic Allocation by Road Segment

Inbound/Outbound Traffic % from TIS Report		Total (m)	Total Traffic	% Traffic	Operations ROG (t/y)	Operations DPM (t/y)	Operations Total PM2.5 (t/y)
		6699.1	6.15	100%	0.0215	0.0031	0.0415
Road	SourceID	Length (m)	Total	%	ROG (t/y)	DPM (t/y)	Total PM2.5 (t/y)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	TOLAN1	155.7	5%	0.81%	0.000174967	2.48267E-05	3.37E-04
Oakdale Ave (West of Toland St and East of Loomis St)	OAKD1	395	30%	4.88%	0.001049802	0.00014896	2.02E-03
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	INDUS1	236.7	30%	4.88%	0.001049802	0.00014896	2.02E-03
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	TOLAN2	173	20%	3.25%	0.000699868	9.93068E-05	1.35E-03
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	TOLAN3	90.8	40%	6.50%	0.001399736	0.000198614	2.70E-03
Jerrold Ave (East of Bayshore Blvd and West of Toland Street)	JERR1	535.1	40%	6.50%	0.001399736	0.000198614	2.70E-03
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	BAYSH1	596	5%	0.81%	0.000174967	2.48267E-05	3.37E-04
Off-ramp of US 101 onto Industrial St	INDUS2	172.7	5%	0.81%	0.000174967	2.48267E-05	3.37E-04
Onramp to US 101 from Industrial St	INDUS3	408.3	30%	4.88%	0.001049802	0.00014896	2.02E-03
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	BAYSH2	267.7	25%	4.07%	0.000874835	0.000124134	1.68E-03
Onramp to US 101 from Bayshore Blvd	BAYSH3	779.8	40%	6.50%	0.001399736	0.000198614	2.70E-03
Off-ramp of US 101 onto Bayshore Blvd	BAYSH4	851.7	25%	4.07%	0.000874835	0.000124134	1.68E-03
Kirkwood Ave (East of Toland Street and West of Selby Street)	KIRK1	146	20%	3.25%	0.000699868	9.93068E-05	1.35E-03
Kirkwood Ave (East Selby Street and West of Rankin Street)	KIRK2	181.3	15%	2.44%	0.000524901	7.44801E-05	1.01E-03
Rankin Street (South of Kirkwood Ave and North of McKinnon Ave)	RANK2	178.9	15%	2.44%	0.000524901	7.44801E-05	1.01E-03
McKinnon Ave (East of Selby Street and West of Rankin Street)	MCKI2	186.2	15%	2.44%	0.000524901	7.44801E-05	1.01E-03
McKinnon Ave (East of Toland Street and West of Selby Street)	MCKI3	182.5	20%	3.25%	0.000699868	9.93068E-05	1.35E-03
Selby Street (North of Oakdale Ave and South of Newcomb Ave)	SELB3	83	55%	8.94%	0.001924637	0.000273094	3.71E-03
Selby Street (North of Newcomb Ave and South of McKinnon Ave)	SELB4	86	55%	8.94%	0.001924637	0.000273094	3.71E-03
Selby Street (North of McKinnon Ave and South of Kirkwood Ave)	SELB5	168.1	70%	11.38%	0.002449538	0.000347574	4.72E-03
Oakdale Ave (West of Toland St and East of Selby Street)	OAKD2	177.3	25%	4.07%	0.000874835	0.000124134	1.68E-03
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	INDU1	647.3	30%	4.88%	0.001049802	0.00014896	2.02E-03

Average Trip Distance from Emissions Calculations (mi)	1.3427
Length of Roads within Modeling Domain (mi)	1.3427
% of Emissions within Modeling Domain	100%
ROG from Emissions Calculations (tons/yr)	0.0215
DPM from Emissions Calculations (tons/yr)	3.05E-03
Total PM2.5 from Emissions Calculations (tons/yr)	4.15E-02
ROG within Modeling Domain (tons/yr)	0.02152094
DPM within Modeling Domain (tons/yr)	0.00305369
Total PM2.5 within Modeling Domain (tons/yr)	0.04145037

Longest Trip Calc	
Segment	Dist
MCKI2	186.2
MCKI3	182.5
TOLAN1	155.7
OAKD1	395
BAYSH1	596
INDUS1	236.7
INDUS3	408.3
Total Dist (m)	2160.4
Total Dist (mi)	1.34269733

Operations Last Mile Traffic Allocation by Road Segment

Inbound/Outbound Traffic % from TIS Report			Total (m)	% Traffic	Operations ROG (t/y)	Operations DPM (t/y)	Operations Total PM2.5 (t/y)
			21784.2	100%	0.0289	0.0017	0.0566
Road	SourceID	Road Type	Length (m)	%	ROG (t/y)	DPM (t/y)	Total PM2.5 (t/y)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	TOLAN1	Primary	155.7	3.51%	0.00101397	5.898E-05	1.99E-03
Oakdale Ave (West of Toland St and East of Loomis St)	OAKD1	Primary	395	3.51%	0.00101397	5.898E-05	1.99E-03
Oakdale Ave (East of Toland St and West of Industrial St)	OAKD2	Primary	177.3	3.51%	0.00101397	5.898E-05	1.99E-03
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	INDU1	Primary	641.5	3.51%	0.00101397	5.898E-05	1.99E-03
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	TOLAN2	Primary	173	3.51%	0.00101397	5.898E-05	1.99E-03
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	TOLAN3	Primary	90.8	3.51%	0.00101397	5.898E-05	1.99E-03
Toland Street (North of Jerrold Ave and South of Galvez Ave)	TOLAN4	Secondary	428.2	0.46%	0.00013379	7.782E-06	2.62E-04
Jerrold Ave (West of Toland St and East of Napolean St)	JERR1	Primary	287.3	3.51%	0.00101397	5.898E-05	1.99E-03
Rankin St (North of Kirkwood Ave and South of Jerrold Ave)	RANK1	Secondary	70	0.46%	0.00013379	7.782E-06	2.62E-04
Jerrold Ave (West of Rankin St and East of Phelps St)	JERR2	Secondary	293	0.46%	0.00013379	7.782E-06	2.62E-04
Barneveld Ave (North of Oakdale Ave and South of McKinnon Ave)	BARNE1	Secondary	177.7	0.46%	0.00013379	7.782E-06	2.62E-04
Newcomb Ave (East of Barneveld Ave and West of Toland St)	NEWC1	Secondary	242.5	0.46%	0.00013379	7.782E-06	2.62E-04
McKinnon Ave (East of Barneveld Ave and West of Toland St)	MCKI1	Secondary	280.7	0.46%	0.00013379	7.782E-06	2.62E-04
Toland Place (North of McKinnon Ave and West of Toland St)	TOLANP	Secondary	161.3	0.46%	0.00013379	7.782E-06	2.62E-04
Upton St (North of McKinnon Ave and South of Jerrold Ave)	UPTON1	Secondary	241.2	0.46%	0.00013379	7.782E-06	2.62E-04
Hudson Ave (East of Toland St and West of Selby St)	HUDSO1	Secondary	182.7	0.46%	0.00013379	7.782E-06	2.62E-04
Innes Ave (East of Milton Ross Ln and West of Selby St)	INNES1	Secondary	134.6	0.46%	0.00013379	7.782E-06	2.62E-04
Innes Ave (East of Selby St and West of Rankin St)	INNES2	Secondary	157.7	0.46%	0.00013379	7.782E-06	2.62E-04
Milton Ross Ln (North of Jerrold Ave and South of Innes Ave)	MILTO1	Secondary	63.2	0.46%	0.00013379	7.782E-06	2.62E-04
Milton Ross Ln (North of Kirkwood Ave and South of Jerrold Ave)	MILTO2	Secondary	87.7	0.46%	0.00013379	7.782E-06	2.62E-04
Jerrold Ave - West Bound (East of Toland St and West of Selby St)	JERR3	Secondary	185.3	0.46%	0.00013379	7.782E-06	2.62E-04
Jerrold Ave - West Bound (East of Selby St and West of Rankin St)	JERR4	Secondary	181.7	0.46%	0.00013379	7.782E-06	2.62E-04
Jerrold Ave - East Bound (East of Toland St and West of Selby St)	JERR5	Secondary	187.2	0.46%	0.00013379	7.782E-06	2.62E-04

Average Trip Distance from Emissions Calculations (mi)	3.2253
Length of Roads within Modeling Domain (mi)	3.2253
% of Emissions within Modeling Domain	100%
ROG from Emissions Calculations (tons/yr)	0.0289
DPM from Emissions Calculations (tons/yr)	1.68E-03
Total PM2.5 from Emissions Calculations (tons/yr)	5.66E-02
ROG within Modeling Domain (tons/yr)	0.028898
DPM within Modeling Domain (tons/yr)	0.001681
Total PM2.5 within Modeling Domain (tons/yr)	0.056581

Longest Trip Calc	
Segment	Dist
RHODE1	433.6
S26S	351.7
MARIN1	260.9
BAYSH3	331.9
BAYSH2	267.7
OAKD1	395
OAKD2	177.3
INDU1	641.5
INDUS1	236.7
ALEM	263.8
PUTN1	550.3
COURT1	320

Jerrold Ave - East Bound (East of Selby St and West of Rankin St)	JERR6	Secondary	183.4	0.46%	0.00013379	7.782E-06	2.62E-04
Kirkwood Ave (East of Milton Ross Ln and West of Selby St)	KIRK1	Secondary	146	0.46%	0.00013379	7.782E-06	2.62E-04
Kirkwood Ave (East of Selby St and West of Rankin St)	KIRK2	Secondary	180.6	0.46%	0.00013379	7.782E-06	2.62E-04
Rankin St (South of Kirkwood Ave and North of McKinnon Ave)	RANK2	Secondary	178.9	0.46%	0.00013379	7.782E-06	2.62E-04
McKinnon Ave (East of Selby St and West of Rankin St)	MCKI2	Secondary	186.2	0.46%	0.00013379	7.782E-06	2.62E-04
McKinnon Ave (East of Toland St and West of Selby St)	MCKI3	Secondary	182.5	0.46%	0.00013379	7.782E-06	2.62E-04
Newcomb Ave (East of Toland St and West of Selby St)	NEWC2	Secondary	183.7	0.46%	0.00013379	7.782E-06	2.62E-04
Newcomb Ave (East of Selby St and West of Quint St)	NEWC3	Secondary	383.5	0.46%	0.00013379	7.782E-06	2.62E-04
Oakdale Ave (East of Selby St and West of Rankin St)	OAKD3	Primary	177	3.51%	0.00101397	5.898E-05	1.99E-03
Oakdale Ave (East of Rankin St and West of Quint St)	OAKD4	Primary	182.1	3.51%	0.00101397	5.898E-05	1.99E-03
Palou Ave (East of Industrial St and West of Selby St)	PALO1	Secondary	50	0.46%	0.00013379	7.782E-06	2.62E-04
Palou Ave (East of Selby St and West of Rankin St)	PALO2	Secondary	180.1	0.46%	0.00013379	7.782E-06	2.62E-04
Palou Ave (East of Rankin St and West of Silver Ave)	PALO3	Secondary	167.1	0.46%	0.00013379	7.782E-06	2.62E-04
Oakdale Ave (East of Quint St and West of Dunshee St)	OAKD5	Secondary	47	0.46%	0.00013379	7.782E-06	2.62E-04
Qunit St (North of Palou Ave and South of Oakdale Ave)	QUIN1	Secondary	70.6	0.46%	0.00013379	7.782E-06	2.62E-04
Qunit St (North of Oakdale Ave and South of Newcomb Ave)	QUIN2	Secondary	82.5	0.46%	0.00013379	7.782E-06	2.62E-04
Rankin St (North of Quesada Ave and South of Palou Ave)	RANK3	Secondary	57.7	0.46%	0.00013379	7.782E-06	2.62E-04
Rankin St (North of Palou Ave and South of Oakdale Ave)	RANK4	Secondary	76.6	0.46%	0.00013379	7.782E-06	2.62E-04
Rankin St (North of Oakdale Ave and South of Newcomb)	RANK5	Secondary	74.4	0.46%	0.00013379	7.782E-06	2.62E-04
Palou Ave (East of Baneveld Ave and West of Industrial St)	PALO4	Secondary	295.6	0.46%	0.00013379	7.782E-06	2.62E-04
Dorman Ave (North of Barneveld Ave and South of Palou Ave)	DORM1	Secondary	86.7	0.46%	0.00013379	7.782E-06	2.62E-04
Apparel Way	APPA1	Secondary	129.6	0.46%	0.00013379	7.782E-06	2.62E-04
Selby St (North of Quesada Ave and South of Palou Ave)	SELB1	Secondary	61	0.46%	0.00013379	7.782E-06	2.62E-04
Selby St (North of Palou Ave and South of Oakdale Ave)	SELB2	Secondary	86.6	0.46%	0.00013379	7.782E-06	2.62E-04
Selby St (North of Oakdale Ave and South of Newcomb Ave)	SELB3	Primary	83	3.51%	0.00101397	5.898E-05	1.99E-03
Selby St (North of Newcomb Ave and South of McKinnon Ave)	SELB4	Secondary	86	0.46%	0.00013379	7.782E-06	2.62E-04
Selby St (North of McKinnon Ave and South of Kirkwood Ave)	SELB5	Secondary	168.1	0.46%	0.00013379	7.782E-06	2.62E-04

BRAD2	170.6
FRAN1	788.5
Total Dist (m)	5189.5
Total Dist (mi)	3.225295

	Segments	Weight
Total	91	-
Primary	19	67%
Secondary	72	33%

Selby St (North of Kirkwood Ave and South of Jerrold Ave - West Bound)	SELB6	Secondary	103.4	0.46%	0.00013379	7.782E-06	2.62E-04
Selby St (North of Jerrold Ave - West Bound and South of Innes Ave)	SELB7	Secondary	60.6	0.46%	0.00013379	7.782E-06	2.62E-04
Selby St (North of Innes Ave and South of Galvez Ave)	SELB8	Secondary	138.5	0.46%	0.00013379	7.782E-06	2.62E-04
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	BAYSH1	Primary	596	3.51%	0.00101397	5.898E-05	1.99E-03
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	INDUS1	Primary	236.7	3.51%	0.00101397	5.898E-05	1.99E-03
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	BAYSH2	Primary	267.7	3.51%	0.00101397	5.898E-05	1.99E-03
Onramp to US 101 from Bayshore Blvd	BAYSH3	Primary	331.9	3.51%	0.00101397	5.898E-05	1.99E-03
Barneveld Ave (North of Industrial St and South of Oakdale Ave)	BARN2	Secondary	365.4	0.46%	0.00013379	7.782E-06	2.62E-04
Loomis St (North of Industrial St and South of Oakdale Ave)	LOOM1	Secondary	467.1	0.46%	0.00013379	7.782E-06	2.62E-04
Loomis St (North of Oakdale Ave and South of McKinnon Ave)	LOOM2	Secondary	167.6	0.46%	0.00013379	7.782E-06	2.62E-04
Elmira St (South of Industrial St)	ELMIR	Secondary	343	0.46%	0.00013379	7.782E-06	2.62E-04
Charter Oak Ave (South of Industrial St)	COA	Secondary	192	0.46%	0.00013379	7.782E-06	2.62E-04
Boutwell St (South of Industrial St)	BOUT	Secondary	192.5	0.46%	0.00013379	7.782E-06	2.62E-04
San Bruno Ave (South of Alemany Blvd and North of Hale St)	SANB	Secondary	468.4	0.46%	0.00013379	7.782E-06	2.62E-04
Alemany Blvd (South of Industrial St and North of Putnam St)	ALEM	Primary	263.8	3.51%	0.00101397	5.898E-05	1.99E-03
Putnam St (North of Alemany Blvd and South of Cortland Ave)	PUTN1	Secondary	550.3	0.46%	0.00013379	7.782E-06	2.62E-04
Courtland Ave (East of Putnam St and West of Bayshore Blvd)	COURT1	Secondary	320	0.46%	0.00013379	7.782E-06	2.62E-04
Tompkins Ave (East of Putnam St and West of Peralta Ave)	TOMP1	Secondary	158.5	0.46%	0.00013379	7.782E-06	2.62E-04
Bradford St (South of Cortland Ave) and Jarboe Ave (East of Putnam St)	BRAD1	Secondary	274.1	0.46%	0.00013379	7.782E-06	2.62E-04
Bradford St (South of Powhattan Ave and North of Cortland Ave)	BRAD2	Secondary	170.6	0.46%	0.00013379	7.782E-06	2.62E-04
Franconia St/Brewster St (North of Powhattan Ave and South of Montcalm St)	FRAN1	Secondary	788.5	0.46%	0.00013379	7.782E-06	2.62E-04
Holladay Ave (North of Franconia St and South of Peralta Ave)	HOLL1	Secondary	737	0.46%	0.00013379	7.782E-06	2.62E-04
Potrero Ave (South of 24th St and North of Cesar Chavez St)	POTR1	Primary	404.8	3.51%	0.00101397	5.898E-05	1.99E-03
Cesar Chavez St (East of York St and West of Kansas St)	CESAR1	Primary	538.1	3.51%	0.00101397	5.898E-05	1.99E-03
East Ramp of Cesar Chavez St onto Bayshore Blvd	BAYSH5	Primary	489.6	3.51%	0.00101397	5.898E-05	1.99E-03
Bayshore Blvd (South of Potrero Ave and North of Marin St)	BAYSH6	Primary	159.2	3.51%	0.00101397	5.898E-05	1.99E-03
Peralta Ave (West of Holladay Ave and East of York St)	PERA1	Secondary	171.4	0.46%	0.00013379	7.782E-06	2.62E-04
York St (North of Holladay Ave and South of Cesar Chavez St)	YORK1	Secondary	314.4	0.46%	0.00013379	7.782E-06	2.62E-04

Rhode Island St (North of 26th St and South of 23rd St)	RHODE1	Secondary	433.6	0.46%	0.00013379	7.782E-06	2.62E-04
Kansas St (North of 26th St and South of 23rd St)	KANSAS	Secondary	430.9	0.46%	0.00013379	7.782E-06	2.62E-04
Vermont St (North of 25th St and South of 23rd St)	VERMT	Secondary	359.4	0.46%	0.00013379	7.782E-06	2.62E-04
San Bruno Ave (South of 23rd St and North of Cesar Chavez St)	SANBR	Secondary	549.1	0.46%	0.00013379	7.782E-06	2.62E-04
26th St (North of Cesar Chavez St and West of Blair Terrace	S26S	Secondary	351.7	0.46%	0.00013379	7.782E-06	2.62E-04
24th St (East of Potrero Ave and West of Vermont Ave)	S24S	Secondary	250.6	0.46%	0.00013379	7.782E-06	2.62E-04
Barneveld Ave (North of McKinnon Ave and South of Jerrold Ave)	BARN3	Secondary	269.5	0.46%	0.00013379	7.782E-06	2.62E-04
Marin St (East of Bayshore Blvd and South of Cesar Chavez St)	MARIN1	Secondary	260.9	0.46%	0.00013379	7.782E-06	2.62E-04
Cesar Chavez St (East of Kansas St)	CESAR2	Secondary	146.4	0.46%	0.00013379	7.782E-06	2.62E-04
25th St (East of Potrero Ave and West of Vermont St)	S25S	Secondary	146.2	0.46%	0.00013379	7.782E-06	2.62E-04
Quesada Ave (East of Industrial St and West of Rankin St)	QUESA1	Secondary	168.7	0.46%	0.00013379	7.782E-06	2.62E-04
Revere Ave (East of Industrial St and West of Selby St)	REVE1	Secondary	152.7	0.46%	0.00013379	7.782E-06	2.62E-04
Gaven St (South of San Bruno Ave and North of Merrill St)	GAVEN1	Secondary	211.6	0.46%	0.00013379	7.782E-06	2.62E-04

Operations: Truck Transport Road Segments (To/From Gateway Ctr & Highway)

Road	Road Width (ft)	Road Width (m)	Base Elevation	SourceID	Line Volume Src Type	Release Height (m) from 2020 CityWide	Initial Lateral Dimension (m)	Initial Vertical Dimension (m) from 2020 CityWide	# Volume Sources	Total Length (m)	g/s per vol (1 g/s)	Total PM2.5 (g/s/vol)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	29.11	8.87	varies - AERMAP	TOLAN1	Adjacent	2.00	varies - based on plume width	2.30	10	155.7	1.0000E-01	9.69420E-07
Oakdale Ave (West of Toland St and East of Loomis St)	41.48	12.64	varies - AERMAP	OAKD1	Adjacent	2.00	varies - based on plume width	2.30	21	395	4.7619E-02	2.76977E-06
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	37.50	11.43	varies - AERMAP	INDUS1	Adjacent	2.00	varies - based on plume width	2.30	14	236.7	7.1429E-02	4.15466E-06
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	29.11	8.87	varies - AERMAP	TOLAN2	Adjacent	2.00	varies - based on plume width	2.30	12	173	8.3333E-02	3.23140E-06
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	29.11	8.87	varies - AERMAP	TOLAN3	Adjacent	2.00	varies - based on plume width	2.30	6	90.8	1.6667E-01	1.29256E-05
Jerrold Ave (East of Bayshore Blvd and West of Toland Street)	45.96	14.01	varies - AERMAP	JERR1	Adjacent	2.00	varies - based on plume width	2.30	27	535.1	3.7037E-02	2.87236E-06
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	63	19.07	varies - AERMAP	BAYSH1	Adjacent	2.00	varies - based on plume width	2.30	24	596	4.1667E-02	4.03925E-07
Off-ramp of US 101 onto Industrial St	44	13.37	varies - AERMAP	INDUS2	Adjacent	2.00	varies - based on plume width	2.30	9	172.7	1.1111E-01	1.07713E-06
Onramp to US 101 from Industrial St	30	9.16	varies - AERMAP	INDUS3	Adjacent	2.00	varies - based on plume width	2.30	27	408.3	3.7037E-02	2.15427E-06
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	63	19.07	varies - AERMAP	BAYSH2	Adjacent	2.00	varies - based on plume width	2.30	11	267.7	9.0909E-02	4.40646E-06
Onramp to US 101 from Bayshore Blvd	42	12.84	varies - AERMAP	BAYSH3	Adjacent	2.00	varies - based on plume width	2.30	41	779.8	2.4390E-02	1.89155E-06
Off-ramp of US 101 onto Bayshore Blvd	21	6.27	varies - AERMAP	BAYSH4	Adjacent	2.00	varies - based on plume width	2.30	69	851.7	1.4493E-02	7.02478E-07
Kirkwood Ave (East of Toland Street and West of Selby Street)	21	6.55	varies - AERMAP	KIRK1	Adjacent	2.00	varies - based on plume width	2.30	12	146	8.3333E-02	3.23140E-06
Kirkwood Ave (East Selby Street and West of Rankin Street)	31	9.50	varies - AERMAP	KIRK2	Adjacent	2.00	varies - based on plume width	2.30	14	181.3	7.1429E-02	2.07733E-06
Rankin Street (South of Kirkwood Ave and North of McKinnon Ave)	36	10.91	varies - AERMAP	RANK2	Adjacent	2.00	varies - based on plume width	2.30	11	178.9	9.0909E-02	2.64387E-06
McKinnon Ave (East of Selby Street and West of Rankin Street)	28	8.59	varies - AERMAP	MCKI2	Adjacent	2.00	varies - based on plume width	2.30	13	186.2	7.6923E-02	2.23712E-06
McKinnon Ave (East of Toland Street and West of Selby Street)	26	8.01	varies - AERMAP	MCKI3	Adjacent	2.00	varies - based on plume width	2.30	13	182.5	7.6923E-02	2.98283E-06
Selby Street (North of Oakdale Ave and South of Newcomb Ave)	62	18.79	varies - AERMAP	SELB3	Adjacent	2.00	varies - based on plume width	2.30	3	83	3.3333E-01	3.55454E-05
Selby Street (North of Newcomb Ave and South of McKinnon Ave)	62	18.79	varies - AERMAP	SELB4	Adjacent	2.00	varies - based on plume width	2.30	3	86	3.3333E-01	3.55454E-05
Selby Street (North of McKinnon Ave and South of Kirkwood Ave)	62	18.79	varies - AERMAP	SELB5	Adjacent	2.00	varies - based on plume width	2.30	7	168.1	1.4286E-01	1.93884E-05
Oakdale Ave (West of Toland St and East of Selby Street)	41	12.64	varies - AERMAP	OAKD2	Adjacent	2.00	varies - based on plume width	2.30	10	177.3	1.0000E-01	4.84710E-06
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	53	16.14	varies - AERMAP	INDU1	Adjacent	2.00	varies - based on plume width	2.30	29	647.3	3.4483E-02	2.00570E-06

Operations: Last-Mile Road Segments

Road	Road Width (ft)	Road Width (m)	Base Elevation	SourceID	SourceID Prefix	Line Volume Src Type	Plume Height (m)	Plume Width (m)	Release Height (m) from 2020 CityWide	Initial Lateral Dimension (m)	Initial Vertical Dimension (m) from 2020 CityWide	# Volume Sources	Total Length (m)	g/s per vol (1 g/s)	Total PM2.5 (g/s/vol)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	29.11	8.87	varies - AERMAP	TOLAN1	TOL1	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	10	155.7	0.1000	5.71107E-06
Oakdale Ave (West of Toland St and East of Loomis St)	41.48	12.64	varies - AERMAP	OAKD1	OAK1	Adjacent	4.945	12.64	2.00	varies - based on plume width	2.30	21	395	0.0476	2.71956E-06
Oakdale Ave (East of Toland St and West of Industrial St)	41.48	12.64	varies - AERMAP	OAKD2	OAK2	Adjacent	4.945	12.64	2.00	varies - based on plume width	2.30	10	177.3	0.1000	5.71107E-06
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	52.95	16.14	varies - AERMAP	INDU1	IND1	Adjacent	4.945	16.14	2.00	varies - based on plume width	2.30	29	641.5	0.0345	1.96933E-06
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	29.11	8.87	varies - AERMAP	TOLAN2	TOL2	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	12	173	0.0833	4.75922E-06
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	29.11	8.87	varies - AERMAP	TOLAN3	TOL3	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	6	90.8	0.1667	9.51845E-06
Toland Street (North of Jerrold Ave and South of Galvez Ave)	29.11	8.87	varies - AERMAP	TOLAN4	TOL4	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	15	428.2	0.0667	5.02363E-07
Jerrold Ave (West of Toland St and East of Napolean St)	45.96	14.01	varies - AERMAP	JERR1	JER1	Adjacent	4.945	14.01	2.00	varies - based on plume width	2.30	14	287.3	0.0714	4.07933E-06
Rankin St (North of Kirkwood Ave and South of Jerrold Ave)	27.45	8.37	varies - AERMAP	RANK1	RAN1	Adjacent	4.945	8.37	2.00	varies - based on plume width	2.30	5	70	0.2000	1.50709E-06
Jerrold Ave (West of Rankin St and East of Phelps St)	47.93	14.61	varies - AERMAP	JERR2	JER2	Adjacent	4.945	14.61	2.00	varies - based on plume width	2.30	14	293	0.0714	5.38246E-07
Barneveld Ave (North of Oakdale Ave and South of McKinnon Ave)	30.01	9.15	varies - AERMAP	BARNE1	BAR1	Adjacent	4.945	9.15	2.00	varies - based on plume width	2.30	12	177.7	0.0833	6.27953E-07
Newcomb Ave (East of Barneveld Ave and West of Toland St)	21.08	6.43	varies - AERMAP	NEWC1	NEW1	Adjacent	4.945	6.43	2.00	varies - based on plume width	2.30	20	242.5	0.0500	3.76772E-07
McKinnon Ave (East of Barneveld Ave and West of Toland St)	32.72	9.97	varies - AERMAP	MCKI1	MCK1	Adjacent	4.945	9.97	2.00	varies - based on plume width	2.30	18	280.7	0.0556	4.18635E-07
Toland Place (North of McKinnon Ave and West of Toland St)	27.18	8.28	varies - AERMAP	TOLANP	TOLP	Adjacent	4.945	8.28	2.00	varies - based on plume width	2.30	11	161.3	0.0909	6.85040E-07
Upton St (North of McKinnon Ave and South of Jerrold Ave)	19.11	5.82	varies - AERMAP	UPTON1	UPT1	Adjacent	4.945	5.82	2.00	varies - based on plume width	2.30	20	241.2	0.0500	3.76772E-07
Hudson Ave (East of Toland St and West of Selby St)	39.03	11.90	varies - AERMAP	HUDSO1	HUD1	Adjacent	4.945	11.90	2.00	varies - based on plume width	2.30	10	182.7	0.1000	7.53544E-07
Innes Ave (East of Milton Ross Ln and West of Selby St)	38.35	11.69	varies - AERMAP	INNES1	INN1	Adjacent	4.945	11.69	2.00	varies - based on plume width	2.30	8	134.6	0.1250	9.41930E-07
Innes Ave (East of Selby St and West of Rankin St)	38.35	11.69	varies - AERMAP	INNES2	INN2	Adjacent	4.945	11.69	2.00	varies - based on plume width	2.30	9	157.7	0.1111	8.37271E-07
Milton Ross Ln (North of Jerrold Ave and South of Innes Ave)	18.13	5.53	varies - AERMAP	MILTO1	MIL1	Adjacent	4.945	5.53	2.00	varies - based on plume width	2.30	5	63.2	0.2000	1.50709E-06
Milton Ross Ln (North of Kirkwood Ave and South of Jerrold Ave)	18.36	5.60	varies - AERMAP	MILTO2	MIL2	Adjacent	4.945	5.60	2.00	varies - based on plume width	2.30	8	87.7	0.1250	9.41930E-07
Jerrold Ave - West Bound (East of Toland St and West of Selby St)	11.01	3.36	varies - AERMAP	JERR3	JER3	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	20	185.3	0.0500	3.76772E-07
Jerrold Ave - West Bound (East of Selby St and West of Rankin St)	11.01	3.36	varies - AERMAP	JERR4	JER4	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	19	181.7	0.0526	3.96602E-07
Jerrold Ave - East Bound (East of Toland St and West of Selby St)	11.01	3.36	varies - AERMAP	JERR5	JER5	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	20	187.2	0.0500	3.76772E-07
Jerrold Ave - East Bound (East of Selby St and West of Rankin St)	11.01	3.36	varies - AERMAP	JERR6	JER6	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	20	183.4	0.0500	3.76772E-07
Kirkwood Ave (East of Milton Ross Ln and West of Selby St)	21.48	6.55	varies - AERMAP	KIRK1	KIR1	Adjacent	4.945	6.55	2.00	varies - based on plume width	2.30	12	146	0.0833	6.27953E-07
Kirkwood Ave (East of Selby St and West of Rankin St)	31.17	9.50	varies - AERMAP	KIRK2	KIR2	Adjacent	4.945	9.50	2.00	varies - based on plume width	2.30	12	180.6	0.0833	6.27953E-07
Rankin St (South of Kirkwood Ave and North of McKinnon Ave)	35.79	10.91	varies - AERMAP	RANK2	RAN2	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	11	178.9	0.0909	6.85040E-07
McKinnon Ave (East of Selby St and West of Rankin St)	28.19	8.59	varies - AERMAP	MCKI2	MCK2	Adjacent	4.945	8.59	2.00	varies - based on plume width	2.30	13	186.2	0.0769	5.79649E-07
McKinnon Ave (East of Toland St and West of Selby St)	26.29	8.01	varies - AERMAP	MCKI3	MCK3	Adjacent	4.945	8.01	2.00	varies - based on plume width	2.30	13	182.5	0.0769	5.79649E-07
Newcomb Ave (East of Toland St and West of Selby St)	14.77	4.50	varies - AERMAP	NEWC2	NEW2	Adjacent	4.945	4.50	2.00	varies - based on plume width	2.30	17	183.7	0.0588	4.43261E-07

Newcomb Ave (East of Selby St and West of Quint St)	36.11	11.01	varies - AERMAP	NEWC3	NEW3	Adjacent	4.945	11.01	2.00	varies - based on plume width	2.30	23	383.5	0.0435	3.27628E-07
Oakdale Ave (East of Selby St and West of Rankin St)	21.78	6.64	varies - AERMAP	OAKD3	OAK3	Adjacent	4.945	6.64	2.00	varies - based on plume width	2.30	14	177	0.0714	4.07933E-06
Oakdale Ave (East of Rankin St and West of Quint St)	22.23	6.78	varies - AERMAP	OAKD4	OAK4	Adjacent	4.945	6.78	2.00	varies - based on plume width	2.30	14	182.1	0.0714	4.07933E-06
Palou Ave (East of Industrial St and West of Selby St)	33.78	10.30	varies - AERMAP	PALO1	PAL1	Adjacent	4.945	10.30	2.00	varies - based on plume width	2.30	3	50	0.3333	2.51181E-06
Palou Ave (East of Selby St and West of Rankin St)	34.57	10.54	varies - AERMAP	PALO2	PAL2	Adjacent	4.945	10.54	2.00	varies - based on plume width	2.30	11	180.1	0.0909	6.85040E-07
Palou Ave (East of Rankin St and West of Silver Ave)	36.34	11.08	varies - AERMAP	PALO3	PAL3	Adjacent	4.945	11.08	2.00	varies - based on plume width	2.30	10	167.1	0.1000	7.53544E-07
Oakdale Ave (East of Quint St and West of Dunshee St)	24.01	7.32	varies - AERMAP	OAKD5	OAK5	Adjacent	4.945	7.32	2.00	varies - based on plume width	2.30	4	47	0.2500	1.88386E-06
Qunit St (North of Palou Ave and South of Oakdale Ave)	30.60	9.33	varies - AERMAP	QUIN1	QUI1	Adjacent	4.945	9.33	2.00	varies - based on plume width	2.30	5	70.6	0.2000	1.50709E-06
Qunit St (North of Oakdale Ave and South of Newcomb Ave)	30.60	9.33	varies - AERMAP	QUIN2	QUI2	Adjacent	4.945	9.33	2.00	varies - based on plume width	2.30	5	82.5	0.2000	1.50709E-06
Rankin St (North of Quesada Ave and South of Palou Ave)	17.49	5.33	varies - AERMAP	RANK3	RAN3	Adjacent	4.945	5.33	2.00	varies - based on plume width	2.30	5	57.7	0.2000	1.50709E-06
Rankin St (North of Palou Ave and South of Oakdale Ave)	21.83	6.65	varies - AERMAP	RANK4	RAN4	Adjacent	4.945	6.65	2.00	varies - based on plume width	2.30	6	76.6	0.1667	1.25591E-06
Rankin St (North of Oakdale Ave and South of Newcomb)	21.83	6.65	varies - AERMAP	RANK5	RAN5	Adjacent	4.945	6.65	2.00	varies - based on plume width	2.30	6	74.4	0.1667	1.25591E-06
Palou Ave (East of Baneveld Ave and West of Industrial St)	32.31	9.85	varies - AERMAP	PALO4	PAL4	Adjacent	4.945	9.85	2.00	varies - based on plume width	2.30	19	295.6	0.0526	3.96602E-07
Dorman Ave (North of Barneveld Ave and South of Palou Ave)	24.39	7.43	varies - AERMAP	DORM1	DOR1	Adjacent	4.945	7.43	2.00	varies - based on plume width	2.30	6	86.7	0.1667	1.25591E-06
Apparel Way	16.67	5.08	varies - AERMAP	APPA1	APP1	Adjacent	4.945	5.08	2.00	varies - based on plume width	2.30	12	129.6	0.0833	6.27953E-07
Selby St (North of Quesada Ave and South of Palou Ave)	61.65	18.79	varies - AERMAP	SELB1	SEL1	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	2	61	0.5000	3.76772E-06
Selby St (North of Palou Ave and South of Oakdale Ave)	61.65	18.79	varies - AERMAP	SELB2	SEL2	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	3	86.6	0.3333	2.51181E-06
Selby St (North of Oakdale Ave and South of Newcomb Ave)	61.65	18.79	varies - AERMAP	SELB3	SEL3	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	3	83	0.3333	1.90369E-05
Selby St (North of Newcomb Ave and South of McKinnon Ave)	61.65	18.79	varies - AERMAP	SELB4	SEL4	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	3	86	0.3333	2.51181E-06
Selby St (North of McKinnon Ave and South of Kirkwood Ave)	61.65	18.79	varies - AERMAP	SELB5	SEL5	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	7	168.1	0.1429	1.07649E-06
Selby St (North of Kirkwood Ave and South of Jerrold Ave - West Bound)	61.65	18.79	varies - AERMAP	SELB6	SEL6	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	4	103.4	0.2500	1.88386E-06
Selby St (North of Jerrold Ave - West Bound and South of Innes Ave)	61.65	18.79	varies - AERMAP	SELB7	SEL7	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	2	60.6	0.5000	3.76772E-06
Selby St (North of Innes Ave and South of Galvez Ave)	61.65	18.79	varies - AERMAP	SELB8	SEL8	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	6	138.5	0.1667	1.25591E-06
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	63	19.07	varies - AERMAP	BAYSH1	BAY1	Adjacent	4.945	19.07	2.00	varies - based on plume width	2.30	24	596	0.0417	2.37961E-06
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	37.50	11.43	varies - AERMAP	INDUS1	IND1	Adjacent	4.945	11.43	2.00	varies - based on plume width	2.30	14	236.7	0.0714	4.07933E-06
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	63	19.07	varies - AERMAP	BAYSH2	BAY2	Adjacent	4.945	19.07	2.00	varies - based on plume width	2.30	11	267.7	0.0909	5.19188E-06
Onramp to US 101 from Bayshore Blvd	42	12.84	varies - AERMAP	BAYSH3	BAY3	Adjacent	4.945	12.84	2.00	varies - based on plume width	2.30	18	331.9	0.0556	3.17282E-06
Barneveld Ave (North of Industrial St and South of Oakdale Ave)	35.81	10.91	varies - AERMAP	BARN2	BAR2	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	22	365.4	0.0455	3.42520E-07
Loomis St (North of Industrial St and South of Oakdale Ave)	35.81	10.91	varies - AERMAP	LOOM1	LOM1	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	28	467.1	0.0357	2.69123E-07
Loomis St (North of Oakdale Ave and South of McKinnon Ave)	35.81	10.91	varies - AERMAP	LOOM2	LOM2	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	10	167.6	0.1000	7.53544E-07
Elmira St (South of Industrial St)	39.22	11.95	varies - AERMAP	ELMIR	ELM	Adjacent	4.945	11.95	2.00	varies - based on plume width	2.30	19	343	0.0526	3.96602E-07
Charter Oak Ave (South of Industrial St)	39.22	11.95	varies - AERMAP	COA	COA	Adjacent	4.945	11.95	2.00	varies - based on plume width	2.30	11	192	0.0909	6.85040E-07
Boutwell St (South of Industrial St)	39.22	11.95	varies - AERMAP	BOUT	BOUT	Adjacent	4.945	11.95	2.00	varies - based on plume width	2.30	11	192.5	0.0909	6.85040E-07

San Bruno Ave (South of Alemany Blvd and North of Hale St)	43.03	13.12	varies - AERMAP	SANB	SANB	Adjacent	4.945	13.12	2.00	varies - based on plume width	2.30	24	468.4	0.0417	3.13977E-07
Alemany Blvd (South of Industrial St and North of Putnam St)	34.91	10.64	varies - AERMAP	ALEM	ALEM	Adjacent	4.945	10.64	2.00	varies - based on plume width	2.30	16	263.8	0.0625	3.56942E-06
Putnam St (North of Alemany Blvd and South of Cortland Ave)	23.45	7.15	varies - AERMAP	PUTN1	PUT1	Adjacent	4.945	7.15	2.00	varies - based on plume width	2.30	42	550.3	0.0238	1.79415E-07
Courtland Ave (East of Putnam St and West of Bayshore Blvd)	40.50	12.34	varies - AERMAP	COURT1	COR1	Adjacent	4.945	12.34	2.00	varies - based on plume width	2.30	17	320	0.0588	4.43261E-07
Tompkins Ave (East of Putnam St and West of Peralta Ave)	22.57	6.88	varies - AERMAP	TOMP1	TOM1	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	12	158.5	0.0833	6.27953E-07
Bradford St (South of Cortland Ave) and Jarboe Ave (East of Putnam St)	22.57	6.88	varies - AERMAP	BRAD1	BRA1	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	21	274.1	0.0476	3.58830E-07
Bradford St (South of Powhattan Ave and North of Cortland Ave)	22.57	6.88	varies - AERMAP	BRAD2	BRA2	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	13	170.6	0.0769	5.79649E-07
Franconia St/Brewster St (North of Powhattan Ave and South of Montcalm St)	22.57	6.88	varies - AERMAP	FRAN1	FRA1	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	61	788.5	0.0164	1.23532E-07
Holladay Ave (North of Franconia St and South of Peralta Ave)	30.04	9.16	varies - AERMAP	HOLL1	HOL1	Adjacent	4.945	9.16	2.00	varies - based on plume width	2.30	49	737	0.0204	1.53784E-07
Potrero Ave (South of 24th St and North of Cesar Chavez St)	83.70	25.51	varies - AERMAP	POTR1	POT1	Adjacent	4.945	25.51	2.00	varies - based on plume width	2.30	13	404.8	0.0769	4.39313E-06
Cesar Chavez St (East of York St and West of Kansas St)	72.04	21.96	varies - AERMAP	CESAR1	CES1	Adjacent	4.945	21.96	2.00	varies - based on plume width	2.30	19	538.1	0.0526	3.00583E-06
East Ramp of Cesar Chavez St onto Bayshore Blvd	29.84	9.10	varies - AERMAP	BAYSH5	BAY5	Adjacent	4.945	9.10	2.00	varies - based on plume width	2.30	32	489.6	0.0313	1.78471E-06
Bayshore Blvd (South of Potrero Ave and North of Marin St)	29.84	9.10	varies - AERMAP	BAYSH6	BAY6	Adjacent	4.945	9.10	2.00	varies - based on plume width	2.30	11	159.2	0.0909	5.19188E-06
Peralta Ave (West of Holladay Ave and East of York St)	38.90	11.86	varies - AERMAP	PERA1	PER1	Adjacent	4.945	11.86	2.00	varies - based on plume width	2.30	10	171.4	0.1000	7.53544E-07
York St (North of Holladay Ave and South of Cesar Chavez St)	29.47	8.98	varies - AERMAP	YORK1	YOR1	Adjacent	4.945	8.98	2.00	varies - based on plume width	2.30	21	314.4	0.0476	3.58830E-07
Rhode Island St (North of 26th St and South of 23rd St)	37.70	11.49	varies - AERMAP	RHODE1	RHO1	Adjacent	4.945	11.49	2.00	varies - based on plume width	2.30	25	433.6	0.0400	3.01418E-07
Kansas St (North of 26th St and South of 23rd St)	37.70	11.49	varies - AERMAP	KANSAS	KANS	Adjacent	4.945	11.49	2.00	varies - based on plume width	2.30	25	430.9	0.0400	3.01418E-07
Vermont St (North of 25th St and South of 23rd St)	37.70	11.49	varies - AERMAP	VERMT	VERM	Adjacent	4.945	11.49	2.00	varies - based on plume width	2.30	21	359.4	0.0476	3.58830E-07
San Bruno Ave (South of 23rd St and North of Cesar Chavez St)	33.01	10.06	varies - AERMAP	SANBR	SAN1	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	34	549.1	0.0294	2.21631E-07
26th St (North of Cesar Chavez St and West of Blair Terrace	33.01	10.06	varies - AERMAP	S26S	S26S	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	22	351.7	0.0455	3.42520E-07
24th St (East of Potrero Ave and West of Vermont Ave)	33.01	10.06	varies - AERMAP	S24S	S24S	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	16	250.6	0.0625	4.70965E-07
Barneveld Ave (North of McKinnon Ave and South of Jerrold Ave)	35.81	10.91	varies - AERMAP	BARN3	BAR3	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	16	269.5	0.0625	4.70965E-07
Marin St (East of Bayshore Blvd and South of Cesar Chavez St)	29.90	9.11	varies - AERMAP	MARIN1	MAR1	Adjacent	4.945	9.11	2.00	varies - based on plume width	2.30	17	260.9	0.0588	4.43261E-07
Cesar Chavez St (East of Kansas St)	40.97	12.49	varies - AERMAP	CESAR2	CES2	Adjacent	4.945	12.49	2.00	varies - based on plume width	2.30	8	146.4	0.1250	9.41930E-07
25th St (East of Potrero Ave and West of Vermont St)	33.01	10.06	varies - AERMAP	S25S	S25S	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	9	146.2	0.1111	8.37271E-07
Quesada Ave (East of Industrial St and West of Rankin St)	33.87	10.32	varies - AERMAP	QUESA1	QUE1	Adjacent	4.945	10.32	2.00	varies - based on plume width	2.30	10	168.7	0.1000	7.53544E-07
Revere Ave (East of Industrial St and West of Selby St)	33.87	10.32	varies - AERMAP	REVE1	REV1	Adjacent	4.945	10.32	2.00	varies - based on plume width	2.30	9	152.7	0.1111	8.37271E-07
Gaven St (South of San Bruno Ave and North of Merrill St)	26.82	8.17	varies - AERMAP	GAVEN1	GAV1	Adjacent	4.945	8.17	2.00	varies - based on plume width	2.30	15	211.6	0.0667	5.02363E-07

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Industrial Street (South Bayshore Blvd onto Alemany Blvd)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Jerrold Ave (East of Bayshore Blvd and West of Toland Street)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Off-ramp of US 101 onto Industrial St	Onramp to US 101 from Industrial St	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Off-ramp of US 101 onto Bayshore Blvd	Kirkwood Ave (East of Toland Street and West of Selby Street)	Kirkwood Ave (East Selby Street and West of Rankin Street)	Rankin Street (South of Kirkwood Ave and North of McKinnon Ave)	McKinnon Ave (East of Selby Street and West of Rankin Street)	McKinnon Ave (East of Toland Street and West of Selby Street)	Selby Street (North of Oakdale Ave and South of Newcomb Ave)	Selby Street (North of Newcomb Ave and South of McKinnon Ave)	Selby Street (North of McKinnon Ave and South of Kirkwood Ave)	Oakdale Ave (West of Toland St and East of Selby Street)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)
	(% of TOG)	TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	JERR1	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	SELB3	SELB4	SELB5	OAKD2	INDU1
Acetaldehyde	0.28%	0.000979815	0.0058789	0.005879	0.003919	0.0078385	0.007839	0.00098	0.0009798	0.0058789	0.004899075	0.007839	0.0048991	0.0039193	0.0029394	0.0029394	0.0029394	0.0039193	0.010778	0.010778	0.0137174	0.004899075	0.00587889
Acrolein	0.13%	0.000454914	0.0027295	0.002729	0.00182	0.0036393	0.003639	0.000455	0.0004549	0.0027295	0.002274571	0.003639	0.0022746	0.0018197	0.0013647	0.0013647	0.0013647	0.0018197	0.0050041	0.0050041	0.0063688	0.002274571	0.00272948
Benzene	2.47%	0.008643369	0.0518602	0.05186	0.034573	0.069147	0.069147	0.008643	0.0086434	0.0518602	0.043216844	0.069147	0.0432168	0.0345735	0.0259301	0.0259301	0.0259301	0.0345735	0.0950771	0.0950771	0.1210072	0.043216844	0.05186021
1,3-Butadiene	0.55%	0.001924637	0.0115478	0.011548	0.007699	0.0153971	0.015397	0.001925	0.0019246	0.0115478	0.009623184	0.015397	0.0096232	0.0076985	0.0057739	0.0057739	0.0057739	0.0076985	0.021171	0.021171	0.0269449	0.009623184	0.01154782
Ethylbenzene	1.05%	0.003674307	0.0220458	0.022046	0.014697	0.0293945	0.029394	0.003674	0.0036743	0.0220458	0.018371533	0.029394	0.0183715	0.0146972	0.0110229	0.0110229	0.0110229	0.0146972	0.0404174	0.0404174	0.0514403	0.018371533	0.02204584
Formaldehyde	1.58%	0.005528957	0.0331737	0.033174	0.022116	0.0442317	0.044232	0.005529	0.005529	0.0331737	0.027644783	0.044232	0.0276448	0.0221158	0.0165869	0.0165869	0.0165869	0.0221158	0.0608185	0.0608185	0.0774054	0.027644783	0.03317374
Hexane	1.60%	0.005598943	0.0335937	0.033594	0.022396	0.0447915	0.044792	0.005599	0.0055989	0.0335937	0.027994717	0.044792	0.0279947	0.0223958	0.0167968	0.0167968	0.0167968	0.0223958	0.0615884	0.0615884	0.0783852	0.027994717	0.03359366
Methanol	0.12%	0.000419921	0.0025195	0.00252	0.00168	0.0033594	0.003359	0.00042	0.0004199	0.0025195	0.002099604	0.003359	0.0020996	0.0016797	0.0012598	0.0012598	0.0012598	0.0016797	0.0046191	0.0046191	0.0058789	0.002099604	0.00251952
Methyl Ethyl Ketone	0.02%	6.99868E-05	0.0004199	0.00042	0.00028	0.0005599	0.00056	7E-05	6.999E-05	0.0004199	0.000349934	0.00056	0.0003499	0.0002799	0.00021	0.00021	0.00021	0.0002799	0.0007699	0.0007699	0.0009798	0.000349934	0.00041992
Naphthalene	0.05%	0.000174967	0.0010498	0.00105	0.0007	0.0013997	0.0014	0.000175	0.000175	0.0010498	0.000874835	0.0014	0.0008748	0.0006999	0.0005249	0.0005249	0.0005249	0.0006999	0.0019246	0.0019246	0.0024495	0.000874835	0.0010498
Propylene	3.06%	0.010707979	0.0642479	0.064248	0.042832	0.0856638	0.085664	0.010708	0.010708	0.0642479	0.053539896	0.085664	0.0535399	0.0428319	0.0321239	0.0321239	0.0321239	0.0428319	0.1177878	0.1177878	0.1499117	0.053539896	0.06424788
Styrene	0.12%	0.000419921	0.0025195	0.00252	0.00168	0.0033594	0.003359	0.00042	0.0004199	0.0025195	0.002099604	0.003359	0.0020996	0.0016797	0.0012598	0.0012598	0.0012598	0.0016797	0.0046191	0.0046191	0.0058789	0.002099604	0.00251952
Toluene	5.76%	0.020156196	0.1209372	0.120937	0.080625	0.1612496	0.16125	0.020156	0.0201562	0.1209372	0.10078098	0.16125	0.100781	0.0806248	0.0604686	0.0604686	0.0604686	0.0806248	0.2217182	0.2217182	0.2821867	0.10078098	0.12093718
Xylenes	4.80%	0.01679683	0.100781	0.100781	0.067187	0.1343746	0.134375	0.016797	0.0167968	0.100781	0.08398415	0.134375	0.0839842	0.0671873	0.0503905	0.0503905	0.0503905	0.0671873	0.1847651	0.1847651	0.2351556	0.08398415	0.10078098
DPM	ton/yr	2.48E-05	1.49E-04	1.49E-04	9.93E-05	1.99E-04	1.99E-04	2.48E-05	2.48E-05	1.49E-04	1.24E-04	1.99E-04	1.24E-04	9.93E-05	7.45E-05	7.45E-05	7.45E-05	9.93E-05	2.73E-04	2.73E-04	3.48E-04	1.24E-04	1.49E-04
DPM	lb/yr	4.97E-02	2.98E-01	2.98E-01	1.99E-01	3.97E-01	3.97E-01	4.97E-02	4.97E-02	2.98E-01	2.48E-01	3.97E-01	2.48E-01	1.99E-01	1.49E-01	1.49E-01	1.49E-01	1.99E-01	5.46E-01	5.46E-01	6.95E-01	2.48E-01	2.98E-01

lb/hr		TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	JERR1	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	SELB3	SELB4	SELB5	OAKD2	INDU1
Acetaldehyde	0.28%	1.11851E-07	6.711E-07	6.71E-07	4.47E-07	8.948E-07	8.95E-07	1.12E-07	1.119E-07	6.711E-07	5.59255E-07	8.95E-07	5.593E-07	4.474E-07	3.356E-07	3.356E-07	3.356E-07	4.474E-07	1.23E-06	1.23E-06	1.566E-06	5.59255E-07	6.7111E-07
Acrolein	0.13%	5.19308E-08	3.116E-07	3.12E-07	2.08E-07	4.154E-07	4.15E-07	5.19E-08	5.193E-08	3.116E-07	2.59654E-07	4.15E-07	2.597E-07	2.077E-07	1.558E-07	1.558E-07	1.558E-07	2.077E-07	5.712E-07	5.712E-07	7.27E-07	2.59654E-07	3.1159E-07
Benzene	2.47%	9.86686E-07	5.92E-06	5.92E-06	3.95E-06	7.893E-06	7.89E-06	9.87E-07	9.867E-07	5.92E-06	4.93343E-06	7.89E-06	4.933E-06	3.947E-06	2.96E-06	2.96E-06	2.96E-06	3.947E-06	1.085E-05	1.085E-05	1.381E-05	4.93343E-06	5.9201E-06
1,3-Butadiene	0.55%	2.19707E-07	1.318E-06	1.32E-06	8.79E-07	1.758E-06	1.76E-06	2.2E-07	2.197E-07	1.318E-06	1.09854E-06	1.76E-06	1.099E-06	8.788E-07	6.591E-07	6.591E-07	6.591E-07	8.788E-07	2.417E-06	2.417E-06	3.076E-06	1.09854E-06	1.3182E-06
Ethylbenzene	1.05%	4.19441E-07	2.517E-06	2.52E-06	1.68E-06	3.356E-06	3.36E-06	4.19E-07	4.194E-07	2.517E-06	2.09721E-06	3.36E-06	2.097E-06	1.678E-06	1.258E-06	1.258E-06	1.258E-06	1.678E-06	4.614E-06	4.614E-06	5.872E-06	2.09721E-06	2.5166E-06
Formaldehyde	1.58%	6.31159E-07	3.787E-06	3.79E-06	2.52E-06	5.049E-06	5.05E-06	6.31E-07	6.312E-07	3.787E-06	3.1558E-06	5.05E-06	3.156E-06	2.525E-06	1.893E-06	1.893E-06	1.893E-06	2.525E-06	6.943E-06	6.943E-06	8.836E-06	3.1558E-06	3.787E-06
Hexane	1.60%	6.39149E-07	3.835E-06	3.83E-06	2.56E-06	5.113E-06	5.11E-06	6.39E-07	6.391E-07	3.835E-06	3.19574E-06	5.11E-06	3.196E-06	2.557E-06	1.917E-06	1.917E-06	1.917E-06	2.557E-06	7.031E-06	7.031E-06	8.948E-06	3.19574E-06	3.8349E-06
Methanol	0.12%	4.79362E-08	2.876E-07	2.88E-07	1.92E-07	3.835E-07	3.83E-07	4.79E-08	4.794E-08	2.876E-07	2.39681E-07	3.83E-07	2.397E-07	1.917E-07	1.438E-07	1.438E-07	1.438E-07	1.917E-07	5.273E-07	5.273E-07	6.711E-07	2.39681E-07	2.8762E-07
Methyl Ethyl Ketone	0.02%	7.98936E-09	4.794E-08	4.79E-08	3.2E-08	6.391E-08	6.39E-08	7.99E-09	7.989E-09	4.794E-08	3.99468E-08	6.39E-08	3.995E-08	3.196E-08	2.397E-08	2.397E-08	2.397E-08	3.196E-08	8.788E-08	8.788E-08	1.119E-07	3.99468E-08	4.7936E-08
Naphthalene	0.05%	1.99734E-08	1.198E-07	1.2E-07	7.99E-08	1.598E-07	1.6E-07	2E-08	1.997E-08	1.198E-07	9.9867E-08	1.6E-07	9.987E-08	7.989E-08	5.992E-08	5.992E-08	5.992E-08	7.989E-08	2.197E-07	2.197E-07	2.796E-07	9.9867E-08	1.1984E-07
Propylene	3.06%	1.22237E-06	7.334E-06	7.33E-06	4.89E-06	9.779E-06	9.78E-06	1.22E-06	1.222E-06	7.334E-06	6.11186E-06	9.78E-06	6.112E-06	4.889E-06	3.667E-06	3.667E-06	3.667E-06	4.889E-06	1.345E-05	1.345E-05	1.711E-05	6.11186E-06	7.3342E-06
Styrene	0.12%	4.79362E-08	2.876E-07	2.88E-07	1.92E-07	3.835E-07	3.83E-07	4.79E-08	4.794E-08	2.876E-07	2.39681E-07	3.83E-07	2.397E-07	1.917E-07	1.438E-07	1.438E-07	1.438E-07	1.917E-07	5.273E-07	5.273E-07	6.711E-07	2.39681E-07	2.8762E-07
Toluene	5.76%	2.30094E-06	1.381E-05	1.38E-05	9.2E-06	1.841E-05	1.84E-05	2.3E-06	2.301E-06	1.381E-05	1.15047E-05	1.84E-05	1.15E-05	9.204E-06	6.903E-06	6.903E-06	6.903E-06	9.204E-06	2.531E-05	2.531E-05	3.221E-05	1.15047E-05	1.3806E-05
Xylenes	4.80%	1.91745E-06	1.15E-05	1.15E-05	7.67E-06	1.534E-05	1.53E-05	1.92E-06	1.917E-06	1.15E-05	9.58723E-06	1.53E-05	9.587E-06	7.67E-06	5.752E-06	5.752E-06	5.752E-06	7.67E-06	2.109E-05	2.109E-05	2.684E-05	9.58723E-06	1.1505E-05

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Oakdale Ave (East of Toland St and West of Industrial St)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Toland Street (North of Jerrold Ave and South of Galvez Ave)	Jerrold Ave (West of Toland St and East of Napolean St)	Rankin St (North of Kirkwood Ave and South of Jerrold Ave)	Jerrold Ave (West of Rankin St and East of Phelps St)	Barneveld Ave (North of Oakdale Ave and South of McKinnon Ave)	Newcomb Ave (East of Barneveld Ave and West of Toland St)	McKinnon Ave (East of Barneveld Ave and West of Toland St)	Toland Place (North of McKinnon Ave and West of Toland St)	Upton St (North of McKinnon Ave and South of Jerrold Ave)	Hudson Ave (East of Toland St and West of Selby St)	Innes Ave (East of Milton Ross Ln and West of Selby St)
	(% of TOG)	TOLAN1	OAKD1	OAKD2	INDU1	TOLAN2	TOLAN3	TOLAN4	JERR1	RANK1	JERR2	BARNE1	NEWC1	MCKI1	TOLANP	UPTON1	HUDSO1	INNES1
Acetaldehyde	0.28%	0.005678232	0.005678232	0.005678232	0.005678232	0.005678232	0.005678232	0.000749211	0.005678232	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211
Acrolein	0.13%	0.002636322	0.002636322	0.002636322	0.002636322	0.002636322	0.002636322	0.000347848	0.002636322	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848
Benzene	2.47%	0.050090119	0.050090119	0.050090119	0.050090119	0.050090119	0.050090119	0.006609113	0.050090119	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113
1,3-Butadiene	0.55%	0.01115367	0.01115367	0.01115367	0.01115367	0.01115367	0.01115367	0.001471665	0.01115367	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665
Ethylbenzene	1.05%	0.02129337	0.02129337	0.02129337	0.02129337	0.02129337	0.02129337	0.002809542	0.02129337	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542
Formaldehyde	1.58%	0.032041452	0.032041452	0.032041452	0.032041452	0.032041452	0.032041452	0.004227692	0.032041452	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692
Hexane	1.60%	0.03244704	0.03244704	0.03244704	0.03244704	0.03244704	0.03244704	0.004281207	0.03244704	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207
Methanol	0.12%	0.002433528	0.002433528	0.002433528	0.002433528	0.002433528	0.002433528	0.000321091	0.002433528	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091
Methyl Ethyl Ketone	0.02%	0.000405588	0.000405588	0.000405588	0.000405588	0.000405588	0.000405588	5.35151E-05	0.000405588	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05
Naphthalene	0.05%	0.00101397	0.00101397	0.00101397	0.00101397	0.00101397	0.00101397	0.000133788	0.00101397	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788
Propylene	3.06%	0.062054965	0.062054965	0.062054965	0.062054965	0.062054965	0.062054965	0.008187808	0.062054965	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808
Styrene	0.12%	0.002433528	0.002433528	0.002433528	0.002433528	0.002433528	0.002433528	0.000321091	0.002433528	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091
Toluene	5.76%	0.116809346	0.116809346	0.116809346	0.116809346	0.116809346	0.116809346	0.015412344	0.116809346	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344
Xylenes	4.80%	0.097341121	0.097341121	0.097341121	0.097341121	0.097341121	0.097341121	0.01284362	0.097341121	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362
DPM	ton/yr	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	7.78E-06	5.90E-05	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06
DPM	lb/yr	1.18E-01	1.18E-01	1.18E-01	1.18E-01	1.18E-01	1.18E-01	1.56E-02	1.18E-01	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02

lb/hr	(% of TOG)	TOLAN1	OAKD1	OAKD2	INDU1	TOLAN2	TOLAN3	TOLAN4	JERR1	RANK1	JERR2	BARNE1	NEWC1	MCKI1	TOLANP	UPTON1	HUDSO1	INNES1
Acetaldehyde	0.28%	6.482E-07	6.482E-07	6.482E-07	6.482E-07	6.482E-07	6.482E-07	8.55264E-08	6.482E-07	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08
Acrolein	0.13%	3.0095E-07	3.0095E-07	3.0095E-07	3.0095E-07	3.0095E-07	3.0095E-07	3.97087E-08	3.0095E-07	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08
Benzene	2.47%	5.71805E-06	5.71805E-06	5.71805E-06	5.71805E-06	5.71805E-06	5.71805E-06	7.54465E-07	5.71805E-06	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07
1,3-Butadiene	0.55%	1.27325E-06	1.27325E-06	1.27325E-06	1.27325E-06	1.27325E-06	1.27325E-06	1.67998E-07	1.27325E-06	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07
Ethylbenzene	1.05%	2.43075E-06	2.43075E-06	2.43075E-06	2.43075E-06	2.43075E-06	2.43075E-06	3.20724E-07	2.43075E-06	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07
Formaldehyde	1.58%	3.6577E-06	3.6577E-06	3.6577E-06	3.6577E-06	3.6577E-06	3.6577E-06	4.82613E-07	3.6577E-06	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07
Hexane	1.60%	3.704E-06	3.704E-06	3.704E-06	3.704E-06	3.704E-06	3.704E-06	4.88722E-07	3.704E-06	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07
Methanol	0.12%	2.778E-07	2.778E-07	2.778E-07	2.778E-07	2.778E-07	2.778E-07	3.66542E-08	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08
Methyl Ethyl Ketone	0.02%	4.63E-08	4.63E-08	4.63E-08	4.63E-08	4.63E-08	4.63E-08	6.10903E-09	4.63E-08	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09
Naphthalene	0.05%	1.1575E-07	1.1575E-07	1.1575E-07	1.1575E-07	1.1575E-07	1.1575E-07	1.52726E-08	1.1575E-07	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08
Propylene	3.06%	7.0839E-06	7.0839E-06	7.0839E-06	7.0839E-06	7.0839E-06	7.0839E-06	9.34681E-07	7.0839E-06	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07
Styrene	0.12%	2.778E-07	2.778E-07	2.778E-07	2.778E-07	2.778E-07	2.778E-07	3.66542E-08	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08
Toluene	5.76%	1.33344E-05	1.33344E-05	1.33344E-05	1.33344E-05	1.33344E-05	1.33344E-05	1.7594E-06	1.33344E-05	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06
Xylenes	4.80%	1.1112E-05	1.1112E-05	1.1112E-05	1.1112E-05	1.1112E-05	1.1112E-05	1.46617E-06	1.1112E-05	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Innes Ave (East of Selby St and West of Rankin St)	Milton Ross Ln (North of Jerrold Ave and South of Innes Ave)	Milton Ross Ln (North of Kirkwood Ave and South of Jerrold Ave)	Jerrold Ave - West Bound (East of Toland St and West of Selby St)	Jerrold Ave - West Bound (East of Selby St and West of Rankin St)	Jerrold Ave - East Bound (East of Toland St and West of Selby St)	Jerrold Ave - East Bound (East of Selby St and West of Rankin St)	Kirkwood Ave (East of Milton Ross Ln and West of Selby St)	Kirkwood Ave (East of Selby St and West of Rankin St)	Rankin St (South of Kirkwood Ave and North of McKinnon Ave)	McKinnon Ave (East of Selby St and West of Rankin St)	McKinnon Ave (East of Toland St and West of Selby St)	Newcomb Ave (East of Toland St and West of Selby St)	Newcomb Ave (East of Selby St and West of Quint St)	Oakdale Ave (East of Selby St and West of Rankin St)	Oakdale Ave (East of Rankin St and West of Quint St)	Palou Ave (East of Industrial St and West of Selby St)
	(% of TOG)	INNES2	MILTO1	MILTO2	JERR3	JERR4	JERR5	JERR6	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	NEWC2	NEWC3	OAKD3	OAKD4	PALO1
Acetaldehyde	0.28%	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.005678232	0.005678232	0.000749211
Acrolein	0.13%	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.002636322	0.002636322	0.000347848
Benzene	2.47%	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.050090119	0.050090119	0.006609113
1,3-Butadiene	0.55%	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.01115367	0.01115367	0.001471665
Ethylbenzene	1.05%	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.02129337	0.02129337	0.002809542
Formaldehyde	1.58%	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.032041452	0.032041452	0.004227692
Hexane	1.60%	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.03244704	0.03244704	0.004281207
Methanol	0.12%	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.002433528	0.000321091
Methyl Ethyl Ketone	0.02%	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	0.000405588	0.000405588	5.35151E-05
Naphthalene	0.05%	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.00101397	0.00101397	0.000133788
Propylene	3.06%	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.062054965	0.062054965	0.008187808
Styrene	0.12%	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.002433528	0.000321091
Toluene	5.76%	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.116809346	0.116809346	0.015412344
Xylenes	4.80%	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.097341121	0.097341121	0.01284362
DPM	ton/yr	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	5.90E-05	5.90E-05	7.78E-06
DPM	lb/yr	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.18E-01	1.18E-01	1.56E-02

lb/hr	(% of TOG)	INNES2	MILTO1	MILTO2	JERR3	JERR4	JERR5	JERR6	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	NEWC2	NEWC3	OAKD3	OAKD4	PALO1
Acetaldehyde	0.28%	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	6.482E-07	6.482E-07	8.55264E-08
Acrolein	0.13%	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.0095E-07	3.0095E-07	3.97087E-08
Benzene	2.47%	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	5.71805E-06	5.71805E-06	7.54465E-07
1,3-Butadiene	0.55%	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.27325E-06	1.27325E-06	1.67998E-07
Ethylbenzene	1.05%	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	2.43075E-06	2.43075E-06	3.20724E-07
Formaldehyde	1.58%	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	3.6577E-06	3.6577E-06	4.82613E-07
Hexane	1.60%	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	3.704E-06	3.704E-06	4.88722E-07
Methanol	0.12%	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	2.778E-07	3.66542E-08
Methyl Ethyl Ketone	0.02%	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	4.63E-08	4.63E-08	6.10903E-09
Naphthalene	0.05%	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.1575E-07	1.1575E-07	1.52726E-08
Propylene	3.06%	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	7.0839E-06	7.0839E-06	9.34681E-07
Styrene	0.12%	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	2.778E-07	3.66542E-08
Toluene	5.76%	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.33344E-05	1.33344E-05	1.7594E-06
Xylenes	4.80%	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.1112E-05	1.1112E-05	1.46617E-06

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Palou Ave (East of Selby St and West of Rankin St)	Palou Ave (East of Rankin St and West of Silver Ave)	Oakdale Ave (East of Quint St and West of Dunshee St)	Qunit St (North of Palou Ave and South of Oakdale Ave)	Qunit St (North of Oakdale Ave and South of Newcomb Ave)	Rankin St (North of Quesada Ave and South of Palou Ave)	Rankin St (North of Palou Ave and South of Oakdale Ave)	Rankin St (North of Oakdale Ave and South of Newcomb)	Palou Ave (East of Baneveld Ave and West of Industrial St)	Dorman Ave (North of Barneveld Ave and South of Palou Ave)	Apparel Way	Selby St (North of Quesada Ave and South of Palou Ave)	Selby St (North of Palou Ave and South of Oakdale Ave)	Selby St (North of Oakdale Ave and South of Newcomb Ave)	Selby St (North of Newcomb Ave and South of McKinnon Ave)	Selby St (North of McKinnon Ave and South of Kirkwood Ave)	Selby St (North of Kirkwood Ave and South of Jerrold Ave - West Bound)
	(% of TOG)	PALO2	PALO3	OAKD5	QUIN1	QUIN2	RANK3	RANK4	RANK5	PALO4	DORM1	APPA1	SELB1	SELB2	SELB3	SELB4	SELB5	SELB6
Acetaldehyde	0.28%	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.005678232	0.000749211	0.000749211	0.000749211
Acrolein	0.13%	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.002636322	0.000347848	0.000347848	0.000347848
Benzene	2.47%	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.050090119	0.006609113	0.006609113	0.006609113
1,3-Butadiene	0.55%	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.01115367	0.001471665	0.001471665	0.001471665
Ethylbenzene	1.05%	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.02129337	0.002809542	0.002809542	0.002809542
Formaldehyde	1.58%	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.032041452	0.004227692	0.004227692	0.004227692
Hexane	1.60%	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.03244704	0.004281207	0.004281207	0.004281207
Methanol	0.12%	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.000321091	0.000321091	0.000321091
Methyl Ethyl Ketone	0.02%	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	0.000405588	5.35151E-05	5.35151E-05	5.35151E-05
Naphthalene	0.05%	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.00101397	0.000133788	0.000133788	0.000133788
Propylene	3.06%	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.062054965	0.008187808	0.008187808	0.008187808
Styrene	0.12%	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.000321091	0.000321091	0.000321091
Toluene	5.76%	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.116809346	0.015412344	0.015412344	0.015412344
Xylenes	4.80%	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.097341121	0.01284362	0.01284362	0.01284362
DPM	ton/yr	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	5.90E-05	7.78E-06	7.78E-06	7.78E-06
DPM	lb/yr	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.18E-01	1.56E-02	1.56E-02	1.56E-02

lb/hr	(% of TOG)	PALO2	PALO3	OAKD5	QUIN1	QUIN2	RANK3	RANK4	RANK5	PALO4	DORM1	APPA1	SELB1	SELB2	SELB3	SELB4	SELB5	SELB6
Acetaldehyde	0.28%	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	6.482E-07	8.55264E-08	8.55264E-08	8.55264E-08
Acrolein	0.13%	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.0095E-07	3.97087E-08	3.97087E-08	3.97087E-08
Benzene	2.47%	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	5.71805E-06	7.54465E-07	7.54465E-07	7.54465E-07
1,3-Butadiene	0.55%	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.27325E-06	1.67998E-07	1.67998E-07	1.67998E-07
Ethylbenzene	1.05%	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	2.43075E-06	3.20724E-07	3.20724E-07	3.20724E-07
Formaldehyde	1.58%	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	3.6577E-06	4.82613E-07	4.82613E-07	4.82613E-07
Hexane	1.60%	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	3.704E-06	4.88722E-07	4.88722E-07	4.88722E-07
Methanol	0.12%	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08
Methyl Ethyl Ketone	0.02%	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	4.63E-08	6.10903E-09	6.10903E-09	6.10903E-09
Naphthalene	0.05%	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.1575E-07	1.52726E-08	1.52726E-08	1.52726E-08
Propylene	3.06%	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	7.0839E-06	9.34681E-07	9.34681E-07	9.34681E-07
Styrene	0.12%	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08
Toluene	5.76%	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.33344E-05	1.7594E-06	1.7594E-06	1.7594E-06
Xylenes	4.80%	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.1112E-05	1.46617E-06	1.46617E-06	1.46617E-06

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Selby St (North of Jerrold Ave - West Bound and South of Innes Ave)	Selby St (North of Innes Ave and South of Galvez Ave)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Industrial Street (South Bayshore Blvd onto Alemany Blvd)	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Barneveld Ave (North of Industrial St and South of Oakdale Ave)	Loomis St (North of Industrial St and South of Oakdale Ave)	Loomis St (North of Oakdale Ave and South of McKinnon Ave)	Elmira St (South of Industrial St)	Charter Oak Ave (South of Industrial St)	Boutwell St (South of Industrial St)	San Bruno Ave (South of Alemany Blvd and North of Hale St)	Alemany Blvd (South of Industrial St and North of Putnam St)	Putnam St (North of Alemany Blvd and South of Cortland Ave)	Courtland Ave (East of Putnam St and West of Bayshore Blvd)	Tompkins Ave (East of Putnam St and West of Peralta Ave)
	(% of TOG)	SELB7	SELB8	BAYSH1	INDUS1	BAYSH2	BAYSH3	BARN2	LOOM1	LOOM2	ELMIR	COA	BOUT	SANB	ALEM	PUTN1	COURT1	TOMP1
Acetaldehyde	0.28%	0.000749211	0.000749211	0.005678232	0.005678232	0.005678232	0.005678232	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.005678232	0.000749211	0.000749211	0.000749211
Acrolein	0.13%	0.000347848	0.000347848	0.002636322	0.002636322	0.002636322	0.002636322	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.002636322	0.000347848	0.000347848	0.000347848
Benzene	2.47%	0.006609113	0.006609113	0.050090119	0.050090119	0.050090119	0.050090119	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.050090119	0.006609113	0.006609113	0.006609113
1,3-Butadiene	0.55%	0.001471665	0.001471665	0.01115367	0.01115367	0.01115367	0.01115367	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.01115367	0.001471665	0.001471665	0.001471665
Ethylbenzene	1.05%	0.002809542	0.002809542	0.02129337	0.02129337	0.02129337	0.02129337	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.02129337	0.002809542	0.002809542	0.002809542
Formaldehyde	1.58%	0.004227692	0.004227692	0.032041452	0.032041452	0.032041452	0.032041452	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.032041452	0.004227692	0.004227692	0.004227692
Hexane	1.60%	0.004281207	0.004281207	0.03244704	0.03244704	0.03244704	0.03244704	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.03244704	0.004281207	0.004281207	0.004281207
Methanol	0.12%	0.000321091	0.000321091	0.002433528	0.002433528	0.002433528	0.002433528	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.000321091	0.000321091	0.000321091
Methyl Ethyl Ketone	0.02%	5.35151E-05	5.35151E-05	0.000405588	0.000405588	0.000405588	0.000405588	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	0.000405588	5.35151E-05	5.35151E-05	5.35151E-05
Naphthalene	0.05%	0.000133788	0.000133788	0.00101397	0.00101397	0.00101397	0.00101397	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.00101397	0.000133788	0.000133788	0.000133788
Propylene	3.06%	0.008187808	0.008187808	0.062054965	0.062054965	0.062054965	0.062054965	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.062054965	0.008187808	0.008187808	0.008187808
Styrene	0.12%	0.000321091	0.000321091	0.002433528	0.002433528	0.002433528	0.002433528	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.000321091	0.000321091	0.000321091
Toluene	5.76%	0.015412344	0.015412344	0.116809346	0.116809346	0.116809346	0.116809346	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.116809346	0.015412344	0.015412344	0.015412344
Xylenes	4.80%	0.01284362	0.01284362	0.097341121	0.097341121	0.097341121	0.097341121	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.097341121	0.01284362	0.01284362	0.01284362
DPM	ton/yr	7.78E-06	7.78E-06	5.90E-05	5.90E-05	5.90E-05	5.90E-05	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	5.90E-05	7.78E-06	7.78E-06	7.78E-06
DPM	lb/yr	1.56E-02	1.56E-02	1.18E-01	1.18E-01	1.18E-01	1.18E-01	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.18E-01	1.56E-02	1.56E-02	1.56E-02

lb/hr	(% of TOG)	SELB7	SELB8	BAYSH1	INDUS1	BAYSH2	BAYSH3	BARN2	LOOM1	LOOM2	ELMIR	COA	BOUT	SANB	ALEM	PUTN1	COURT1	TOMP1
Acetaldehyde	0.28%	8.55264E-08	8.55264E-08	6.482E-07	6.482E-07	6.482E-07	6.482E-07	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	6.482E-07	8.55264E-08	8.55264E-08	8.55264E-08
Acrolein	0.13%	3.97087E-08	3.97087E-08	3.0095E-07	3.0095E-07	3.0095E-07	3.0095E-07	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.0095E-07	3.97087E-08	3.97087E-08	3.97087E-08
Benzene	2.47%	7.54465E-07	7.54465E-07	5.71805E-06	5.71805E-06	5.71805E-06	5.71805E-06	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	5.71805E-06	7.54465E-07	7.54465E-07	7.54465E-07
1,3-Butadiene	0.55%	1.67998E-07	1.67998E-07	1.27325E-06	1.27325E-06	1.27325E-06	1.27325E-06	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.27325E-06	1.67998E-07	1.67998E-07	1.67998E-07
Ethylbenzene	1.05%	3.20724E-07	3.20724E-07	2.43075E-06	2.43075E-06	2.43075E-06	2.43075E-06	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	2.43075E-06	3.20724E-07	3.20724E-07	3.20724E-07
Formaldehyde	1.58%	4.82613E-07	4.82613E-07	3.6577E-06	3.6577E-06	3.6577E-06	3.6577E-06	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	3.6577E-06	4.82613E-07	4.82613E-07	4.82613E-07
Hexane	1.60%	4.88722E-07	4.88722E-07	3.704E-06	3.704E-06	3.704E-06	3.704E-06	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	3.704E-06	4.88722E-07	4.88722E-07	4.88722E-07
Methanol	0.12%	3.66542E-08	3.66542E-08	2.778E-07	2.778E-07	2.778E-07	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08
Methyl Ethyl Ketone	0.02%	6.10903E-09	6.10903E-09	4.63E-08	4.63E-08	4.63E-08	4.63E-08	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	4.63E-08	6.10903E-09	6.10903E-09	6.10903E-09
Naphthalene	0.05%	1.52726E-08	1.52726E-08	1.1575E-07	1.1575E-07	1.1575E-07	1.1575E-07	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.1575E-07	1.52726E-08	1.52726E-08	1.52726E-08
Propylene	3.06%	9.34681E-07	9.34681E-07	7.0839E-06	7.0839E-06	7.0839E-06	7.0839E-06	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	7.0839E-06	9.34681E-07	9.34681E-07	9.34681E-07
Styrene	0.12%	3.66542E-08	3.66542E-08	2.778E-07	2.778E-07	2.778E-07	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08
Toluene	5.76%	1.7594E-06	1.7594E-06	1.33344E-05	1.33344E-05	1.33344E-05	1.33344E-05	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.33344E-05	1.7594E-06	1.7594E-06	1.7594E-06
Xylenes	4.80%	1.46617E-06	1.46617E-06	1.1112E-05	1.1112E-05	1.1112E-05	1.1112E-05	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.1112E-05	1.46617E-06	1.46617E-06	1.46617E-06

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Bradford St (South of Cortland Ave) and Jarboe Ave (East of Putnam St)	Bradford St (South of Powhattan Ave and North of Cortland Ave)	Franconia St/Brewster St (North of Powhattan Ave and South of Montcalm St)	Holladay Ave (North of Franconia St and South of Peralta Ave)	Potrero Ave (South of 24th St and North of Cesar Chavez St)	Cesar Chavez St (East of York St and West of Kansas St)	East Ramp of Cesar Chavez St onto Bayshore Blvd	Bayshore Blvd (South of Potrero Ave and North of Marin St)	Peralta Ave (West of Holladay Ave and East of York St)	York St (North of Holladay Ave and South of Cesar Chavez St)	Rhode Island St (North of 26th St and South of 23rd St)	Kansas St (North of 26th St and South of 23rd St)	Vermont St (North of 25th St and South of 23rd St)	San Bruno Ave (South of 23rd St and North of Cesar Chavez St)	26th St (North of Cesar Chavez St and West of Blair Terrace	24th St (East of Potrero Ave and West of Vermont Ave)	Barneveld Ave (North of McKinnon Ave and South of Jerrold Ave)	Marin St (East of Bayshore Blvd and South of Cesar Chavez St)	Cesar Chavez St (East of Kansas St)	25th St (East of Potrero Ave and West of Vermont St)	Quesada Ave (East of Industrial St and West of Rankin St)	Revere Ave (East of Industrial St and West of Selby St)	Gaven St (South of San Bruno Ave and North of Merrill St)
	(% of TOG)	BRAD1	BRAD2	FRAN1	HOLL1	POTR1	CESAR1	BAYSH5	BAYSH6	PERA1	YORK1	RHODE1	KANSAS	VERMT	SANBR	S26S	S24S	BARN3	MARIN1	CESAR2	S25S	QUESA1	REVE1	GAVEN1
Acetaldehyde	0.28%	0.000749211	0.000749211	0.000749211	0.000749211	0.005678232	0.005678232	0.005678232	0.005678232	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211	0.000749211
Acrolein	0.13%	0.000347848	0.000347848	0.000347848	0.000347848	0.002636322	0.002636322	0.002636322	0.002636322	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848	0.000347848
Benzene	2.47%	0.006609113	0.006609113	0.006609113	0.006609113	0.050090119	0.050090119	0.050090119	0.050090119	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113	0.006609113
1,3-Butadiene	0.55%	0.001471665	0.001471665	0.001471665	0.001471665	0.01115367	0.01115367	0.01115367	0.01115367	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665	0.001471665
Ethylbenzene	1.05%	0.002809542	0.002809542	0.002809542	0.002809542	0.02129337	0.02129337	0.02129337	0.02129337	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542	0.002809542
Formaldehyde	1.58%	0.004227692	0.004227692	0.004227692	0.004227692	0.032041452	0.032041452	0.032041452	0.032041452	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692	0.004227692
Hexane	1.60%	0.004281207	0.004281207	0.004281207	0.004281207	0.03244704	0.03244704	0.03244704	0.03244704	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207	0.004281207
Methanol	0.12%	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.002433528	0.002433528	0.002433528	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091
Methyl Ethyl Ketone	0.02%	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	0.000405588	0.000405588	0.000405588	0.000405588	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05	5.35151E-05
Naphthalene	0.05%	0.000133788	0.000133788	0.000133788	0.000133788	0.00101397	0.00101397	0.00101397	0.00101397	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788	0.000133788
Propylene	3.06%	0.008187808	0.008187808	0.008187808	0.008187808	0.062054965	0.062054965	0.062054965	0.062054965	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808	0.008187808
Styrene	0.12%	0.000321091	0.000321091	0.000321091	0.000321091	0.002433528	0.002433528	0.002433528	0.002433528	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091	0.000321091
Toluene	5.76%	0.015412344	0.015412344	0.015412344	0.015412344	0.116809346	0.116809346	0.116809346	0.116809346	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344	0.015412344
Xylenes	4.80%	0.01284362	0.01284362	0.01284362	0.01284362	0.097341121	0.097341121	0.097341121	0.097341121	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362	0.01284362
DPM	ton/yr	7.78E-06	7.78E-06	7.78E-06	7.78E-06	5.90E-05	5.90E-05	5.90E-05	5.90E-05	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06	7.78E-06
DPM	lb/yr	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.18E-01	1.18E-01	1.18E-01	1.18E-01	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02	1.56E-02

lb/hr	(% of TOG)	BRAD1	BRAD2	FRAN1	HOLL1	POTR1	CESAR1	BAYSH5	BAYSH6	PERA1	YORK1	RHODE1	KANSAS	VERMT	SANBR	S26S	S24S	BARN3	MARIN1	CESAR2	S25S	QUESA1	REVE1	GAVEN1
Acetaldehyde	0.28%	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	6.482E-07	6.482E-07	6.482E-07	6.482E-07	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08	8.55264E-08
Acrolein	0.13%	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.0095E-07	3.0095E-07	3.0095E-07	3.0095E-07	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08	3.97087E-08
Benzene	2.47%	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	5.71805E-06	5.71805E-06	5.71805E-06	5.71805E-06	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07	7.54465E-07
1,3-Butadiene	0.55%	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.27325E-06	1.27325E-06	1.27325E-06	1.27325E-06	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07	1.67998E-07
Ethylbenzene	1.05%	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	2.43075E-06	2.43075E-06	2.43075E-06	2.43075E-06	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07	3.20724E-07
Formaldehyde	1.58%	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	3.6577E-06	3.6577E-06	3.6577E-06	3.6577E-06	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07	4.82613E-07
Hexane	1.60%	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	3.704E-06	3.704E-06	3.704E-06	3.704E-06	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07	4.88722E-07
Methanol	0.12%	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	2.778E-07	2.778E-07	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08
Methyl Ethyl Ketone	0.02%	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	4.63E-08	4.63E-08	4.63E-08	4.63E-08	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09	6.10903E-09
Naphthalene	0.05%	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.1575E-07	1.1575E-07	1.1575E-07	1.1575E-07	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08	1.52726E-08
Propylene	3.06%	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	7.0839E-06	7.0839E-06	7.0839E-06	7.0839E-06	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07	9.34681E-07
Styrene	0.12%	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	2.778E-07	2.778E-07	2.778E-07	2.778E-07	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08	3.66542E-08
Toluene	5.76%	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.33344E-05	1.33344E-05	1.33344E-05	1.33344E-05	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06	1.7594E-06
Xylenes	4.80%	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.1112E-05	1.1112E-05	1.1112E-05	1.1112E-05	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06	1.46617E-06

SRC ID	SRC No.	CAS No.	Pollutant	Operations - Onsite lb/yr	lb/hr
EMGEN_A1	1	9901	DieselExhPM	5.28E+00	0.00E+00
EMGEN_B1	4	9901	DieselExhPM	5.28E+00	0.00E+00
EXHL1	7	9901	DieselExhPM	2.73E+00	0.00E+00
EXHL2	8	9901	DieselExhPM	2.89E+00	0.00E+00
EXHL3	9	9901	DieselExhPM	2.83E+00	0.00E+00
EXHL4	10	9901	DieselExhPM	1.68E+01	0.00E+00
VEH_AL1	11	9901	DieselExhPM	1.25E+00	0.00E+00
VEH_AL2	12	9901	DieselExhPM	9.01E-01	0.00E+00
VEH_AL3	13	9901	DieselExhPM	6.93E-01	0.00E+00
VEH_AL4	14	9901	DieselExhPM	2.15E-01	0.00E+00
VEH_BL1	15	9901	DieselExhPM	1.25E+00	0.00E+00
VEH_BL2	16	9901	DieselExhPM	9.01E-01	0.00E+00
VEH_BL3	17	9901	DieselExhPM	6.93E-01	0.00E+00
VEH_BL4	18	9901	DieselExhPM	2.15E-01	0.00E+00
MKSPACE	19	71432	Benzene	4.20E-01	1.33E-04
MKSPACE	19	50000	Formaldehyde	4.94E+00	1.56E-03
MKSPACE	19	1115	Glycol Ethers	7.39E+01	2.33E-02
MKSPACE	19	67630	Isopropyl Alcoh	2.96E+01	9.33E-03
MKSPACE	19	108883	Toluene	3.57E-01	1.13E-04
MKSPACE	19	100414	Ethyl Benzene	9.32E-02	2.94E-05
MKSPACE	19	95476	o-Xylene	4.18E-01	1.32E-04
MKSPACE	19	108383	m-Xylene	6.04E-01	1.91E-04
MKSPACE	19	108907	Chlorobenzn	7.10E-02	2.24E-05
MKSPACE	19	91203	Naphthalene	9.32E-02	2.94E-05
EXHL1	7	75070	Acetaldehyde	1.19E-01	1.36E-05
EXHL1	7	107028	Acrolein	5.53E-02	6.31E-06
EXHL1	7	71432	Benzene	1.05E+00	1.20E-04
EXHL1	7	106990	1,3-Butadiene	2.34E-01	2.67E-05
EXHL1	7	100414	Ethylbenzene	4.47E-01	5.10E-05
EXHL1	7	50000	Formaldehyde	6.72E-01	7.67E-05
EXHL1	7	110543	Hexane	6.81E-01	7.77E-05
EXHL1	7	67561	Methanol	5.10E-02	5.83E-06
EXHL1	7	78933	Methyl Ethyl Ketone	8.51E-03	9.71E-07
EXHL1	7	91203	Naphthalene	2.13E-02	2.43E-06
EXHL1	7	115071	Propylene	1.30E+00	1.49E-04
EXHL1	7	100425	Styrene	5.10E-02	5.83E-06
EXHL1	7	108883	Toluene	2.45E+00	2.80E-04
EXHL1	7	1330207	Xylenes	2.04E+00	2.33E-04
EXHL2	8	75070	Acetaldehyde	1.83E-01	2.09E-05
EXHL2	8	107028	Acrolein	8.48E-02	9.68E-06
EXHL2	8	71432	Benzene	1.61E+00	1.84E-04
EXHL2	8	106990	1,3-Butadiene	3.59E-01	4.10E-05
EXHL2	8	100414	Ethylbenzene	6.85E-01	7.82E-05
EXHL2	8	50000	Formaldehyde	1.03E+00	1.18E-04
EXHL2	8	110543	Hexane	1.04E+00	1.19E-04

EXHL2	8	67561	Methanol	7.83E-02	8.94E-06
EXHL2	8	78933	Methyl Ethyl Ketone	1.30E-02	1.49E-06
EXHL2	8	91203	Naphthalene	3.26E-02	3.72E-06
EXHL2	8	115071	Propylene	2.00E+00	2.28E-04
EXHL2	8	100425	Styrene	7.83E-02	8.94E-06
EXHL2	8	108883	Toluene	3.76E+00	4.29E-04
EXHL2	8	1330207	Xylenes	3.13E+00	3.57E-04
EXHL3	9	75070	Acetaldehyde	1.82E-01	2.08E-05
EXHL3	9	107028	Acrolein	8.47E-02	9.66E-06
EXHL3	9	71432	Benzene	1.61E+00	1.84E-04
EXHL3	9	106990	1,3-Butadiene	3.58E-01	4.09E-05
EXHL3	9	100414	Ethylbenzene	6.84E-01	7.81E-05
EXHL3	9	50000	Formaldehyde	1.03E+00	1.17E-04
EXHL3	9	110543	Hexane	1.04E+00	1.19E-04
EXHL3	9	67561	Methanol	7.81E-02	8.92E-06
EXHL3	9	78933	Methyl Ethyl Ketone	1.30E-02	1.49E-06
EXHL3	9	91203	Naphthalene	3.26E-02	3.72E-06
EXHL3	9	115071	Propylene	1.99E+00	2.27E-04
EXHL3	9	100425	Styrene	7.81E-02	8.92E-06
EXHL3	9	108883	Toluene	3.75E+00	4.28E-04
EXHL3	9	1330207	Xylenes	3.13E+00	3.57E-04
EXHL4	10	75070	Acetaldehyde	9.05E-01	1.03E-04
EXHL4	10	107028	Acrolein	4.20E-01	4.80E-05
EXHL4	10	71432	Benzene	7.98E+00	9.11E-04
EXHL4	10	106990	1,3-Butadiene	1.78E+00	2.03E-04
EXHL4	10	100414	Ethylbenzene	3.39E+00	3.87E-04
EXHL4	10	50000	Formaldehyde	5.11E+00	5.83E-04
EXHL4	10	110543	Hexane	5.17E+00	5.90E-04
EXHL4	10	67561	Methanol	3.88E-01	4.43E-05
EXHL4	10	78933	Methyl Ethyl Ketone	6.46E-02	7.38E-06
EXHL4	10	91203	Naphthalene	1.62E-01	1.84E-05
EXHL4	10	115071	Propylene	9.89E+00	1.13E-03
EXHL4	10	100425	Styrene	3.88E-01	4.43E-05
EXHL4	10	108883	Toluene	1.86E+01	2.12E-03
EXHL4	10	1330207	Xylenes	1.55E+01	1.77E-03
VEH_AL1	11	75070	Acetaldehyde	1.64E-01	1.87E-05
VEH_AL1	11	107028	Acrolein	7.60E-02	8.67E-06
VEH_AL1	11	71432	Benzene	1.44E+00	1.65E-04
VEH_AL1	11	106990	1,3-Butadiene	3.21E-01	3.67E-05
VEH_AL1	11	100414	Ethylbenzene	6.14E-01	7.00E-05
VEH_AL1	11	50000	Formaldehyde	9.23E-01	1.05E-04
VEH_AL1	11	110543	Hexane	9.35E-01	1.07E-04
VEH_AL1	11	67561	Methanol	7.01E-02	8.00E-06
VEH_AL1	11	78933	Methyl Ethyl Ketone	1.17E-02	1.33E-06
VEH_AL1	11	91203	Naphthalene	2.92E-02	3.34E-06
VEH_AL1	11	115071	Propylene	1.79E+00	2.04E-04
VEH_AL1	11	100425	Styrene	7.01E-02	8.00E-06

VEH_AL1	11	108883	Toluene	3.37E+00	3.84E-04
VEH_AL1	11	1330207	Xylenes	2.80E+00	3.20E-04
VEH_AL2	12	75070	Acetaldehyde	1.30E-01	1.49E-05
VEH_AL2	12	107028	Acrolein	6.05E-02	6.91E-06
VEH_AL2	12	71432	Benzene	1.15E+00	1.31E-04
VEH_AL2	12	106990	1,3-Butadiene	2.56E-01	2.92E-05
VEH_AL2	12	100414	Ethylbenzene	4.89E-01	5.58E-05
VEH_AL2	12	50000	Formaldehyde	7.35E-01	8.39E-05
VEH_AL2	12	110543	Hexane	7.45E-01	8.50E-05
VEH_AL2	12	67561	Methanol	5.59E-02	6.38E-06
VEH_AL2	12	78933	Methyl Ethyl Ketone	9.31E-03	1.06E-06
VEH_AL2	12	91203	Naphthalene	2.33E-02	2.66E-06
VEH_AL2	12	115071	Propylene	1.42E+00	1.63E-04
VEH_AL2	12	100425	Styrene	5.59E-02	6.38E-06
VEH_AL2	12	108883	Toluene	2.68E+00	3.06E-04
VEH_AL2	12	1330207	Xylenes	2.23E+00	2.55E-04
VEH_AL3	13	75070	Acetaldehyde	8.73E-02	9.97E-06
VEH_AL3	13	107028	Acrolein	4.06E-02	4.63E-06
VEH_AL3	13	71432	Benzene	7.70E-01	8.80E-05
VEH_AL3	13	106990	1,3-Butadiene	1.72E-01	1.96E-05
VEH_AL3	13	100414	Ethylbenzene	3.28E-01	3.74E-05
VEH_AL3	13	50000	Formaldehyde	4.93E-01	5.63E-05
VEH_AL3	13	110543	Hexane	4.99E-01	5.70E-05
VEH_AL3	13	67561	Methanol	3.74E-02	4.27E-06
VEH_AL3	13	78933	Methyl Ethyl Ketone	6.24E-03	7.12E-07
VEH_AL3	13	91203	Naphthalene	1.56E-02	1.78E-06
VEH_AL3	13	115071	Propylene	9.54E-01	1.09E-04
VEH_AL3	13	100425	Styrene	3.74E-02	4.27E-06
VEH_AL3	13	108883	Toluene	1.80E+00	2.05E-04
VEH_AL3	13	1330207	Xylenes	1.50E+00	1.71E-04
VEH_AL4	14	75070	Acetaldehyde	5.37E-02	6.13E-06
VEH_AL4	14	107028	Acrolein	2.49E-02	2.84E-06
VEH_AL4	14	71432	Benzene	4.73E-01	5.40E-05
VEH_AL4	14	106990	1,3-Butadiene	1.05E-01	1.20E-05
VEH_AL4	14	100414	Ethylbenzene	2.01E-01	2.30E-05
VEH_AL4	14	50000	Formaldehyde	3.03E-01	3.46E-05
VEH_AL4	14	110543	Hexane	3.07E-01	3.50E-05
VEH_AL4	14	67561	Methanol	2.30E-02	2.63E-06
VEH_AL4	14	78933	Methyl Ethyl Ketone	3.83E-03	4.38E-07
VEH_AL4	14	91203	Naphthalene	9.58E-03	1.09E-06
VEH_AL4	14	115071	Propylene	5.86E-01	6.70E-05
VEH_AL4	14	100425	Styrene	2.30E-02	2.63E-06
VEH_AL4	14	108883	Toluene	1.10E+00	1.26E-04
VEH_AL4	14	1330207	Xylenes	9.20E-01	1.05E-04
VEH_BL1	15	75070	Acetaldehyde	1.64E-01	1.87E-05
VEH_BL1	15	107028	Acrolein	7.60E-02	8.67E-06
VEH_BL1	15	71432	Benzene	1.44E+00	1.65E-04

VEH_BL1	15	106990	1,3-Butadiene	3.21E-01	3.67E-05
VEH_BL1	15	100414	Ethylbenzene	6.14E-01	7.00E-05
VEH_BL1	15	50000	Formaldehyde	9.23E-01	1.05E-04
VEH_BL1	15	110543	Hexane	9.35E-01	1.07E-04
VEH_BL1	15	67561	Methanol	7.01E-02	8.00E-06
VEH_BL1	15	78933	Methyl Ethyl Ketone	1.17E-02	1.33E-06
VEH_BL1	15	91203	Naphthalene	2.92E-02	3.34E-06
VEH_BL1	15	115071	Propylene	1.79E+00	2.04E-04
VEH_BL1	15	100425	Styrene	7.01E-02	8.00E-06
VEH_BL1	15	108883	Toluene	3.37E+00	3.84E-04
VEH_BL1	15	1330207	Xylenes	2.80E+00	3.20E-04
VEH_BL2	16	75070	Acetaldehyde	1.30E-01	1.49E-05
VEH_BL2	16	107028	Acrolein	6.05E-02	6.91E-06
VEH_BL2	16	71432	Benzene	1.15E+00	1.31E-04
VEH_BL2	16	106990	1,3-Butadiene	2.56E-01	2.92E-05
VEH_BL2	16	100414	Ethylbenzene	4.89E-01	5.58E-05
VEH_BL2	16	50000	Formaldehyde	7.35E-01	8.39E-05
VEH_BL2	16	110543	Hexane	7.45E-01	8.50E-05
VEH_BL2	16	67561	Methanol	5.59E-02	6.38E-06
VEH_BL2	16	78933	Methyl Ethyl Ketone	9.31E-03	1.06E-06
VEH_BL2	16	91203	Naphthalene	2.33E-02	2.66E-06
VEH_BL2	16	115071	Propylene	1.42E+00	1.63E-04
VEH_BL2	16	100425	Styrene	5.59E-02	6.38E-06
VEH_BL2	16	108883	Toluene	2.68E+00	3.06E-04
VEH_BL2	16	1330207	Xylenes	2.23E+00	2.55E-04
VEH_BL3	17	75070	Acetaldehyde	8.73E-02	9.97E-06
VEH_BL3	17	107028	Acrolein	4.06E-02	4.63E-06
VEH_BL3	17	71432	Benzene	7.70E-01	8.80E-05
VEH_BL3	17	106990	1,3-Butadiene	1.72E-01	1.96E-05
VEH_BL3	17	100414	Ethylbenzene	3.28E-01	3.74E-05
VEH_BL3	17	50000	Formaldehyde	4.93E-01	5.63E-05
VEH_BL3	17	110543	Hexane	4.99E-01	5.70E-05
VEH_BL3	17	67561	Methanol	3.74E-02	4.27E-06
VEH_BL3	17	78933	Methyl Ethyl Ketone	6.24E-03	7.12E-07
VEH_BL3	17	91203	Naphthalene	1.56E-02	1.78E-06
VEH_BL3	17	115071	Propylene	9.54E-01	1.09E-04
VEH_BL3	17	100425	Styrene	3.74E-02	4.27E-06
VEH_BL3	17	108883	Toluene	1.80E+00	2.05E-04
VEH_BL3	17	1330207	Xylenes	1.50E+00	1.71E-04
VEH_BL4	18	75070	Acetaldehyde	5.37E-02	6.13E-06
VEH_BL4	18	107028	Acrolein	2.49E-02	2.84E-06
VEH_BL4	18	71432	Benzene	4.73E-01	5.40E-05
VEH_BL4	18	106990	1,3-Butadiene	1.05E-01	1.20E-05
VEH_BL4	18	100414	Ethylbenzene	2.01E-01	2.30E-05
VEH_BL4	18	50000	Formaldehyde	3.03E-01	3.46E-05
VEH_BL4	18	110543	Hexane	3.07E-01	3.50E-05
VEH_BL4	18	67561	Methanol	2.30E-02	2.63E-06

VEH_BL4	18	78933	Methyl Ethyl Ketone	3.83E-03	4.38E-07
VEH_BL4	18	91203	Naphthalene	9.58E-03	1.09E-06
VEH_BL4	18	115071	Propylene	5.86E-01	6.70E-05
VEH_BL4	18	100425	Styrene	2.30E-02	2.63E-06
VEH_BL4	18	108883	Toluene	1.10E+00	1.26E-04
VEH_BL4	18	1330207	Xylenes	9.20E-01	1.05E-04

SRC ID	SRC No.	CAS No.	Pollutant	Operations - Trucks	
				lb/yr	lb/hr
TOLAN1	1	9901	DieselExhPM	4.97E-02	0.00E+00
OAKD1	2	9901	DieselExhPM	2.98E-01	0.00E+00
INDUS1	3	9901	DieselExhPM	2.98E-01	0.00E+00
TOLAN2	4	9901	DieselExhPM	1.99E-01	0.00E+00
TOLAN3	5	9901	DieselExhPM	3.97E-01	0.00E+00
JERR1	6	9901	DieselExhPM	3.97E-01	0.00E+00
BAYSH1	7	9901	DieselExhPM	4.97E-02	0.00E+00
INDUS2	8	9901	DieselExhPM	4.97E-02	0.00E+00
INDUS3	9	9901	DieselExhPM	2.98E-01	0.00E+00
BAYSH2	10	9901	DieselExhPM	2.48E-01	0.00E+00
BAYSH3	11	9901	DieselExhPM	3.97E-01	0.00E+00
BAYSH4	12	9901	DieselExhPM	2.48E-01	0.00E+00
KIRK1	13	9901	DieselExhPM	1.99E-01	0.00E+00
KIRK2	14	9901	DieselExhPM	1.49E-01	0.00E+00
RANK2	15	9901	DieselExhPM	1.49E-01	0.00E+00
MCKI2	16	9901	DieselExhPM	1.49E-01	0.00E+00
MCKI3	17	9901	DieselExhPM	1.99E-01	0.00E+00
SELB3	18	9901	DieselExhPM	5.46E-01	0.00E+00
SELB4	19	9901	DieselExhPM	5.46E-01	0.00E+00
SELB5	20	9901	DieselExhPM	6.95E-01	0.00E+00
OAKD2	21	9901	DieselExhPM	2.48E-01	0.00E+00
INDU1	22	9901	DieselExhPM	2.98E-01	0.00E+00
TOLAN1	1	75070	Acetaldehyde	9.80E-04	1.12E-07
TOLAN1	1	107028	Acrolein	4.55E-04	5.19E-08
TOLAN1	1	71432	Benzene	8.64E-03	9.87E-07
TOLAN1	1	106990	1,3-Butadiene	1.92E-03	2.20E-07
TOLAN1	1	100414	Ethylbenzene	3.67E-03	4.19E-07
TOLAN1	1	50000	Formaldehyde	5.53E-03	6.31E-07
TOLAN1	1	110543	Hexane	5.60E-03	6.39E-07
TOLAN1	1	67561	Methanol	4.20E-04	4.79E-08
TOLAN1	1	78933	Methyl Ethyl Ketor	7.00E-05	7.99E-09
TOLAN1	1	91203	Naphthalene	1.75E-04	2.00E-08
TOLAN1	1	115071	Propylene	1.07E-02	1.22E-06
TOLAN1	1	100425	Styrene	4.20E-04	4.79E-08
TOLAN1	1	108883	Toluene	2.02E-02	2.30E-06
TOLAN1	1	1330207	Xylenes	1.68E-02	1.92E-06
OAKD1	2	75070	Acetaldehyde	5.88E-03	6.71E-07
OAKD1	2	107028	Acrolein	2.73E-03	3.12E-07
OAKD1	2	71432	Benzene	5.19E-02	5.92E-06
OAKD1	2	106990	1,3-Butadiene	1.15E-02	1.32E-06
OAKD1	2	100414	Ethylbenzene	2.20E-02	2.52E-06
OAKD1	2	50000	Formaldehyde	3.32E-02	3.79E-06
OAKD1	2	110543	Hexane	3.36E-02	3.83E-06
OAKD1	2	67561	Methanol	2.52E-03	2.88E-07
OAKD1	2	78933	Methyl Ethyl Ketor	4.20E-04	4.79E-08

OAKD1	2	91203	Naphthalene	1.05E-03	1.20E-07
OAKD1	2	115071	Propylene	6.42E-02	7.33E-06
OAKD1	2	100425	Styrene	2.52E-03	2.88E-07
OAKD1	2	108883	Toluene	1.21E-01	1.38E-05
OAKD1	2	1330207	Xylenes	1.01E-01	1.15E-05
INDUS1	3	75070	Acetaldehyde	5.88E-03	6.71E-07
INDUS1	3	107028	Acrolein	2.73E-03	3.12E-07
INDUS1	3	71432	Benzene	5.19E-02	5.92E-06
INDUS1	3	106990	1,3-Butadiene	1.15E-02	1.32E-06
INDUS1	3	100414	Ethylbenzene	2.20E-02	2.52E-06
INDUS1	3	50000	Formaldehyde	3.32E-02	3.79E-06
INDUS1	3	110543	Hexane	3.36E-02	3.83E-06
INDUS1	3	67561	Methanol	2.52E-03	2.88E-07
INDUS1	3	78933	Methyl Ethyl Ketor	4.20E-04	4.79E-08
INDUS1	3	91203	Naphthalene	1.05E-03	1.20E-07
INDUS1	3	115071	Propylene	6.42E-02	7.33E-06
INDUS1	3	100425	Styrene	2.52E-03	2.88E-07
INDUS1	3	108883	Toluene	1.21E-01	1.38E-05
INDUS1	3	1330207	Xylenes	1.01E-01	1.15E-05
TOLAN2	4	75070	Acetaldehyde	3.92E-03	4.47E-07
TOLAN2	4	107028	Acrolein	1.82E-03	2.08E-07
TOLAN2	4	71432	Benzene	3.46E-02	3.95E-06
TOLAN2	4	106990	1,3-Butadiene	7.70E-03	8.79E-07
TOLAN2	4	100414	Ethylbenzene	1.47E-02	1.68E-06
TOLAN2	4	50000	Formaldehyde	2.21E-02	2.52E-06
TOLAN2	4	110543	Hexane	2.24E-02	2.56E-06
TOLAN2	4	67561	Methanol	1.68E-03	1.92E-07
TOLAN2	4	78933	Methyl Ethyl Ketor	2.80E-04	3.20E-08
TOLAN2	4	91203	Naphthalene	7.00E-04	7.99E-08
TOLAN2	4	115071	Propylene	4.28E-02	4.89E-06
TOLAN2	4	100425	Styrene	1.68E-03	1.92E-07
TOLAN2	4	108883	Toluene	8.06E-02	9.20E-06
TOLAN2	4	1330207	Xylenes	6.72E-02	7.67E-06
TOLAN3	5	75070	Acetaldehyde	7.84E-03	8.95E-07
TOLAN3	5	107028	Acrolein	3.64E-03	4.15E-07
TOLAN3	5	71432	Benzene	6.91E-02	7.89E-06
TOLAN3	5	106990	1,3-Butadiene	1.54E-02	1.76E-06
TOLAN3	5	100414	Ethylbenzene	2.94E-02	3.36E-06
TOLAN3	5	50000	Formaldehyde	4.42E-02	5.05E-06
TOLAN3	5	110543	Hexane	4.48E-02	5.11E-06
TOLAN3	5	67561	Methanol	3.36E-03	3.83E-07
TOLAN3	5	78933	Methyl Ethyl Ketor	5.60E-04	6.39E-08
TOLAN3	5	91203	Naphthalene	1.40E-03	1.60E-07
TOLAN3	5	115071	Propylene	8.57E-02	9.78E-06
TOLAN3	5	100425	Styrene	3.36E-03	3.83E-07
TOLAN3	5	108883	Toluene	1.61E-01	1.84E-05
TOLAN3	5	1330207	Xylenes	1.34E-01	1.53E-05

JERR1	6	75070	Acetaldehyde	7.84E-03	8.95E-07
JERR1	6	107028	Acrolein	3.64E-03	4.15E-07
JERR1	6	71432	Benzene	6.91E-02	7.89E-06
JERR1	6	106990	1,3-Butadiene	1.54E-02	1.76E-06
JERR1	6	100414	Ethylbenzene	2.94E-02	3.36E-06
JERR1	6	50000	Formaldehyde	4.42E-02	5.05E-06
JERR1	6	110543	Hexane	4.48E-02	5.11E-06
JERR1	6	67561	Methanol	3.36E-03	3.83E-07
JERR1	6	78933	Methyl Ethyl Ketor	5.60E-04	6.39E-08
JERR1	6	91203	Naphthalene	1.40E-03	1.60E-07
JERR1	6	115071	Propylene	8.57E-02	9.78E-06
JERR1	6	100425	Styrene	3.36E-03	3.83E-07
JERR1	6	108883	Toluene	1.61E-01	1.84E-05
JERR1	6	1330207	Xylenes	1.34E-01	1.53E-05
BAYSH1	7	75070	Acetaldehyde	9.80E-04	1.12E-07
BAYSH1	7	107028	Acrolein	4.55E-04	5.19E-08
BAYSH1	7	71432	Benzene	8.64E-03	9.87E-07
BAYSH1	7	106990	1,3-Butadiene	1.92E-03	2.20E-07
BAYSH1	7	100414	Ethylbenzene	3.67E-03	4.19E-07
BAYSH1	7	50000	Formaldehyde	5.53E-03	6.31E-07
BAYSH1	7	110543	Hexane	5.60E-03	6.39E-07
BAYSH1	7	67561	Methanol	4.20E-04	4.79E-08
BAYSH1	7	78933	Methyl Ethyl Ketor	7.00E-05	7.99E-09
BAYSH1	7	91203	Naphthalene	1.75E-04	2.00E-08
BAYSH1	7	115071	Propylene	1.07E-02	1.22E-06
BAYSH1	7	100425	Styrene	4.20E-04	4.79E-08
BAYSH1	7	108883	Toluene	2.02E-02	2.30E-06
BAYSH1	7	1330207	Xylenes	1.68E-02	1.92E-06
INDUS2	8	75070	Acetaldehyde	9.80E-04	1.12E-07
INDUS2	8	107028	Acrolein	4.55E-04	5.19E-08
INDUS2	8	71432	Benzene	8.64E-03	9.87E-07
INDUS2	8	106990	1,3-Butadiene	1.92E-03	2.20E-07
INDUS2	8	100414	Ethylbenzene	3.67E-03	4.19E-07
INDUS2	8	50000	Formaldehyde	5.53E-03	6.31E-07
INDUS2	8	110543	Hexane	5.60E-03	6.39E-07
INDUS2	8	67561	Methanol	4.20E-04	4.79E-08
INDUS2	8	78933	Methyl Ethyl Ketor	7.00E-05	7.99E-09
INDUS2	8	91203	Naphthalene	1.75E-04	2.00E-08
INDUS2	8	115071	Propylene	1.07E-02	1.22E-06
INDUS2	8	100425	Styrene	4.20E-04	4.79E-08
INDUS2	8	108883	Toluene	2.02E-02	2.30E-06
INDUS2	8	1330207	Xylenes	1.68E-02	1.92E-06
INDUS3	9	75070	Acetaldehyde	5.88E-03	6.71E-07
INDUS3	9	107028	Acrolein	2.73E-03	3.12E-07
INDUS3	9	71432	Benzene	5.19E-02	5.92E-06
INDUS3	9	106990	1,3-Butadiene	1.15E-02	1.32E-06
INDUS3	9	100414	Ethylbenzene	2.20E-02	2.52E-06

INDUS3	9	50000	Formaldehyde	3.32E-02	3.79E-06
INDUS3	9	110543	Hexane	3.36E-02	3.83E-06
INDUS3	9	67561	Methanol	2.52E-03	2.88E-07
INDUS3	9	78933	Methyl Ethyl Ketor	4.20E-04	4.79E-08
INDUS3	9	91203	Naphthalene	1.05E-03	1.20E-07
INDUS3	9	115071	Propylene	6.42E-02	7.33E-06
INDUS3	9	100425	Styrene	2.52E-03	2.88E-07
INDUS3	9	108883	Toluene	1.21E-01	1.38E-05
INDUS3	9	1330207	Xylenes	1.01E-01	1.15E-05
BAYSH2	10	75070	Acetaldehyde	4.90E-03	5.59E-07
BAYSH2	10	107028	Acrolein	2.27E-03	2.60E-07
BAYSH2	10	71432	Benzene	4.32E-02	4.93E-06
BAYSH2	10	106990	1,3-Butadiene	9.62E-03	1.10E-06
BAYSH2	10	100414	Ethylbenzene	1.84E-02	2.10E-06
BAYSH2	10	50000	Formaldehyde	2.76E-02	3.16E-06
BAYSH2	10	110543	Hexane	2.80E-02	3.20E-06
BAYSH2	10	67561	Methanol	2.10E-03	2.40E-07
BAYSH2	10	78933	Methyl Ethyl Ketor	3.50E-04	3.99E-08
BAYSH2	10	91203	Naphthalene	8.75E-04	9.99E-08
BAYSH2	10	115071	Propylene	5.35E-02	6.11E-06
BAYSH2	10	100425	Styrene	2.10E-03	2.40E-07
BAYSH2	10	108883	Toluene	1.01E-01	1.15E-05
BAYSH2	10	1330207	Xylenes	8.40E-02	9.59E-06
BAYSH3	11	75070	Acetaldehyde	7.84E-03	8.95E-07
BAYSH3	11	107028	Acrolein	3.64E-03	4.15E-07
BAYSH3	11	71432	Benzene	6.91E-02	7.89E-06
BAYSH3	11	106990	1,3-Butadiene	1.54E-02	1.76E-06
BAYSH3	11	100414	Ethylbenzene	2.94E-02	3.36E-06
BAYSH3	11	50000	Formaldehyde	4.42E-02	5.05E-06
BAYSH3	11	110543	Hexane	4.48E-02	5.11E-06
BAYSH3	11	67561	Methanol	3.36E-03	3.83E-07
BAYSH3	11	78933	Methyl Ethyl Ketor	5.60E-04	6.39E-08
BAYSH3	11	91203	Naphthalene	1.40E-03	1.60E-07
BAYSH3	11	115071	Propylene	8.57E-02	9.78E-06
BAYSH3	11	100425	Styrene	3.36E-03	3.83E-07
BAYSH3	11	108883	Toluene	1.61E-01	1.84E-05
BAYSH3	11	1330207	Xylenes	1.34E-01	1.53E-05
BAYSH4	12	75070	Acetaldehyde	4.90E-03	5.59E-07
BAYSH4	12	107028	Acrolein	2.27E-03	2.60E-07
BAYSH4	12	71432	Benzene	4.32E-02	4.93E-06
BAYSH4	12	106990	1,3-Butadiene	9.62E-03	1.10E-06
BAYSH4	12	100414	Ethylbenzene	1.84E-02	2.10E-06
BAYSH4	12	50000	Formaldehyde	2.76E-02	3.16E-06
BAYSH4	12	110543	Hexane	2.80E-02	3.20E-06
BAYSH4	12	67561	Methanol	2.10E-03	2.40E-07
BAYSH4	12	78933	Methyl Ethyl Ketor	3.50E-04	3.99E-08
BAYSH4	12	91203	Naphthalene	8.75E-04	9.99E-08

BAYSH4	12	115071	Propylene	5.35E-02	6.11E-06
BAYSH4	12	100425	Styrene	2.10E-03	2.40E-07
BAYSH4	12	108883	Toluene	1.01E-01	1.15E-05
BAYSH4	12	1330207	Xylenes	8.40E-02	9.59E-06
KIRK1	13	75070	Acetaldehyde	3.92E-03	4.47E-07
KIRK1	13	107028	Acrolein	1.82E-03	2.08E-07
KIRK1	13	71432	Benzene	3.46E-02	3.95E-06
KIRK1	13	106990	1,3-Butadiene	7.70E-03	8.79E-07
KIRK1	13	100414	Ethylbenzene	1.47E-02	1.68E-06
KIRK1	13	50000	Formaldehyde	2.21E-02	2.52E-06
KIRK1	13	110543	Hexane	2.24E-02	2.56E-06
KIRK1	13	67561	Methanol	1.68E-03	1.92E-07
KIRK1	13	78933	Methyl Ethyl Ketor	2.80E-04	3.20E-08
KIRK1	13	91203	Naphthalene	7.00E-04	7.99E-08
KIRK1	13	115071	Propylene	4.28E-02	4.89E-06
KIRK1	13	100425	Styrene	1.68E-03	1.92E-07
KIRK1	13	108883	Toluene	8.06E-02	9.20E-06
KIRK1	13	1330207	Xylenes	6.72E-02	7.67E-06
KIRK2	14	75070	Acetaldehyde	2.94E-03	3.36E-07
KIRK2	14	107028	Acrolein	1.36E-03	1.56E-07
KIRK2	14	71432	Benzene	2.59E-02	2.96E-06
KIRK2	14	106990	1,3-Butadiene	5.77E-03	6.59E-07
KIRK2	14	100414	Ethylbenzene	1.10E-02	1.26E-06
KIRK2	14	50000	Formaldehyde	1.66E-02	1.89E-06
KIRK2	14	110543	Hexane	1.68E-02	1.92E-06
KIRK2	14	67561	Methanol	1.26E-03	1.44E-07
KIRK2	14	78933	Methyl Ethyl Ketor	2.10E-04	2.40E-08
KIRK2	14	91203	Naphthalene	5.25E-04	5.99E-08
KIRK2	14	115071	Propylene	3.21E-02	3.67E-06
KIRK2	14	100425	Styrene	1.26E-03	1.44E-07
KIRK2	14	108883	Toluene	6.05E-02	6.90E-06
KIRK2	14	1330207	Xylenes	5.04E-02	5.75E-06
RANK2	15	75070	Acetaldehyde	2.94E-03	3.36E-07
RANK2	15	107028	Acrolein	1.36E-03	1.56E-07
RANK2	15	71432	Benzene	2.59E-02	2.96E-06
RANK2	15	106990	1,3-Butadiene	5.77E-03	6.59E-07
RANK2	15	100414	Ethylbenzene	1.10E-02	1.26E-06
RANK2	15	50000	Formaldehyde	1.66E-02	1.89E-06
RANK2	15	110543	Hexane	1.68E-02	1.92E-06
RANK2	15	67561	Methanol	1.26E-03	1.44E-07
RANK2	15	78933	Methyl Ethyl Ketor	2.10E-04	2.40E-08
RANK2	15	91203	Naphthalene	5.25E-04	5.99E-08
RANK2	15	115071	Propylene	3.21E-02	3.67E-06
RANK2	15	100425	Styrene	1.26E-03	1.44E-07
RANK2	15	108883	Toluene	6.05E-02	6.90E-06
RANK2	15	1330207	Xylenes	5.04E-02	5.75E-06
MCKI2	16	75070	Acetaldehyde	2.94E-03	3.36E-07

MCKI2	16	107028	Acrolein	1.36E-03	1.56E-07
MCKI2	16	71432	Benzene	2.59E-02	2.96E-06
MCKI2	16	106990	1,3-Butadiene	5.77E-03	6.59E-07
MCKI2	16	100414	Ethylbenzene	1.10E-02	1.26E-06
MCKI2	16	50000	Formaldehyde	1.66E-02	1.89E-06
MCKI2	16	110543	Hexane	1.68E-02	1.92E-06
MCKI2	16	67561	Methanol	1.26E-03	1.44E-07
MCKI2	16	78933	Methyl Ethyl Ketor	2.10E-04	2.40E-08
MCKI2	16	91203	Naphthalene	5.25E-04	5.99E-08
MCKI2	16	115071	Propylene	3.21E-02	3.67E-06
MCKI2	16	100425	Styrene	1.26E-03	1.44E-07
MCKI2	16	108883	Toluene	6.05E-02	6.90E-06
MCKI2	16	1330207	Xylenes	5.04E-02	5.75E-06
MCKI3	17	75070	Acetaldehyde	3.92E-03	4.47E-07
MCKI3	17	107028	Acrolein	1.82E-03	2.08E-07
MCKI3	17	71432	Benzene	3.46E-02	3.95E-06
MCKI3	17	106990	1,3-Butadiene	7.70E-03	8.79E-07
MCKI3	17	100414	Ethylbenzene	1.47E-02	1.68E-06
MCKI3	17	50000	Formaldehyde	2.21E-02	2.52E-06
MCKI3	17	110543	Hexane	2.24E-02	2.56E-06
MCKI3	17	67561	Methanol	1.68E-03	1.92E-07
MCKI3	17	78933	Methyl Ethyl Ketor	2.80E-04	3.20E-08
MCKI3	17	91203	Naphthalene	7.00E-04	7.99E-08
MCKI3	17	115071	Propylene	4.28E-02	4.89E-06
MCKI3	17	100425	Styrene	1.68E-03	1.92E-07
MCKI3	17	108883	Toluene	8.06E-02	9.20E-06
MCKI3	17	1330207	Xylenes	6.72E-02	7.67E-06
SELB3	18	75070	Acetaldehyde	1.08E-02	1.23E-06
SELB3	18	107028	Acrolein	5.00E-03	5.71E-07
SELB3	18	71432	Benzene	9.51E-02	1.09E-05
SELB3	18	106990	1,3-Butadiene	2.12E-02	2.42E-06
SELB3	18	100414	Ethylbenzene	4.04E-02	4.61E-06
SELB3	18	50000	Formaldehyde	6.08E-02	6.94E-06
SELB3	18	110543	Hexane	6.16E-02	7.03E-06
SELB3	18	67561	Methanol	4.62E-03	5.27E-07
SELB3	18	78933	Methyl Ethyl Ketor	7.70E-04	8.79E-08
SELB3	18	91203	Naphthalene	1.92E-03	2.20E-07
SELB3	18	115071	Propylene	1.18E-01	1.34E-05
SELB3	18	100425	Styrene	4.62E-03	5.27E-07
SELB3	18	108883	Toluene	2.22E-01	2.53E-05
SELB3	18	1330207	Xylenes	1.85E-01	2.11E-05
SELB4	19	75070	Acetaldehyde	1.08E-02	1.23E-06
SELB4	19	107028	Acrolein	5.00E-03	5.71E-07
SELB4	19	71432	Benzene	9.51E-02	1.09E-05
SELB4	19	106990	1,3-Butadiene	2.12E-02	2.42E-06
SELB4	19	100414	Ethylbenzene	4.04E-02	4.61E-06
SELB4	19	50000	Formaldehyde	6.08E-02	6.94E-06

SELB4	19	110543	Hexane	6.16E-02	7.03E-06
SELB4	19	67561	Methanol	4.62E-03	5.27E-07
SELB4	19	78933	Methyl Ethyl Ketor	7.70E-04	8.79E-08
SELB4	19	91203	Naphthalene	1.92E-03	2.20E-07
SELB4	19	115071	Propylene	1.18E-01	1.34E-05
SELB4	19	100425	Styrene	4.62E-03	5.27E-07
SELB4	19	108883	Toluene	2.22E-01	2.53E-05
SELB4	19	1330207	Xylenes	1.85E-01	2.11E-05
SELB5	20	75070	Acetaldehyde	1.37E-02	1.57E-06
SELB5	20	107028	Acrolein	6.37E-03	7.27E-07
SELB5	20	71432	Benzene	1.21E-01	1.38E-05
SELB5	20	106990	1,3-Butadiene	2.69E-02	3.08E-06
SELB5	20	100414	Ethylbenzene	5.14E-02	5.87E-06
SELB5	20	50000	Formaldehyde	7.74E-02	8.84E-06
SELB5	20	110543	Hexane	7.84E-02	8.95E-06
SELB5	20	67561	Methanol	5.88E-03	6.71E-07
SELB5	20	78933	Methyl Ethyl Ketor	9.80E-04	1.12E-07
SELB5	20	91203	Naphthalene	2.45E-03	2.80E-07
SELB5	20	115071	Propylene	1.50E-01	1.71E-05
SELB5	20	100425	Styrene	5.88E-03	6.71E-07
SELB5	20	108883	Toluene	2.82E-01	3.22E-05
SELB5	20	1330207	Xylenes	2.35E-01	2.68E-05
OAKD2	21	75070	Acetaldehyde	4.90E-03	5.59E-07
OAKD2	21	107028	Acrolein	2.27E-03	2.60E-07
OAKD2	21	71432	Benzene	4.32E-02	4.93E-06
OAKD2	21	106990	1,3-Butadiene	9.62E-03	1.10E-06
OAKD2	21	100414	Ethylbenzene	1.84E-02	2.10E-06
OAKD2	21	50000	Formaldehyde	2.76E-02	3.16E-06
OAKD2	21	110543	Hexane	2.80E-02	3.20E-06
OAKD2	21	67561	Methanol	2.10E-03	2.40E-07
OAKD2	21	78933	Methyl Ethyl Ketor	3.50E-04	3.99E-08
OAKD2	21	91203	Naphthalene	8.75E-04	9.99E-08
OAKD2	21	115071	Propylene	5.35E-02	6.11E-06
OAKD2	21	100425	Styrene	2.10E-03	2.40E-07
OAKD2	21	108883	Toluene	1.01E-01	1.15E-05
OAKD2	21	1330207	Xylenes	8.40E-02	9.59E-06
INDU1	22	75070	Acetaldehyde	5.88E-03	6.71E-07
INDU1	22	107028	Acrolein	2.73E-03	3.12E-07
INDU1	22	71432	Benzene	5.19E-02	5.92E-06
INDU1	22	106990	1,3-Butadiene	1.15E-02	1.32E-06
INDU1	22	100414	Ethylbenzene	2.20E-02	2.52E-06
INDU1	22	50000	Formaldehyde	3.32E-02	3.79E-06
INDU1	22	110543	Hexane	3.36E-02	3.83E-06
INDU1	22	67561	Methanol	2.52E-03	2.88E-07
INDU1	22	78933	Methyl Ethyl Ketor	4.20E-04	4.79E-08
INDU1	22	91203	Naphthalene	1.05E-03	1.20E-07
INDU1	22	115071	Propylene	6.42E-02	7.33E-06

INDU1	22	100425	Styrene	2.52E-03	2.88E-07
INDU1	22	108883	Toluene	1.21E-01	1.38E-05
INDU1	22	1330207	Xylenes	1.01E-01	1.15E-05

SRC ID	SRC No.	CAS No.	Pollutant	Operations - Last Mile lb/yr	lb/hr
TOLAN1	1	9901	DieselExhPM	1.18E-01	0.00E+00
OAKD1	2	9901	DieselExhPM	1.18E-01	0.00E+00
OAKD2	3	9901	DieselExhPM	1.18E-01	0.00E+00
INDU1	4	9901	DieselExhPM	1.18E-01	0.00E+00
TOLAN2	5	9901	DieselExhPM	1.18E-01	0.00E+00
TOLAN3	6	9901	DieselExhPM	1.18E-01	0.00E+00
TOLAN4	7	9901	DieselExhPM	1.56E-02	0.00E+00
JERR1	8	9901	DieselExhPM	1.18E-01	0.00E+00
RANK1	9	9901	DieselExhPM	1.56E-02	0.00E+00
JERR2	10	9901	DieselExhPM	1.56E-02	0.00E+00
BARNE1	11	9901	DieselExhPM	1.56E-02	0.00E+00
NEWC1	12	9901	DieselExhPM	1.56E-02	0.00E+00
MCKI1	13	9901	DieselExhPM	1.56E-02	0.00E+00
TOLANP	14	9901	DieselExhPM	1.56E-02	0.00E+00
UPTON1	15	9901	DieselExhPM	1.56E-02	0.00E+00
HUDSO1	16	9901	DieselExhPM	1.56E-02	0.00E+00
INNES1	17	9901	DieselExhPM	1.56E-02	0.00E+00
INNES2	18	9901	DieselExhPM	1.56E-02	0.00E+00
MILTO1	19	9901	DieselExhPM	1.56E-02	0.00E+00
MILTO2	20	9901	DieselExhPM	1.56E-02	0.00E+00
JERR3	21	9901	DieselExhPM	1.56E-02	0.00E+00
JERR4	22	9901	DieselExhPM	1.56E-02	0.00E+00
JERR5	23	9901	DieselExhPM	1.56E-02	0.00E+00
JERR6	24	9901	DieselExhPM	1.56E-02	0.00E+00
KIRK1	25	9901	DieselExhPM	1.56E-02	0.00E+00
KIRK2	26	9901	DieselExhPM	1.56E-02	0.00E+00
RANK2	27	9901	DieselExhPM	1.56E-02	0.00E+00
MCKI2	28	9901	DieselExhPM	1.56E-02	0.00E+00
MCKI3	29	9901	DieselExhPM	1.56E-02	0.00E+00
NEWC2	30	9901	DieselExhPM	1.56E-02	0.00E+00
NEWC3	31	9901	DieselExhPM	1.56E-02	0.00E+00
OAKD3	32	9901	DieselExhPM	1.18E-01	0.00E+00
OAKD4	33	9901	DieselExhPM	1.18E-01	0.00E+00
PALO1	34	9901	DieselExhPM	1.56E-02	0.00E+00
PALO2	35	9901	DieselExhPM	1.56E-02	0.00E+00
PALO3	36	9901	DieselExhPM	1.56E-02	0.00E+00
OAKD5	37	9901	DieselExhPM	1.56E-02	0.00E+00
QUIN1	38	9901	DieselExhPM	1.56E-02	0.00E+00
QUIN2	39	9901	DieselExhPM	1.56E-02	0.00E+00
RANK3	40	9901	DieselExhPM	1.56E-02	0.00E+00
RANK4	41	9901	DieselExhPM	1.56E-02	0.00E+00
RANK5	42	9901	DieselExhPM	1.56E-02	0.00E+00
PALO4	43	9901	DieselExhPM	1.56E-02	0.00E+00
DORM1	44	9901	DieselExhPM	1.56E-02	0.00E+00
APPA1	45	9901	DieselExhPM	1.56E-02	0.00E+00

SELB1	46	9901	DieselExhPM	1.56E-02	0.00E+00
SELB2	47	9901	DieselExhPM	1.56E-02	0.00E+00
SELB3	48	9901	DieselExhPM	1.18E-01	0.00E+00
SELB4	49	9901	DieselExhPM	1.56E-02	0.00E+00
SELB5	50	9901	DieselExhPM	1.56E-02	0.00E+00
SELB6	51	9901	DieselExhPM	1.56E-02	0.00E+00
SELB7	52	9901	DieselExhPM	1.56E-02	0.00E+00
SELB8	53	9901	DieselExhPM	1.56E-02	0.00E+00
BAYSH1	54	9901	DieselExhPM	1.18E-01	0.00E+00
INDUS1	55	9901	DieselExhPM	1.18E-01	0.00E+00
BAYSH2	56	9901	DieselExhPM	1.18E-01	0.00E+00
BAYSH3	57	9901	DieselExhPM	1.18E-01	0.00E+00
BARN2	58	9901	DieselExhPM	1.56E-02	0.00E+00
LOOM1	59	9901	DieselExhPM	1.56E-02	0.00E+00
LOOM2	60	9901	DieselExhPM	1.56E-02	0.00E+00
ELMIR	61	9901	DieselExhPM	1.56E-02	0.00E+00
COA	62	9901	DieselExhPM	1.56E-02	0.00E+00
BOUT	63	9901	DieselExhPM	1.56E-02	0.00E+00
SANB	64	9901	DieselExhPM	1.56E-02	0.00E+00
ALEM	65	9901	DieselExhPM	1.18E-01	0.00E+00
PUTN1	66	9901	DieselExhPM	1.56E-02	0.00E+00
COURT1	67	9901	DieselExhPM	1.56E-02	0.00E+00
TOMP1	68	9901	DieselExhPM	1.56E-02	0.00E+00
BRAD1	69	9901	DieselExhPM	1.56E-02	0.00E+00
BRAD2	70	9901	DieselExhPM	1.56E-02	0.00E+00
FRAN1	71	9901	DieselExhPM	1.56E-02	0.00E+00
HOLL1	72	9901	DieselExhPM	1.56E-02	0.00E+00
POTR1	73	9901	DieselExhPM	1.18E-01	0.00E+00
CESAR1	74	9901	DieselExhPM	1.18E-01	0.00E+00
BAYSH5	75	9901	DieselExhPM	1.18E-01	0.00E+00
BAYSH6	76	9901	DieselExhPM	1.18E-01	0.00E+00
PERA1	77	9901	DieselExhPM	1.56E-02	0.00E+00
YORK1	78	9901	DieselExhPM	1.56E-02	0.00E+00
RHODE1	79	9901	DieselExhPM	1.56E-02	0.00E+00
KANSAS	80	9901	DieselExhPM	1.56E-02	0.00E+00
VERMT	81	9901	DieselExhPM	1.56E-02	0.00E+00
SANBR	82	9901	DieselExhPM	1.56E-02	0.00E+00
S26S	83	9901	DieselExhPM	1.56E-02	0.00E+00
S24S	84	9901	DieselExhPM	1.56E-02	0.00E+00
BARN3	85	9901	DieselExhPM	1.56E-02	0.00E+00
MARIN1	86	9901	DieselExhPM	1.56E-02	0.00E+00
CESAR2	87	9901	DieselExhPM	1.56E-02	0.00E+00
S25S	88	9901	DieselExhPM	1.56E-02	0.00E+00
QUESA1	89	9901	DieselExhPM	1.56E-02	0.00E+00
REVE1	90	9901	DieselExhPM	1.56E-02	0.00E+00
GAVEN1	91	9901	DieselExhPM	1.56E-02	0.00E+00
TOLAN1	1	75070	Acetaldehyde	5.68E-03	6.48E-07

TOLAN1	1	107028	Acrolein	2.64E-03	3.01E-07
TOLAN1	1	71432	Benzene	5.01E-02	5.72E-06
TOLAN1	1	106990	1,3-Butadiene	1.12E-02	1.27E-06
TOLAN1	1	100414	Ethylbenzene	2.13E-02	2.43E-06
TOLAN1	1	50000	Formaldehyde	3.20E-02	3.66E-06
TOLAN1	1	110543	Hexane	3.24E-02	3.70E-06
TOLAN1	1	67561	Methanol	2.43E-03	2.78E-07
TOLAN1	1	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
TOLAN1	1	91203	Naphthalene	1.01E-03	1.16E-07
TOLAN1	1	115071	Propylene	6.21E-02	7.08E-06
TOLAN1	1	100425	Styrene	2.43E-03	2.78E-07
TOLAN1	1	108883	Toluene	1.17E-01	1.33E-05
TOLAN1	1	1330207	Xylenes	9.73E-02	1.11E-05
OAKD1	2	75070	Acetaldehyde	5.68E-03	6.48E-07
OAKD1	2	107028	Acrolein	2.64E-03	3.01E-07
OAKD1	2	71432	Benzene	5.01E-02	5.72E-06
OAKD1	2	106990	1,3-Butadiene	1.12E-02	1.27E-06
OAKD1	2	100414	Ethylbenzene	2.13E-02	2.43E-06
OAKD1	2	50000	Formaldehyde	3.20E-02	3.66E-06
OAKD1	2	110543	Hexane	3.24E-02	3.70E-06
OAKD1	2	67561	Methanol	2.43E-03	2.78E-07
OAKD1	2	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
OAKD1	2	91203	Naphthalene	1.01E-03	1.16E-07
OAKD1	2	115071	Propylene	6.21E-02	7.08E-06
OAKD1	2	100425	Styrene	2.43E-03	2.78E-07
OAKD1	2	108883	Toluene	1.17E-01	1.33E-05
OAKD1	2	1330207	Xylenes	9.73E-02	1.11E-05
OAKD2	3	75070	Acetaldehyde	5.68E-03	6.48E-07
OAKD2	3	107028	Acrolein	2.64E-03	3.01E-07
OAKD2	3	71432	Benzene	5.01E-02	5.72E-06
OAKD2	3	106990	1,3-Butadiene	1.12E-02	1.27E-06
OAKD2	3	100414	Ethylbenzene	2.13E-02	2.43E-06
OAKD2	3	50000	Formaldehyde	3.20E-02	3.66E-06
OAKD2	3	110543	Hexane	3.24E-02	3.70E-06
OAKD2	3	67561	Methanol	2.43E-03	2.78E-07
OAKD2	3	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
OAKD2	3	91203	Naphthalene	1.01E-03	1.16E-07
OAKD2	3	115071	Propylene	6.21E-02	7.08E-06
OAKD2	3	100425	Styrene	2.43E-03	2.78E-07
OAKD2	3	108883	Toluene	1.17E-01	1.33E-05
OAKD2	3	1330207	Xylenes	9.73E-02	1.11E-05
INDU1	4	75070	Acetaldehyde	5.68E-03	6.48E-07
INDU1	4	107028	Acrolein	2.64E-03	3.01E-07
INDU1	4	71432	Benzene	5.01E-02	5.72E-06
INDU1	4	106990	1,3-Butadiene	1.12E-02	1.27E-06
INDU1	4	100414	Ethylbenzene	2.13E-02	2.43E-06
INDU1	4	50000	Formaldehyde	3.20E-02	3.66E-06

INDU1	4	110543	Hexane	3.24E-02	3.70E-06
INDU1	4	67561	Methanol	2.43E-03	2.78E-07
INDU1	4	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
INDU1	4	91203	Naphthalene	1.01E-03	1.16E-07
INDU1	4	115071	Propylene	6.21E-02	7.08E-06
INDU1	4	100425	Styrene	2.43E-03	2.78E-07
INDU1	4	108883	Toluene	1.17E-01	1.33E-05
INDU1	4	1330207	Xylenes	9.73E-02	1.11E-05
TOLAN2	5	75070	Acetaldehyde	5.68E-03	6.48E-07
TOLAN2	5	107028	Acrolein	2.64E-03	3.01E-07
TOLAN2	5	71432	Benzene	5.01E-02	5.72E-06
TOLAN2	5	106990	1,3-Butadiene	1.12E-02	1.27E-06
TOLAN2	5	100414	Ethylbenzene	2.13E-02	2.43E-06
TOLAN2	5	50000	Formaldehyde	3.20E-02	3.66E-06
TOLAN2	5	110543	Hexane	3.24E-02	3.70E-06
TOLAN2	5	67561	Methanol	2.43E-03	2.78E-07
TOLAN2	5	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
TOLAN2	5	91203	Naphthalene	1.01E-03	1.16E-07
TOLAN2	5	115071	Propylene	6.21E-02	7.08E-06
TOLAN2	5	100425	Styrene	2.43E-03	2.78E-07
TOLAN2	5	108883	Toluene	1.17E-01	1.33E-05
TOLAN2	5	1330207	Xylenes	9.73E-02	1.11E-05
TOLAN3	6	75070	Acetaldehyde	5.68E-03	6.48E-07
TOLAN3	6	107028	Acrolein	2.64E-03	3.01E-07
TOLAN3	6	71432	Benzene	5.01E-02	5.72E-06
TOLAN3	6	106990	1,3-Butadiene	1.12E-02	1.27E-06
TOLAN3	6	100414	Ethylbenzene	2.13E-02	2.43E-06
TOLAN3	6	50000	Formaldehyde	3.20E-02	3.66E-06
TOLAN3	6	110543	Hexane	3.24E-02	3.70E-06
TOLAN3	6	67561	Methanol	2.43E-03	2.78E-07
TOLAN3	6	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
TOLAN3	6	91203	Naphthalene	1.01E-03	1.16E-07
TOLAN3	6	115071	Propylene	6.21E-02	7.08E-06
TOLAN3	6	100425	Styrene	2.43E-03	2.78E-07
TOLAN3	6	108883	Toluene	1.17E-01	1.33E-05
TOLAN3	6	1330207	Xylenes	9.73E-02	1.11E-05
TOLAN4	7	75070	Acetaldehyde	7.49E-04	8.55E-08
TOLAN4	7	107028	Acrolein	3.48E-04	3.97E-08
TOLAN4	7	71432	Benzene	6.61E-03	7.54E-07
TOLAN4	7	106990	1,3-Butadiene	1.47E-03	1.68E-07
TOLAN4	7	100414	Ethylbenzene	2.81E-03	3.21E-07
TOLAN4	7	50000	Formaldehyde	4.23E-03	4.83E-07
TOLAN4	7	110543	Hexane	4.28E-03	4.89E-07
TOLAN4	7	67561	Methanol	3.21E-04	3.67E-08
TOLAN4	7	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
TOLAN4	7	91203	Naphthalene	1.34E-04	1.53E-08
TOLAN4	7	115071	Propylene	8.19E-03	9.35E-07

TOLAN4	7	100425	Styrene	3.21E-04	3.67E-08
TOLAN4	7	108883	Toluene	1.54E-02	1.76E-06
TOLAN4	7	1330207	Xylenes	1.28E-02	1.47E-06
JERR1	8	75070	Acetaldehyde	5.68E-03	6.48E-07
JERR1	8	107028	Acrolein	2.64E-03	3.01E-07
JERR1	8	71432	Benzene	5.01E-02	5.72E-06
JERR1	8	106990	1,3-Butadiene	1.12E-02	1.27E-06
JERR1	8	100414	Ethylbenzene	2.13E-02	2.43E-06
JERR1	8	50000	Formaldehyde	3.20E-02	3.66E-06
JERR1	8	110543	Hexane	3.24E-02	3.70E-06
JERR1	8	67561	Methanol	2.43E-03	2.78E-07
JERR1	8	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
JERR1	8	91203	Naphthalene	1.01E-03	1.16E-07
JERR1	8	115071	Propylene	6.21E-02	7.08E-06
JERR1	8	100425	Styrene	2.43E-03	2.78E-07
JERR1	8	108883	Toluene	1.17E-01	1.33E-05
JERR1	8	1330207	Xylenes	9.73E-02	1.11E-05
RANK1	9	75070	Acetaldehyde	7.49E-04	8.55E-08
RANK1	9	107028	Acrolein	3.48E-04	3.97E-08
RANK1	9	71432	Benzene	6.61E-03	7.54E-07
RANK1	9	106990	1,3-Butadiene	1.47E-03	1.68E-07
RANK1	9	100414	Ethylbenzene	2.81E-03	3.21E-07
RANK1	9	50000	Formaldehyde	4.23E-03	4.83E-07
RANK1	9	110543	Hexane	4.28E-03	4.89E-07
RANK1	9	67561	Methanol	3.21E-04	3.67E-08
RANK1	9	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
RANK1	9	91203	Naphthalene	1.34E-04	1.53E-08
RANK1	9	115071	Propylene	8.19E-03	9.35E-07
RANK1	9	100425	Styrene	3.21E-04	3.67E-08
RANK1	9	108883	Toluene	1.54E-02	1.76E-06
RANK1	9	1330207	Xylenes	1.28E-02	1.47E-06
JERR2	10	75070	Acetaldehyde	7.49E-04	8.55E-08
JERR2	10	107028	Acrolein	3.48E-04	3.97E-08
JERR2	10	71432	Benzene	6.61E-03	7.54E-07
JERR2	10	106990	1,3-Butadiene	1.47E-03	1.68E-07
JERR2	10	100414	Ethylbenzene	2.81E-03	3.21E-07
JERR2	10	50000	Formaldehyde	4.23E-03	4.83E-07
JERR2	10	110543	Hexane	4.28E-03	4.89E-07
JERR2	10	67561	Methanol	3.21E-04	3.67E-08
JERR2	10	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
JERR2	10	91203	Naphthalene	1.34E-04	1.53E-08
JERR2	10	115071	Propylene	8.19E-03	9.35E-07
JERR2	10	100425	Styrene	3.21E-04	3.67E-08
JERR2	10	108883	Toluene	1.54E-02	1.76E-06
JERR2	10	1330207	Xylenes	1.28E-02	1.47E-06
BARNE1	11	75070	Acetaldehyde	7.49E-04	8.55E-08
BARNE1	11	107028	Acrolein	3.48E-04	3.97E-08

BARNE1	11	71432	Benzene	6.61E-03	7.54E-07
BARNE1	11	106990	1,3-Butadiene	1.47E-03	1.68E-07
BARNE1	11	100414	Ethylbenzene	2.81E-03	3.21E-07
BARNE1	11	50000	Formaldehyde	4.23E-03	4.83E-07
BARNE1	11	110543	Hexane	4.28E-03	4.89E-07
BARNE1	11	67561	Methanol	3.21E-04	3.67E-08
BARNE1	11	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
BARNE1	11	91203	Naphthalene	1.34E-04	1.53E-08
BARNE1	11	115071	Propylene	8.19E-03	9.35E-07
BARNE1	11	100425	Styrene	3.21E-04	3.67E-08
BARNE1	11	108883	Toluene	1.54E-02	1.76E-06
BARNE1	11	1330207	Xylenes	1.28E-02	1.47E-06
NEWC1	12	75070	Acetaldehyde	7.49E-04	8.55E-08
NEWC1	12	107028	Acrolein	3.48E-04	3.97E-08
NEWC1	12	71432	Benzene	6.61E-03	7.54E-07
NEWC1	12	106990	1,3-Butadiene	1.47E-03	1.68E-07
NEWC1	12	100414	Ethylbenzene	2.81E-03	3.21E-07
NEWC1	12	50000	Formaldehyde	4.23E-03	4.83E-07
NEWC1	12	110543	Hexane	4.28E-03	4.89E-07
NEWC1	12	67561	Methanol	3.21E-04	3.67E-08
NEWC1	12	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
NEWC1	12	91203	Naphthalene	1.34E-04	1.53E-08
NEWC1	12	115071	Propylene	8.19E-03	9.35E-07
NEWC1	12	100425	Styrene	3.21E-04	3.67E-08
NEWC1	12	108883	Toluene	1.54E-02	1.76E-06
NEWC1	12	1330207	Xylenes	1.28E-02	1.47E-06
MCKI1	13	75070	Acetaldehyde	7.49E-04	8.55E-08
MCKI1	13	107028	Acrolein	3.48E-04	3.97E-08
MCKI1	13	71432	Benzene	6.61E-03	7.54E-07
MCKI1	13	106990	1,3-Butadiene	1.47E-03	1.68E-07
MCKI1	13	100414	Ethylbenzene	2.81E-03	3.21E-07
MCKI1	13	50000	Formaldehyde	4.23E-03	4.83E-07
MCKI1	13	110543	Hexane	4.28E-03	4.89E-07
MCKI1	13	67561	Methanol	3.21E-04	3.67E-08
MCKI1	13	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
MCKI1	13	91203	Naphthalene	1.34E-04	1.53E-08
MCKI1	13	115071	Propylene	8.19E-03	9.35E-07
MCKI1	13	100425	Styrene	3.21E-04	3.67E-08
MCKI1	13	108883	Toluene	1.54E-02	1.76E-06
MCKI1	13	1330207	Xylenes	1.28E-02	1.47E-06
TOLANP	14	75070	Acetaldehyde	7.49E-04	8.55E-08
TOLANP	14	107028	Acrolein	3.48E-04	3.97E-08
TOLANP	14	71432	Benzene	6.61E-03	7.54E-07
TOLANP	14	106990	1,3-Butadiene	1.47E-03	1.68E-07
TOLANP	14	100414	Ethylbenzene	2.81E-03	3.21E-07
TOLANP	14	50000	Formaldehyde	4.23E-03	4.83E-07
TOLANP	14	110543	Hexane	4.28E-03	4.89E-07

TOLANP	14	67561	Methanol	3.21E-04	3.67E-08
TOLANP	14	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
TOLANP	14	91203	Naphthalene	1.34E-04	1.53E-08
TOLANP	14	115071	Propylene	8.19E-03	9.35E-07
TOLANP	14	100425	Styrene	3.21E-04	3.67E-08
TOLANP	14	108883	Toluene	1.54E-02	1.76E-06
TOLANP	14	1330207	Xylenes	1.28E-02	1.47E-06
UPTON1	15	75070	Acetaldehyde	7.49E-04	8.55E-08
UPTON1	15	107028	Acrolein	3.48E-04	3.97E-08
UPTON1	15	71432	Benzene	6.61E-03	7.54E-07
UPTON1	15	106990	1,3-Butadiene	1.47E-03	1.68E-07
UPTON1	15	100414	Ethylbenzene	2.81E-03	3.21E-07
UPTON1	15	50000	Formaldehyde	4.23E-03	4.83E-07
UPTON1	15	110543	Hexane	4.28E-03	4.89E-07
UPTON1	15	67561	Methanol	3.21E-04	3.67E-08
UPTON1	15	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
UPTON1	15	91203	Naphthalene	1.34E-04	1.53E-08
UPTON1	15	115071	Propylene	8.19E-03	9.35E-07
UPTON1	15	100425	Styrene	3.21E-04	3.67E-08
UPTON1	15	108883	Toluene	1.54E-02	1.76E-06
UPTON1	15	1330207	Xylenes	1.28E-02	1.47E-06
HUDSO1	16	75070	Acetaldehyde	7.49E-04	8.55E-08
HUDSO1	16	107028	Acrolein	3.48E-04	3.97E-08
HUDSO1	16	71432	Benzene	6.61E-03	7.54E-07
HUDSO1	16	106990	1,3-Butadiene	1.47E-03	1.68E-07
HUDSO1	16	100414	Ethylbenzene	2.81E-03	3.21E-07
HUDSO1	16	50000	Formaldehyde	4.23E-03	4.83E-07
HUDSO1	16	110543	Hexane	4.28E-03	4.89E-07
HUDSO1	16	67561	Methanol	3.21E-04	3.67E-08
HUDSO1	16	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
HUDSO1	16	91203	Naphthalene	1.34E-04	1.53E-08
HUDSO1	16	115071	Propylene	8.19E-03	9.35E-07
HUDSO1	16	100425	Styrene	3.21E-04	3.67E-08
HUDSO1	16	108883	Toluene	1.54E-02	1.76E-06
HUDSO1	16	1330207	Xylenes	1.28E-02	1.47E-06
INNES1	17	75070	Acetaldehyde	7.49E-04	8.55E-08
INNES1	17	107028	Acrolein	3.48E-04	3.97E-08
INNES1	17	71432	Benzene	6.61E-03	7.54E-07
INNES1	17	106990	1,3-Butadiene	1.47E-03	1.68E-07
INNES1	17	100414	Ethylbenzene	2.81E-03	3.21E-07
INNES1	17	50000	Formaldehyde	4.23E-03	4.83E-07
INNES1	17	110543	Hexane	4.28E-03	4.89E-07
INNES1	17	67561	Methanol	3.21E-04	3.67E-08
INNES1	17	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
INNES1	17	91203	Naphthalene	1.34E-04	1.53E-08
INNES1	17	115071	Propylene	8.19E-03	9.35E-07
INNES1	17	100425	Styrene	3.21E-04	3.67E-08

INNES1	17	108883	Toluene	1.54E-02	1.76E-06
INNES1	17	1330207	Xylenes	1.28E-02	1.47E-06
INNES2	18	75070	Acetaldehyde	7.49E-04	8.55E-08
INNES2	18	107028	Acrolein	3.48E-04	3.97E-08
INNES2	18	71432	Benzene	6.61E-03	7.54E-07
INNES2	18	106990	1,3-Butadiene	1.47E-03	1.68E-07
INNES2	18	100414	Ethylbenzene	2.81E-03	3.21E-07
INNES2	18	50000	Formaldehyde	4.23E-03	4.83E-07
INNES2	18	110543	Hexane	4.28E-03	4.89E-07
INNES2	18	67561	Methanol	3.21E-04	3.67E-08
INNES2	18	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
INNES2	18	91203	Naphthalene	1.34E-04	1.53E-08
INNES2	18	115071	Propylene	8.19E-03	9.35E-07
INNES2	18	100425	Styrene	3.21E-04	3.67E-08
INNES2	18	108883	Toluene	1.54E-02	1.76E-06
INNES2	18	1330207	Xylenes	1.28E-02	1.47E-06
MILTO1	19	75070	Acetaldehyde	7.49E-04	8.55E-08
MILTO1	19	107028	Acrolein	3.48E-04	3.97E-08
MILTO1	19	71432	Benzene	6.61E-03	7.54E-07
MILTO1	19	106990	1,3-Butadiene	1.47E-03	1.68E-07
MILTO1	19	100414	Ethylbenzene	2.81E-03	3.21E-07
MILTO1	19	50000	Formaldehyde	4.23E-03	4.83E-07
MILTO1	19	110543	Hexane	4.28E-03	4.89E-07
MILTO1	19	67561	Methanol	3.21E-04	3.67E-08
MILTO1	19	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
MILTO1	19	91203	Naphthalene	1.34E-04	1.53E-08
MILTO1	19	115071	Propylene	8.19E-03	9.35E-07
MILTO1	19	100425	Styrene	3.21E-04	3.67E-08
MILTO1	19	108883	Toluene	1.54E-02	1.76E-06
MILTO1	19	1330207	Xylenes	1.28E-02	1.47E-06
MILTO2	20	75070	Acetaldehyde	7.49E-04	8.55E-08
MILTO2	20	107028	Acrolein	3.48E-04	3.97E-08
MILTO2	20	71432	Benzene	6.61E-03	7.54E-07
MILTO2	20	106990	1,3-Butadiene	1.47E-03	1.68E-07
MILTO2	20	100414	Ethylbenzene	2.81E-03	3.21E-07
MILTO2	20	50000	Formaldehyde	4.23E-03	4.83E-07
MILTO2	20	110543	Hexane	4.28E-03	4.89E-07
MILTO2	20	67561	Methanol	3.21E-04	3.67E-08
MILTO2	20	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
MILTO2	20	91203	Naphthalene	1.34E-04	1.53E-08
MILTO2	20	115071	Propylene	8.19E-03	9.35E-07
MILTO2	20	100425	Styrene	3.21E-04	3.67E-08
MILTO2	20	108883	Toluene	1.54E-02	1.76E-06
MILTO2	20	1330207	Xylenes	1.28E-02	1.47E-06
JERR3	21	75070	Acetaldehyde	7.49E-04	8.55E-08
JERR3	21	107028	Acrolein	3.48E-04	3.97E-08
JERR3	21	71432	Benzene	6.61E-03	7.54E-07

JERR3	21	106990	1,3-Butadiene	1.47E-03	1.68E-07
JERR3	21	100414	Ethylbenzene	2.81E-03	3.21E-07
JERR3	21	50000	Formaldehyde	4.23E-03	4.83E-07
JERR3	21	110543	Hexane	4.28E-03	4.89E-07
JERR3	21	67561	Methanol	3.21E-04	3.67E-08
JERR3	21	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
JERR3	21	91203	Naphthalene	1.34E-04	1.53E-08
JERR3	21	115071	Propylene	8.19E-03	9.35E-07
JERR3	21	100425	Styrene	3.21E-04	3.67E-08
JERR3	21	108883	Toluene	1.54E-02	1.76E-06
JERR3	21	1330207	Xylenes	1.28E-02	1.47E-06
JERR4	22	75070	Acetaldehyde	7.49E-04	8.55E-08
JERR4	22	107028	Acrolein	3.48E-04	3.97E-08
JERR4	22	71432	Benzene	6.61E-03	7.54E-07
JERR4	22	106990	1,3-Butadiene	1.47E-03	1.68E-07
JERR4	22	100414	Ethylbenzene	2.81E-03	3.21E-07
JERR4	22	50000	Formaldehyde	4.23E-03	4.83E-07
JERR4	22	110543	Hexane	4.28E-03	4.89E-07
JERR4	22	67561	Methanol	3.21E-04	3.67E-08
JERR4	22	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
JERR4	22	91203	Naphthalene	1.34E-04	1.53E-08
JERR4	22	115071	Propylene	8.19E-03	9.35E-07
JERR4	22	100425	Styrene	3.21E-04	3.67E-08
JERR4	22	108883	Toluene	1.54E-02	1.76E-06
JERR4	22	1330207	Xylenes	1.28E-02	1.47E-06
JERR5	23	75070	Acetaldehyde	7.49E-04	8.55E-08
JERR5	23	107028	Acrolein	3.48E-04	3.97E-08
JERR5	23	71432	Benzene	6.61E-03	7.54E-07
JERR5	23	106990	1,3-Butadiene	1.47E-03	1.68E-07
JERR5	23	100414	Ethylbenzene	2.81E-03	3.21E-07
JERR5	23	50000	Formaldehyde	4.23E-03	4.83E-07
JERR5	23	110543	Hexane	4.28E-03	4.89E-07
JERR5	23	67561	Methanol	3.21E-04	3.67E-08
JERR5	23	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
JERR5	23	91203	Naphthalene	1.34E-04	1.53E-08
JERR5	23	115071	Propylene	8.19E-03	9.35E-07
JERR5	23	100425	Styrene	3.21E-04	3.67E-08
JERR5	23	108883	Toluene	1.54E-02	1.76E-06
JERR5	23	1330207	Xylenes	1.28E-02	1.47E-06
JERR6	24	75070	Acetaldehyde	7.49E-04	8.55E-08
JERR6	24	107028	Acrolein	3.48E-04	3.97E-08
JERR6	24	71432	Benzene	6.61E-03	7.54E-07
JERR6	24	106990	1,3-Butadiene	1.47E-03	1.68E-07
JERR6	24	100414	Ethylbenzene	2.81E-03	3.21E-07
JERR6	24	50000	Formaldehyde	4.23E-03	4.83E-07
JERR6	24	110543	Hexane	4.28E-03	4.89E-07
JERR6	24	67561	Methanol	3.21E-04	3.67E-08

JERR6	24	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
JERR6	24	91203	Naphthalene	1.34E-04	1.53E-08
JERR6	24	115071	Propylene	8.19E-03	9.35E-07
JERR6	24	100425	Styrene	3.21E-04	3.67E-08
JERR6	24	108883	Toluene	1.54E-02	1.76E-06
JERR6	24	1330207	Xylenes	1.28E-02	1.47E-06
KIRK1	25	75070	Acetaldehyde	7.49E-04	8.55E-08
KIRK1	25	107028	Acrolein	3.48E-04	3.97E-08
KIRK1	25	71432	Benzene	6.61E-03	7.54E-07
KIRK1	25	106990	1,3-Butadiene	1.47E-03	1.68E-07
KIRK1	25	100414	Ethylbenzene	2.81E-03	3.21E-07
KIRK1	25	50000	Formaldehyde	4.23E-03	4.83E-07
KIRK1	25	110543	Hexane	4.28E-03	4.89E-07
KIRK1	25	67561	Methanol	3.21E-04	3.67E-08
KIRK1	25	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
KIRK1	25	91203	Naphthalene	1.34E-04	1.53E-08
KIRK1	25	115071	Propylene	8.19E-03	9.35E-07
KIRK1	25	100425	Styrene	3.21E-04	3.67E-08
KIRK1	25	108883	Toluene	1.54E-02	1.76E-06
KIRK1	25	1330207	Xylenes	1.28E-02	1.47E-06
KIRK2	26	75070	Acetaldehyde	7.49E-04	8.55E-08
KIRK2	26	107028	Acrolein	3.48E-04	3.97E-08
KIRK2	26	71432	Benzene	6.61E-03	7.54E-07
KIRK2	26	106990	1,3-Butadiene	1.47E-03	1.68E-07
KIRK2	26	100414	Ethylbenzene	2.81E-03	3.21E-07
KIRK2	26	50000	Formaldehyde	4.23E-03	4.83E-07
KIRK2	26	110543	Hexane	4.28E-03	4.89E-07
KIRK2	26	67561	Methanol	3.21E-04	3.67E-08
KIRK2	26	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
KIRK2	26	91203	Naphthalene	1.34E-04	1.53E-08
KIRK2	26	115071	Propylene	8.19E-03	9.35E-07
KIRK2	26	100425	Styrene	3.21E-04	3.67E-08
KIRK2	26	108883	Toluene	1.54E-02	1.76E-06
KIRK2	26	1330207	Xylenes	1.28E-02	1.47E-06
RANK2	27	75070	Acetaldehyde	7.49E-04	8.55E-08
RANK2	27	107028	Acrolein	3.48E-04	3.97E-08
RANK2	27	71432	Benzene	6.61E-03	7.54E-07
RANK2	27	106990	1,3-Butadiene	1.47E-03	1.68E-07
RANK2	27	100414	Ethylbenzene	2.81E-03	3.21E-07
RANK2	27	50000	Formaldehyde	4.23E-03	4.83E-07
RANK2	27	110543	Hexane	4.28E-03	4.89E-07
RANK2	27	67561	Methanol	3.21E-04	3.67E-08
RANK2	27	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
RANK2	27	91203	Naphthalene	1.34E-04	1.53E-08
RANK2	27	115071	Propylene	8.19E-03	9.35E-07
RANK2	27	100425	Styrene	3.21E-04	3.67E-08
RANK2	27	108883	Toluene	1.54E-02	1.76E-06

RANK2	27	1330207	Xylenes	1.28E-02	1.47E-06
MCKI2	28	75070	Acetaldehyde	7.49E-04	8.55E-08
MCKI2	28	107028	Acrolein	3.48E-04	3.97E-08
MCKI2	28	71432	Benzene	6.61E-03	7.54E-07
MCKI2	28	106990	1,3-Butadiene	1.47E-03	1.68E-07
MCKI2	28	100414	Ethylbenzene	2.81E-03	3.21E-07
MCKI2	28	50000	Formaldehyde	4.23E-03	4.83E-07
MCKI2	28	110543	Hexane	4.28E-03	4.89E-07
MCKI2	28	67561	Methanol	3.21E-04	3.67E-08
MCKI2	28	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
MCKI2	28	91203	Naphthalene	1.34E-04	1.53E-08
MCKI2	28	115071	Propylene	8.19E-03	9.35E-07
MCKI2	28	100425	Styrene	3.21E-04	3.67E-08
MCKI2	28	108883	Toluene	1.54E-02	1.76E-06
MCKI2	28	1330207	Xylenes	1.28E-02	1.47E-06
MCKI3	29	75070	Acetaldehyde	7.49E-04	8.55E-08
MCKI3	29	107028	Acrolein	3.48E-04	3.97E-08
MCKI3	29	71432	Benzene	6.61E-03	7.54E-07
MCKI3	29	106990	1,3-Butadiene	1.47E-03	1.68E-07
MCKI3	29	100414	Ethylbenzene	2.81E-03	3.21E-07
MCKI3	29	50000	Formaldehyde	4.23E-03	4.83E-07
MCKI3	29	110543	Hexane	4.28E-03	4.89E-07
MCKI3	29	67561	Methanol	3.21E-04	3.67E-08
MCKI3	29	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
MCKI3	29	91203	Naphthalene	1.34E-04	1.53E-08
MCKI3	29	115071	Propylene	8.19E-03	9.35E-07
MCKI3	29	100425	Styrene	3.21E-04	3.67E-08
MCKI3	29	108883	Toluene	1.54E-02	1.76E-06
MCKI3	29	1330207	Xylenes	1.28E-02	1.47E-06
NEWC2	30	75070	Acetaldehyde	7.49E-04	8.55E-08
NEWC2	30	107028	Acrolein	3.48E-04	3.97E-08
NEWC2	30	71432	Benzene	6.61E-03	7.54E-07
NEWC2	30	106990	1,3-Butadiene	1.47E-03	1.68E-07
NEWC2	30	100414	Ethylbenzene	2.81E-03	3.21E-07
NEWC2	30	50000	Formaldehyde	4.23E-03	4.83E-07
NEWC2	30	110543	Hexane	4.28E-03	4.89E-07
NEWC2	30	67561	Methanol	3.21E-04	3.67E-08
NEWC2	30	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
NEWC2	30	91203	Naphthalene	1.34E-04	1.53E-08
NEWC2	30	115071	Propylene	8.19E-03	9.35E-07
NEWC2	30	100425	Styrene	3.21E-04	3.67E-08
NEWC2	30	108883	Toluene	1.54E-02	1.76E-06
NEWC2	30	1330207	Xylenes	1.28E-02	1.47E-06
NEWC3	31	75070	Acetaldehyde	7.49E-04	8.55E-08
NEWC3	31	107028	Acrolein	3.48E-04	3.97E-08
NEWC3	31	71432	Benzene	6.61E-03	7.54E-07
NEWC3	31	106990	1,3-Butadiene	1.47E-03	1.68E-07

NEWC3	31	100414	Ethylbenzene	2.81E-03	3.21E-07
NEWC3	31	50000	Formaldehyde	4.23E-03	4.83E-07
NEWC3	31	110543	Hexane	4.28E-03	4.89E-07
NEWC3	31	67561	Methanol	3.21E-04	3.67E-08
NEWC3	31	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
NEWC3	31	91203	Naphthalene	1.34E-04	1.53E-08
NEWC3	31	115071	Propylene	8.19E-03	9.35E-07
NEWC3	31	100425	Styrene	3.21E-04	3.67E-08
NEWC3	31	108883	Toluene	1.54E-02	1.76E-06
NEWC3	31	1330207	Xylenes	1.28E-02	1.47E-06
OAKD3	32	75070	Acetaldehyde	5.68E-03	6.48E-07
OAKD3	32	107028	Acrolein	2.64E-03	3.01E-07
OAKD3	32	71432	Benzene	5.01E-02	5.72E-06
OAKD3	32	106990	1,3-Butadiene	1.12E-02	1.27E-06
OAKD3	32	100414	Ethylbenzene	2.13E-02	2.43E-06
OAKD3	32	50000	Formaldehyde	3.20E-02	3.66E-06
OAKD3	32	110543	Hexane	3.24E-02	3.70E-06
OAKD3	32	67561	Methanol	2.43E-03	2.78E-07
OAKD3	32	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
OAKD3	32	91203	Naphthalene	1.01E-03	1.16E-07
OAKD3	32	115071	Propylene	6.21E-02	7.08E-06
OAKD3	32	100425	Styrene	2.43E-03	2.78E-07
OAKD3	32	108883	Toluene	1.17E-01	1.33E-05
OAKD3	32	1330207	Xylenes	9.73E-02	1.11E-05
OAKD4	33	75070	Acetaldehyde	5.68E-03	6.48E-07
OAKD4	33	107028	Acrolein	2.64E-03	3.01E-07
OAKD4	33	71432	Benzene	5.01E-02	5.72E-06
OAKD4	33	106990	1,3-Butadiene	1.12E-02	1.27E-06
OAKD4	33	100414	Ethylbenzene	2.13E-02	2.43E-06
OAKD4	33	50000	Formaldehyde	3.20E-02	3.66E-06
OAKD4	33	110543	Hexane	3.24E-02	3.70E-06
OAKD4	33	67561	Methanol	2.43E-03	2.78E-07
OAKD4	33	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
OAKD4	33	91203	Naphthalene	1.01E-03	1.16E-07
OAKD4	33	115071	Propylene	6.21E-02	7.08E-06
OAKD4	33	100425	Styrene	2.43E-03	2.78E-07
OAKD4	33	108883	Toluene	1.17E-01	1.33E-05
OAKD4	33	1330207	Xylenes	9.73E-02	1.11E-05
PALO1	34	75070	Acetaldehyde	7.49E-04	8.55E-08
PALO1	34	107028	Acrolein	3.48E-04	3.97E-08
PALO1	34	71432	Benzene	6.61E-03	7.54E-07
PALO1	34	106990	1,3-Butadiene	1.47E-03	1.68E-07
PALO1	34	100414	Ethylbenzene	2.81E-03	3.21E-07
PALO1	34	50000	Formaldehyde	4.23E-03	4.83E-07
PALO1	34	110543	Hexane	4.28E-03	4.89E-07
PALO1	34	67561	Methanol	3.21E-04	3.67E-08
PALO1	34	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09

PALO1	34	91203	Naphthalene	1.34E-04	1.53E-08
PALO1	34	115071	Propylene	8.19E-03	9.35E-07
PALO1	34	100425	Styrene	3.21E-04	3.67E-08
PALO1	34	108883	Toluene	1.54E-02	1.76E-06
PALO1	34	1330207	Xylenes	1.28E-02	1.47E-06
PALO2	35	75070	Acetaldehyde	7.49E-04	8.55E-08
PALO2	35	107028	Acrolein	3.48E-04	3.97E-08
PALO2	35	71432	Benzene	6.61E-03	7.54E-07
PALO2	35	106990	1,3-Butadiene	1.47E-03	1.68E-07
PALO2	35	100414	Ethylbenzene	2.81E-03	3.21E-07
PALO2	35	50000	Formaldehyde	4.23E-03	4.83E-07
PALO2	35	110543	Hexane	4.28E-03	4.89E-07
PALO2	35	67561	Methanol	3.21E-04	3.67E-08
PALO2	35	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
PALO2	35	91203	Naphthalene	1.34E-04	1.53E-08
PALO2	35	115071	Propylene	8.19E-03	9.35E-07
PALO2	35	100425	Styrene	3.21E-04	3.67E-08
PALO2	35	108883	Toluene	1.54E-02	1.76E-06
PALO2	35	1330207	Xylenes	1.28E-02	1.47E-06
PALO3	36	75070	Acetaldehyde	7.49E-04	8.55E-08
PALO3	36	107028	Acrolein	3.48E-04	3.97E-08
PALO3	36	71432	Benzene	6.61E-03	7.54E-07
PALO3	36	106990	1,3-Butadiene	1.47E-03	1.68E-07
PALO3	36	100414	Ethylbenzene	2.81E-03	3.21E-07
PALO3	36	50000	Formaldehyde	4.23E-03	4.83E-07
PALO3	36	110543	Hexane	4.28E-03	4.89E-07
PALO3	36	67561	Methanol	3.21E-04	3.67E-08
PALO3	36	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
PALO3	36	91203	Naphthalene	1.34E-04	1.53E-08
PALO3	36	115071	Propylene	8.19E-03	9.35E-07
PALO3	36	100425	Styrene	3.21E-04	3.67E-08
PALO3	36	108883	Toluene	1.54E-02	1.76E-06
PALO3	36	1330207	Xylenes	1.28E-02	1.47E-06
OAKD5	37	75070	Acetaldehyde	7.49E-04	8.55E-08
OAKD5	37	107028	Acrolein	3.48E-04	3.97E-08
OAKD5	37	71432	Benzene	6.61E-03	7.54E-07
OAKD5	37	106990	1,3-Butadiene	1.47E-03	1.68E-07
OAKD5	37	100414	Ethylbenzene	2.81E-03	3.21E-07
OAKD5	37	50000	Formaldehyde	4.23E-03	4.83E-07
OAKD5	37	110543	Hexane	4.28E-03	4.89E-07
OAKD5	37	67561	Methanol	3.21E-04	3.67E-08
OAKD5	37	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
OAKD5	37	91203	Naphthalene	1.34E-04	1.53E-08
OAKD5	37	115071	Propylene	8.19E-03	9.35E-07
OAKD5	37	100425	Styrene	3.21E-04	3.67E-08
OAKD5	37	108883	Toluene	1.54E-02	1.76E-06
OAKD5	37	1330207	Xylenes	1.28E-02	1.47E-06

QUIN1	38	75070	Acetaldehyde	7.49E-04	8.55E-08
QUIN1	38	107028	Acrolein	3.48E-04	3.97E-08
QUIN1	38	71432	Benzene	6.61E-03	7.54E-07
QUIN1	38	106990	1,3-Butadiene	1.47E-03	1.68E-07
QUIN1	38	100414	Ethylbenzene	2.81E-03	3.21E-07
QUIN1	38	50000	Formaldehyde	4.23E-03	4.83E-07
QUIN1	38	110543	Hexane	4.28E-03	4.89E-07
QUIN1	38	67561	Methanol	3.21E-04	3.67E-08
QUIN1	38	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
QUIN1	38	91203	Naphthalene	1.34E-04	1.53E-08
QUIN1	38	115071	Propylene	8.19E-03	9.35E-07
QUIN1	38	100425	Styrene	3.21E-04	3.67E-08
QUIN1	38	108883	Toluene	1.54E-02	1.76E-06
QUIN1	38	1330207	Xylenes	1.28E-02	1.47E-06
QUIN2	39	75070	Acetaldehyde	7.49E-04	8.55E-08
QUIN2	39	107028	Acrolein	3.48E-04	3.97E-08
QUIN2	39	71432	Benzene	6.61E-03	7.54E-07
QUIN2	39	106990	1,3-Butadiene	1.47E-03	1.68E-07
QUIN2	39	100414	Ethylbenzene	2.81E-03	3.21E-07
QUIN2	39	50000	Formaldehyde	4.23E-03	4.83E-07
QUIN2	39	110543	Hexane	4.28E-03	4.89E-07
QUIN2	39	67561	Methanol	3.21E-04	3.67E-08
QUIN2	39	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
QUIN2	39	91203	Naphthalene	1.34E-04	1.53E-08
QUIN2	39	115071	Propylene	8.19E-03	9.35E-07
QUIN2	39	100425	Styrene	3.21E-04	3.67E-08
QUIN2	39	108883	Toluene	1.54E-02	1.76E-06
QUIN2	39	1330207	Xylenes	1.28E-02	1.47E-06
RANK3	40	75070	Acetaldehyde	7.49E-04	8.55E-08
RANK3	40	107028	Acrolein	3.48E-04	3.97E-08
RANK3	40	71432	Benzene	6.61E-03	7.54E-07
RANK3	40	106990	1,3-Butadiene	1.47E-03	1.68E-07
RANK3	40	100414	Ethylbenzene	2.81E-03	3.21E-07
RANK3	40	50000	Formaldehyde	4.23E-03	4.83E-07
RANK3	40	110543	Hexane	4.28E-03	4.89E-07
RANK3	40	67561	Methanol	3.21E-04	3.67E-08
RANK3	40	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
RANK3	40	91203	Naphthalene	1.34E-04	1.53E-08
RANK3	40	115071	Propylene	8.19E-03	9.35E-07
RANK3	40	100425	Styrene	3.21E-04	3.67E-08
RANK3	40	108883	Toluene	1.54E-02	1.76E-06
RANK3	40	1330207	Xylenes	1.28E-02	1.47E-06
RANK4	41	75070	Acetaldehyde	7.49E-04	8.55E-08
RANK4	41	107028	Acrolein	3.48E-04	3.97E-08
RANK4	41	71432	Benzene	6.61E-03	7.54E-07
RANK4	41	106990	1,3-Butadiene	1.47E-03	1.68E-07
RANK4	41	100414	Ethylbenzene	2.81E-03	3.21E-07

RANK4	41	50000	Formaldehyde	4.23E-03	4.83E-07
RANK4	41	110543	Hexane	4.28E-03	4.89E-07
RANK4	41	67561	Methanol	3.21E-04	3.67E-08
RANK4	41	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
RANK4	41	91203	Naphthalene	1.34E-04	1.53E-08
RANK4	41	115071	Propylene	8.19E-03	9.35E-07
RANK4	41	100425	Styrene	3.21E-04	3.67E-08
RANK4	41	108883	Toluene	1.54E-02	1.76E-06
RANK4	41	1330207	Xylenes	1.28E-02	1.47E-06
RANK5	42	75070	Acetaldehyde	7.49E-04	8.55E-08
RANK5	42	107028	Acrolein	3.48E-04	3.97E-08
RANK5	42	71432	Benzene	6.61E-03	7.54E-07
RANK5	42	106990	1,3-Butadiene	1.47E-03	1.68E-07
RANK5	42	100414	Ethylbenzene	2.81E-03	3.21E-07
RANK5	42	50000	Formaldehyde	4.23E-03	4.83E-07
RANK5	42	110543	Hexane	4.28E-03	4.89E-07
RANK5	42	67561	Methanol	3.21E-04	3.67E-08
RANK5	42	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
RANK5	42	91203	Naphthalene	1.34E-04	1.53E-08
RANK5	42	115071	Propylene	8.19E-03	9.35E-07
RANK5	42	100425	Styrene	3.21E-04	3.67E-08
RANK5	42	108883	Toluene	1.54E-02	1.76E-06
RANK5	42	1330207	Xylenes	1.28E-02	1.47E-06
PALO4	43	75070	Acetaldehyde	7.49E-04	8.55E-08
PALO4	43	107028	Acrolein	3.48E-04	3.97E-08
PALO4	43	71432	Benzene	6.61E-03	7.54E-07
PALO4	43	106990	1,3-Butadiene	1.47E-03	1.68E-07
PALO4	43	100414	Ethylbenzene	2.81E-03	3.21E-07
PALO4	43	50000	Formaldehyde	4.23E-03	4.83E-07
PALO4	43	110543	Hexane	4.28E-03	4.89E-07
PALO4	43	67561	Methanol	3.21E-04	3.67E-08
PALO4	43	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
PALO4	43	91203	Naphthalene	1.34E-04	1.53E-08
PALO4	43	115071	Propylene	8.19E-03	9.35E-07
PALO4	43	100425	Styrene	3.21E-04	3.67E-08
PALO4	43	108883	Toluene	1.54E-02	1.76E-06
PALO4	43	1330207	Xylenes	1.28E-02	1.47E-06
DORM1	44	75070	Acetaldehyde	7.49E-04	8.55E-08
DORM1	44	107028	Acrolein	3.48E-04	3.97E-08
DORM1	44	71432	Benzene	6.61E-03	7.54E-07
DORM1	44	106990	1,3-Butadiene	1.47E-03	1.68E-07
DORM1	44	100414	Ethylbenzene	2.81E-03	3.21E-07
DORM1	44	50000	Formaldehyde	4.23E-03	4.83E-07
DORM1	44	110543	Hexane	4.28E-03	4.89E-07
DORM1	44	67561	Methanol	3.21E-04	3.67E-08
DORM1	44	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
DORM1	44	91203	Naphthalene	1.34E-04	1.53E-08

DORM1	44	115071	Propylene	8.19E-03	9.35E-07
DORM1	44	100425	Styrene	3.21E-04	3.67E-08
DORM1	44	108883	Toluene	1.54E-02	1.76E-06
DORM1	44	1330207	Xylenes	1.28E-02	1.47E-06
APPA1	45	75070	Acetaldehyde	7.49E-04	8.55E-08
APPA1	45	107028	Acrolein	3.48E-04	3.97E-08
APPA1	45	71432	Benzene	6.61E-03	7.54E-07
APPA1	45	106990	1,3-Butadiene	1.47E-03	1.68E-07
APPA1	45	100414	Ethylbenzene	2.81E-03	3.21E-07
APPA1	45	50000	Formaldehyde	4.23E-03	4.83E-07
APPA1	45	110543	Hexane	4.28E-03	4.89E-07
APPA1	45	67561	Methanol	3.21E-04	3.67E-08
APPA1	45	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
APPA1	45	91203	Naphthalene	1.34E-04	1.53E-08
APPA1	45	115071	Propylene	8.19E-03	9.35E-07
APPA1	45	100425	Styrene	3.21E-04	3.67E-08
APPA1	45	108883	Toluene	1.54E-02	1.76E-06
APPA1	45	1330207	Xylenes	1.28E-02	1.47E-06
SELB1	46	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB1	46	107028	Acrolein	3.48E-04	3.97E-08
SELB1	46	71432	Benzene	6.61E-03	7.54E-07
SELB1	46	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB1	46	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB1	46	50000	Formaldehyde	4.23E-03	4.83E-07
SELB1	46	110543	Hexane	4.28E-03	4.89E-07
SELB1	46	67561	Methanol	3.21E-04	3.67E-08
SELB1	46	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB1	46	91203	Naphthalene	1.34E-04	1.53E-08
SELB1	46	115071	Propylene	8.19E-03	9.35E-07
SELB1	46	100425	Styrene	3.21E-04	3.67E-08
SELB1	46	108883	Toluene	1.54E-02	1.76E-06
SELB1	46	1330207	Xylenes	1.28E-02	1.47E-06
SELB2	47	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB2	47	107028	Acrolein	3.48E-04	3.97E-08
SELB2	47	71432	Benzene	6.61E-03	7.54E-07
SELB2	47	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB2	47	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB2	47	50000	Formaldehyde	4.23E-03	4.83E-07
SELB2	47	110543	Hexane	4.28E-03	4.89E-07
SELB2	47	67561	Methanol	3.21E-04	3.67E-08
SELB2	47	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB2	47	91203	Naphthalene	1.34E-04	1.53E-08
SELB2	47	115071	Propylene	8.19E-03	9.35E-07
SELB2	47	100425	Styrene	3.21E-04	3.67E-08
SELB2	47	108883	Toluene	1.54E-02	1.76E-06
SELB2	47	1330207	Xylenes	1.28E-02	1.47E-06
SELB3	48	75070	Acetaldehyde	5.68E-03	6.48E-07

SELB3	48	107028	Acrolein	2.64E-03	3.01E-07
SELB3	48	71432	Benzene	5.01E-02	5.72E-06
SELB3	48	106990	1,3-Butadiene	1.12E-02	1.27E-06
SELB3	48	100414	Ethylbenzene	2.13E-02	2.43E-06
SELB3	48	50000	Formaldehyde	3.20E-02	3.66E-06
SELB3	48	110543	Hexane	3.24E-02	3.70E-06
SELB3	48	67561	Methanol	2.43E-03	2.78E-07
SELB3	48	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
SELB3	48	91203	Naphthalene	1.01E-03	1.16E-07
SELB3	48	115071	Propylene	6.21E-02	7.08E-06
SELB3	48	100425	Styrene	2.43E-03	2.78E-07
SELB3	48	108883	Toluene	1.17E-01	1.33E-05
SELB3	48	1330207	Xylenes	9.73E-02	1.11E-05
SELB4	49	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB4	49	107028	Acrolein	3.48E-04	3.97E-08
SELB4	49	71432	Benzene	6.61E-03	7.54E-07
SELB4	49	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB4	49	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB4	49	50000	Formaldehyde	4.23E-03	4.83E-07
SELB4	49	110543	Hexane	4.28E-03	4.89E-07
SELB4	49	67561	Methanol	3.21E-04	3.67E-08
SELB4	49	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB4	49	91203	Naphthalene	1.34E-04	1.53E-08
SELB4	49	115071	Propylene	8.19E-03	9.35E-07
SELB4	49	100425	Styrene	3.21E-04	3.67E-08
SELB4	49	108883	Toluene	1.54E-02	1.76E-06
SELB4	49	1330207	Xylenes	1.28E-02	1.47E-06
SELB5	50	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB5	50	107028	Acrolein	3.48E-04	3.97E-08
SELB5	50	71432	Benzene	6.61E-03	7.54E-07
SELB5	50	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB5	50	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB5	50	50000	Formaldehyde	4.23E-03	4.83E-07
SELB5	50	110543	Hexane	4.28E-03	4.89E-07
SELB5	50	67561	Methanol	3.21E-04	3.67E-08
SELB5	50	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB5	50	91203	Naphthalene	1.34E-04	1.53E-08
SELB5	50	115071	Propylene	8.19E-03	9.35E-07
SELB5	50	100425	Styrene	3.21E-04	3.67E-08
SELB5	50	108883	Toluene	1.54E-02	1.76E-06
SELB5	50	1330207	Xylenes	1.28E-02	1.47E-06
SELB6	51	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB6	51	107028	Acrolein	3.48E-04	3.97E-08
SELB6	51	71432	Benzene	6.61E-03	7.54E-07
SELB6	51	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB6	51	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB6	51	50000	Formaldehyde	4.23E-03	4.83E-07

SELB6	51	110543	Hexane	4.28E-03	4.89E-07
SELB6	51	67561	Methanol	3.21E-04	3.67E-08
SELB6	51	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB6	51	91203	Naphthalene	1.34E-04	1.53E-08
SELB6	51	115071	Propylene	8.19E-03	9.35E-07
SELB6	51	100425	Styrene	3.21E-04	3.67E-08
SELB6	51	108883	Toluene	1.54E-02	1.76E-06
SELB6	51	1330207	Xylenes	1.28E-02	1.47E-06
SELB7	52	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB7	52	107028	Acrolein	3.48E-04	3.97E-08
SELB7	52	71432	Benzene	6.61E-03	7.54E-07
SELB7	52	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB7	52	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB7	52	50000	Formaldehyde	4.23E-03	4.83E-07
SELB7	52	110543	Hexane	4.28E-03	4.89E-07
SELB7	52	67561	Methanol	3.21E-04	3.67E-08
SELB7	52	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB7	52	91203	Naphthalene	1.34E-04	1.53E-08
SELB7	52	115071	Propylene	8.19E-03	9.35E-07
SELB7	52	100425	Styrene	3.21E-04	3.67E-08
SELB7	52	108883	Toluene	1.54E-02	1.76E-06
SELB7	52	1330207	Xylenes	1.28E-02	1.47E-06
SELB8	53	75070	Acetaldehyde	7.49E-04	8.55E-08
SELB8	53	107028	Acrolein	3.48E-04	3.97E-08
SELB8	53	71432	Benzene	6.61E-03	7.54E-07
SELB8	53	106990	1,3-Butadiene	1.47E-03	1.68E-07
SELB8	53	100414	Ethylbenzene	2.81E-03	3.21E-07
SELB8	53	50000	Formaldehyde	4.23E-03	4.83E-07
SELB8	53	110543	Hexane	4.28E-03	4.89E-07
SELB8	53	67561	Methanol	3.21E-04	3.67E-08
SELB8	53	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SELB8	53	91203	Naphthalene	1.34E-04	1.53E-08
SELB8	53	115071	Propylene	8.19E-03	9.35E-07
SELB8	53	100425	Styrene	3.21E-04	3.67E-08
SELB8	53	108883	Toluene	1.54E-02	1.76E-06
SELB8	53	1330207	Xylenes	1.28E-02	1.47E-06
BAYSH1	54	75070	Acetaldehyde	5.68E-03	6.48E-07
BAYSH1	54	107028	Acrolein	2.64E-03	3.01E-07
BAYSH1	54	71432	Benzene	5.01E-02	5.72E-06
BAYSH1	54	106990	1,3-Butadiene	1.12E-02	1.27E-06
BAYSH1	54	100414	Ethylbenzene	2.13E-02	2.43E-06
BAYSH1	54	50000	Formaldehyde	3.20E-02	3.66E-06
BAYSH1	54	110543	Hexane	3.24E-02	3.70E-06
BAYSH1	54	67561	Methanol	2.43E-03	2.78E-07
BAYSH1	54	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
BAYSH1	54	91203	Naphthalene	1.01E-03	1.16E-07
BAYSH1	54	115071	Propylene	6.21E-02	7.08E-06

BAYSH1	54	100425	Styrene	2.43E-03	2.78E-07
BAYSH1	54	108883	Toluene	1.17E-01	1.33E-05
BAYSH1	54	1330207	Xylenes	9.73E-02	1.11E-05
INDUS1	55	75070	Acetaldehyde	5.68E-03	6.48E-07
INDUS1	55	107028	Acrolein	2.64E-03	3.01E-07
INDUS1	55	71432	Benzene	5.01E-02	5.72E-06
INDUS1	55	106990	1,3-Butadiene	1.12E-02	1.27E-06
INDUS1	55	100414	Ethylbenzene	2.13E-02	2.43E-06
INDUS1	55	50000	Formaldehyde	3.20E-02	3.66E-06
INDUS1	55	110543	Hexane	3.24E-02	3.70E-06
INDUS1	55	67561	Methanol	2.43E-03	2.78E-07
INDUS1	55	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
INDUS1	55	91203	Naphthalene	1.01E-03	1.16E-07
INDUS1	55	115071	Propylene	6.21E-02	7.08E-06
INDUS1	55	100425	Styrene	2.43E-03	2.78E-07
INDUS1	55	108883	Toluene	1.17E-01	1.33E-05
INDUS1	55	1330207	Xylenes	9.73E-02	1.11E-05
BAYSH2	56	75070	Acetaldehyde	5.68E-03	6.48E-07
BAYSH2	56	107028	Acrolein	2.64E-03	3.01E-07
BAYSH2	56	71432	Benzene	5.01E-02	5.72E-06
BAYSH2	56	106990	1,3-Butadiene	1.12E-02	1.27E-06
BAYSH2	56	100414	Ethylbenzene	2.13E-02	2.43E-06
BAYSH2	56	50000	Formaldehyde	3.20E-02	3.66E-06
BAYSH2	56	110543	Hexane	3.24E-02	3.70E-06
BAYSH2	56	67561	Methanol	2.43E-03	2.78E-07
BAYSH2	56	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
BAYSH2	56	91203	Naphthalene	1.01E-03	1.16E-07
BAYSH2	56	115071	Propylene	6.21E-02	7.08E-06
BAYSH2	56	100425	Styrene	2.43E-03	2.78E-07
BAYSH2	56	108883	Toluene	1.17E-01	1.33E-05
BAYSH2	56	1330207	Xylenes	9.73E-02	1.11E-05
BAYSH3	57	75070	Acetaldehyde	5.68E-03	6.48E-07
BAYSH3	57	107028	Acrolein	2.64E-03	3.01E-07
BAYSH3	57	71432	Benzene	5.01E-02	5.72E-06
BAYSH3	57	106990	1,3-Butadiene	1.12E-02	1.27E-06
BAYSH3	57	100414	Ethylbenzene	2.13E-02	2.43E-06
BAYSH3	57	50000	Formaldehyde	3.20E-02	3.66E-06
BAYSH3	57	110543	Hexane	3.24E-02	3.70E-06
BAYSH3	57	67561	Methanol	2.43E-03	2.78E-07
BAYSH3	57	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
BAYSH3	57	91203	Naphthalene	1.01E-03	1.16E-07
BAYSH3	57	115071	Propylene	6.21E-02	7.08E-06
BAYSH3	57	100425	Styrene	2.43E-03	2.78E-07
BAYSH3	57	108883	Toluene	1.17E-01	1.33E-05
BAYSH3	57	1330207	Xylenes	9.73E-02	1.11E-05
BARN2	58	75070	Acetaldehyde	7.49E-04	8.55E-08
BARN2	58	107028	Acrolein	3.48E-04	3.97E-08

BARN2	58	71432	Benzene	6.61E-03	7.54E-07
BARN2	58	106990	1,3-Butadiene	1.47E-03	1.68E-07
BARN2	58	100414	Ethylbenzene	2.81E-03	3.21E-07
BARN2	58	50000	Formaldehyde	4.23E-03	4.83E-07
BARN2	58	110543	Hexane	4.28E-03	4.89E-07
BARN2	58	67561	Methanol	3.21E-04	3.67E-08
BARN2	58	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
BARN2	58	91203	Naphthalene	1.34E-04	1.53E-08
BARN2	58	115071	Propylene	8.19E-03	9.35E-07
BARN2	58	100425	Styrene	3.21E-04	3.67E-08
BARN2	58	108883	Toluene	1.54E-02	1.76E-06
BARN2	58	1330207	Xylenes	1.28E-02	1.47E-06
LOOM1	59	75070	Acetaldehyde	7.49E-04	8.55E-08
LOOM1	59	107028	Acrolein	3.48E-04	3.97E-08
LOOM1	59	71432	Benzene	6.61E-03	7.54E-07
LOOM1	59	106990	1,3-Butadiene	1.47E-03	1.68E-07
LOOM1	59	100414	Ethylbenzene	2.81E-03	3.21E-07
LOOM1	59	50000	Formaldehyde	4.23E-03	4.83E-07
LOOM1	59	110543	Hexane	4.28E-03	4.89E-07
LOOM1	59	67561	Methanol	3.21E-04	3.67E-08
LOOM1	59	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
LOOM1	59	91203	Naphthalene	1.34E-04	1.53E-08
LOOM1	59	115071	Propylene	8.19E-03	9.35E-07
LOOM1	59	100425	Styrene	3.21E-04	3.67E-08
LOOM1	59	108883	Toluene	1.54E-02	1.76E-06
LOOM1	59	1330207	Xylenes	1.28E-02	1.47E-06
LOOM2	60	75070	Acetaldehyde	7.49E-04	8.55E-08
LOOM2	60	107028	Acrolein	3.48E-04	3.97E-08
LOOM2	60	71432	Benzene	6.61E-03	7.54E-07
LOOM2	60	106990	1,3-Butadiene	1.47E-03	1.68E-07
LOOM2	60	100414	Ethylbenzene	2.81E-03	3.21E-07
LOOM2	60	50000	Formaldehyde	4.23E-03	4.83E-07
LOOM2	60	110543	Hexane	4.28E-03	4.89E-07
LOOM2	60	67561	Methanol	3.21E-04	3.67E-08
LOOM2	60	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
LOOM2	60	91203	Naphthalene	1.34E-04	1.53E-08
LOOM2	60	115071	Propylene	8.19E-03	9.35E-07
LOOM2	60	100425	Styrene	3.21E-04	3.67E-08
LOOM2	60	108883	Toluene	1.54E-02	1.76E-06
LOOM2	60	1330207	Xylenes	1.28E-02	1.47E-06
ELMIR	61	75070	Acetaldehyde	7.49E-04	8.55E-08
ELMIR	61	107028	Acrolein	3.48E-04	3.97E-08
ELMIR	61	71432	Benzene	6.61E-03	7.54E-07
ELMIR	61	106990	1,3-Butadiene	1.47E-03	1.68E-07
ELMIR	61	100414	Ethylbenzene	2.81E-03	3.21E-07
ELMIR	61	50000	Formaldehyde	4.23E-03	4.83E-07
ELMIR	61	110543	Hexane	4.28E-03	4.89E-07

ELMIR	61	67561	Methanol	3.21E-04	3.67E-08
ELMIR	61	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
ELMIR	61	91203	Naphthalene	1.34E-04	1.53E-08
ELMIR	61	115071	Propylene	8.19E-03	9.35E-07
ELMIR	61	100425	Styrene	3.21E-04	3.67E-08
ELMIR	61	108883	Toluene	1.54E-02	1.76E-06
ELMIR	61	1330207	Xylenes	1.28E-02	1.47E-06
COA	62	75070	Acetaldehyde	7.49E-04	8.55E-08
COA	62	107028	Acrolein	3.48E-04	3.97E-08
COA	62	71432	Benzene	6.61E-03	7.54E-07
COA	62	106990	1,3-Butadiene	1.47E-03	1.68E-07
COA	62	100414	Ethylbenzene	2.81E-03	3.21E-07
COA	62	50000	Formaldehyde	4.23E-03	4.83E-07
COA	62	110543	Hexane	4.28E-03	4.89E-07
COA	62	67561	Methanol	3.21E-04	3.67E-08
COA	62	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
COA	62	91203	Naphthalene	1.34E-04	1.53E-08
COA	62	115071	Propylene	8.19E-03	9.35E-07
COA	62	100425	Styrene	3.21E-04	3.67E-08
COA	62	108883	Toluene	1.54E-02	1.76E-06
COA	62	1330207	Xylenes	1.28E-02	1.47E-06
BOUT	63	75070	Acetaldehyde	7.49E-04	8.55E-08
BOUT	63	107028	Acrolein	3.48E-04	3.97E-08
BOUT	63	71432	Benzene	6.61E-03	7.54E-07
BOUT	63	106990	1,3-Butadiene	1.47E-03	1.68E-07
BOUT	63	100414	Ethylbenzene	2.81E-03	3.21E-07
BOUT	63	50000	Formaldehyde	4.23E-03	4.83E-07
BOUT	63	110543	Hexane	4.28E-03	4.89E-07
BOUT	63	67561	Methanol	3.21E-04	3.67E-08
BOUT	63	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
BOUT	63	91203	Naphthalene	1.34E-04	1.53E-08
BOUT	63	115071	Propylene	8.19E-03	9.35E-07
BOUT	63	100425	Styrene	3.21E-04	3.67E-08
BOUT	63	108883	Toluene	1.54E-02	1.76E-06
BOUT	63	1330207	Xylenes	1.28E-02	1.47E-06
SANB	64	75070	Acetaldehyde	7.49E-04	8.55E-08
SANB	64	107028	Acrolein	3.48E-04	3.97E-08
SANB	64	71432	Benzene	6.61E-03	7.54E-07
SANB	64	106990	1,3-Butadiene	1.47E-03	1.68E-07
SANB	64	100414	Ethylbenzene	2.81E-03	3.21E-07
SANB	64	50000	Formaldehyde	4.23E-03	4.83E-07
SANB	64	110543	Hexane	4.28E-03	4.89E-07
SANB	64	67561	Methanol	3.21E-04	3.67E-08
SANB	64	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SANB	64	91203	Naphthalene	1.34E-04	1.53E-08
SANB	64	115071	Propylene	8.19E-03	9.35E-07
SANB	64	100425	Styrene	3.21E-04	3.67E-08

SANB	64	108883	Toluene	1.54E-02	1.76E-06
SANB	64	1330207	Xylenes	1.28E-02	1.47E-06
ALEM	65	75070	Acetaldehyde	5.68E-03	6.48E-07
ALEM	65	107028	Acrolein	2.64E-03	3.01E-07
ALEM	65	71432	Benzene	5.01E-02	5.72E-06
ALEM	65	106990	1,3-Butadiene	1.12E-02	1.27E-06
ALEM	65	100414	Ethylbenzene	2.13E-02	2.43E-06
ALEM	65	50000	Formaldehyde	3.20E-02	3.66E-06
ALEM	65	110543	Hexane	3.24E-02	3.70E-06
ALEM	65	67561	Methanol	2.43E-03	2.78E-07
ALEM	65	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
ALEM	65	91203	Naphthalene	1.01E-03	1.16E-07
ALEM	65	115071	Propylene	6.21E-02	7.08E-06
ALEM	65	100425	Styrene	2.43E-03	2.78E-07
ALEM	65	108883	Toluene	1.17E-01	1.33E-05
ALEM	65	1330207	Xylenes	9.73E-02	1.11E-05
PUTN1	66	75070	Acetaldehyde	7.49E-04	8.55E-08
PUTN1	66	107028	Acrolein	3.48E-04	3.97E-08
PUTN1	66	71432	Benzene	6.61E-03	7.54E-07
PUTN1	66	106990	1,3-Butadiene	1.47E-03	1.68E-07
PUTN1	66	100414	Ethylbenzene	2.81E-03	3.21E-07
PUTN1	66	50000	Formaldehyde	4.23E-03	4.83E-07
PUTN1	66	110543	Hexane	4.28E-03	4.89E-07
PUTN1	66	67561	Methanol	3.21E-04	3.67E-08
PUTN1	66	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
PUTN1	66	91203	Naphthalene	1.34E-04	1.53E-08
PUTN1	66	115071	Propylene	8.19E-03	9.35E-07
PUTN1	66	100425	Styrene	3.21E-04	3.67E-08
PUTN1	66	108883	Toluene	1.54E-02	1.76E-06
PUTN1	66	1330207	Xylenes	1.28E-02	1.47E-06
COURT1	67	75070	Acetaldehyde	7.49E-04	8.55E-08
COURT1	67	107028	Acrolein	3.48E-04	3.97E-08
COURT1	67	71432	Benzene	6.61E-03	7.54E-07
COURT1	67	106990	1,3-Butadiene	1.47E-03	1.68E-07
COURT1	67	100414	Ethylbenzene	2.81E-03	3.21E-07
COURT1	67	50000	Formaldehyde	4.23E-03	4.83E-07
COURT1	67	110543	Hexane	4.28E-03	4.89E-07
COURT1	67	67561	Methanol	3.21E-04	3.67E-08
COURT1	67	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
COURT1	67	91203	Naphthalene	1.34E-04	1.53E-08
COURT1	67	115071	Propylene	8.19E-03	9.35E-07
COURT1	67	100425	Styrene	3.21E-04	3.67E-08
COURT1	67	108883	Toluene	1.54E-02	1.76E-06
COURT1	67	1330207	Xylenes	1.28E-02	1.47E-06
TOMP1	68	75070	Acetaldehyde	7.49E-04	8.55E-08
TOMP1	68	107028	Acrolein	3.48E-04	3.97E-08
TOMP1	68	71432	Benzene	6.61E-03	7.54E-07

TOMP1	68	106990	1,3-Butadiene	1.47E-03	1.68E-07
TOMP1	68	100414	Ethylbenzene	2.81E-03	3.21E-07
TOMP1	68	50000	Formaldehyde	4.23E-03	4.83E-07
TOMP1	68	110543	Hexane	4.28E-03	4.89E-07
TOMP1	68	67561	Methanol	3.21E-04	3.67E-08
TOMP1	68	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
TOMP1	68	91203	Naphthalene	1.34E-04	1.53E-08
TOMP1	68	115071	Propylene	8.19E-03	9.35E-07
TOMP1	68	100425	Styrene	3.21E-04	3.67E-08
TOMP1	68	108883	Toluene	1.54E-02	1.76E-06
TOMP1	68	1330207	Xylenes	1.28E-02	1.47E-06
BRAD1	69	75070	Acetaldehyde	7.49E-04	8.55E-08
BRAD1	69	107028	Acrolein	3.48E-04	3.97E-08
BRAD1	69	71432	Benzene	6.61E-03	7.54E-07
BRAD1	69	106990	1,3-Butadiene	1.47E-03	1.68E-07
BRAD1	69	100414	Ethylbenzene	2.81E-03	3.21E-07
BRAD1	69	50000	Formaldehyde	4.23E-03	4.83E-07
BRAD1	69	110543	Hexane	4.28E-03	4.89E-07
BRAD1	69	67561	Methanol	3.21E-04	3.67E-08
BRAD1	69	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
BRAD1	69	91203	Naphthalene	1.34E-04	1.53E-08
BRAD1	69	115071	Propylene	8.19E-03	9.35E-07
BRAD1	69	100425	Styrene	3.21E-04	3.67E-08
BRAD1	69	108883	Toluene	1.54E-02	1.76E-06
BRAD1	69	1330207	Xylenes	1.28E-02	1.47E-06
BRAD2	70	75070	Acetaldehyde	7.49E-04	8.55E-08
BRAD2	70	107028	Acrolein	3.48E-04	3.97E-08
BRAD2	70	71432	Benzene	6.61E-03	7.54E-07
BRAD2	70	106990	1,3-Butadiene	1.47E-03	1.68E-07
BRAD2	70	100414	Ethylbenzene	2.81E-03	3.21E-07
BRAD2	70	50000	Formaldehyde	4.23E-03	4.83E-07
BRAD2	70	110543	Hexane	4.28E-03	4.89E-07
BRAD2	70	67561	Methanol	3.21E-04	3.67E-08
BRAD2	70	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
BRAD2	70	91203	Naphthalene	1.34E-04	1.53E-08
BRAD2	70	115071	Propylene	8.19E-03	9.35E-07
BRAD2	70	100425	Styrene	3.21E-04	3.67E-08
BRAD2	70	108883	Toluene	1.54E-02	1.76E-06
BRAD2	70	1330207	Xylenes	1.28E-02	1.47E-06
FRAN1	71	75070	Acetaldehyde	7.49E-04	8.55E-08
FRAN1	71	107028	Acrolein	3.48E-04	3.97E-08
FRAN1	71	71432	Benzene	6.61E-03	7.54E-07
FRAN1	71	106990	1,3-Butadiene	1.47E-03	1.68E-07
FRAN1	71	100414	Ethylbenzene	2.81E-03	3.21E-07
FRAN1	71	50000	Formaldehyde	4.23E-03	4.83E-07
FRAN1	71	110543	Hexane	4.28E-03	4.89E-07
FRAN1	71	67561	Methanol	3.21E-04	3.67E-08

FRAN1	71	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
FRAN1	71	91203	Naphthalene	1.34E-04	1.53E-08
FRAN1	71	115071	Propylene	8.19E-03	9.35E-07
FRAN1	71	100425	Styrene	3.21E-04	3.67E-08
FRAN1	71	108883	Toluene	1.54E-02	1.76E-06
FRAN1	71	1330207	Xylenes	1.28E-02	1.47E-06
HOLL1	72	75070	Acetaldehyde	7.49E-04	8.55E-08
HOLL1	72	107028	Acrolein	3.48E-04	3.97E-08
HOLL1	72	71432	Benzene	6.61E-03	7.54E-07
HOLL1	72	106990	1,3-Butadiene	1.47E-03	1.68E-07
HOLL1	72	100414	Ethylbenzene	2.81E-03	3.21E-07
HOLL1	72	50000	Formaldehyde	4.23E-03	4.83E-07
HOLL1	72	110543	Hexane	4.28E-03	4.89E-07
HOLL1	72	67561	Methanol	3.21E-04	3.67E-08
HOLL1	72	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
HOLL1	72	91203	Naphthalene	1.34E-04	1.53E-08
HOLL1	72	115071	Propylene	8.19E-03	9.35E-07
HOLL1	72	100425	Styrene	3.21E-04	3.67E-08
HOLL1	72	108883	Toluene	1.54E-02	1.76E-06
HOLL1	72	1330207	Xylenes	1.28E-02	1.47E-06
POTR1	73	75070	Acetaldehyde	5.68E-03	6.48E-07
POTR1	73	107028	Acrolein	2.64E-03	3.01E-07
POTR1	73	71432	Benzene	5.01E-02	5.72E-06
POTR1	73	106990	1,3-Butadiene	1.12E-02	1.27E-06
POTR1	73	100414	Ethylbenzene	2.13E-02	2.43E-06
POTR1	73	50000	Formaldehyde	3.20E-02	3.66E-06
POTR1	73	110543	Hexane	3.24E-02	3.70E-06
POTR1	73	67561	Methanol	2.43E-03	2.78E-07
POTR1	73	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
POTR1	73	91203	Naphthalene	1.01E-03	1.16E-07
POTR1	73	115071	Propylene	6.21E-02	7.08E-06
POTR1	73	100425	Styrene	2.43E-03	2.78E-07
POTR1	73	108883	Toluene	1.17E-01	1.33E-05
POTR1	73	1330207	Xylenes	9.73E-02	1.11E-05
CESAR1	74	75070	Acetaldehyde	5.68E-03	6.48E-07
CESAR1	74	107028	Acrolein	2.64E-03	3.01E-07
CESAR1	74	71432	Benzene	5.01E-02	5.72E-06
CESAR1	74	106990	1,3-Butadiene	1.12E-02	1.27E-06
CESAR1	74	100414	Ethylbenzene	2.13E-02	2.43E-06
CESAR1	74	50000	Formaldehyde	3.20E-02	3.66E-06
CESAR1	74	110543	Hexane	3.24E-02	3.70E-06
CESAR1	74	67561	Methanol	2.43E-03	2.78E-07
CESAR1	74	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
CESAR1	74	91203	Naphthalene	1.01E-03	1.16E-07
CESAR1	74	115071	Propylene	6.21E-02	7.08E-06
CESAR1	74	100425	Styrene	2.43E-03	2.78E-07
CESAR1	74	108883	Toluene	1.17E-01	1.33E-05

CESAR1	74	1330207	Xylenes	9.73E-02	1.11E-05
BAYSH5	75	75070	Acetaldehyde	5.68E-03	6.48E-07
BAYSH5	75	107028	Acrolein	2.64E-03	3.01E-07
BAYSH5	75	71432	Benzene	5.01E-02	5.72E-06
BAYSH5	75	106990	1,3-Butadiene	1.12E-02	1.27E-06
BAYSH5	75	100414	Ethylbenzene	2.13E-02	2.43E-06
BAYSH5	75	50000	Formaldehyde	3.20E-02	3.66E-06
BAYSH5	75	110543	Hexane	3.24E-02	3.70E-06
BAYSH5	75	67561	Methanol	2.43E-03	2.78E-07
BAYSH5	75	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
BAYSH5	75	91203	Naphthalene	1.01E-03	1.16E-07
BAYSH5	75	115071	Propylene	6.21E-02	7.08E-06
BAYSH5	75	100425	Styrene	2.43E-03	2.78E-07
BAYSH5	75	108883	Toluene	1.17E-01	1.33E-05
BAYSH5	75	1330207	Xylenes	9.73E-02	1.11E-05
BAYSH6	76	75070	Acetaldehyde	5.68E-03	6.48E-07
BAYSH6	76	107028	Acrolein	2.64E-03	3.01E-07
BAYSH6	76	71432	Benzene	5.01E-02	5.72E-06
BAYSH6	76	106990	1,3-Butadiene	1.12E-02	1.27E-06
BAYSH6	76	100414	Ethylbenzene	2.13E-02	2.43E-06
BAYSH6	76	50000	Formaldehyde	3.20E-02	3.66E-06
BAYSH6	76	110543	Hexane	3.24E-02	3.70E-06
BAYSH6	76	67561	Methanol	2.43E-03	2.78E-07
BAYSH6	76	78933	Methyl Ethyl Ketone	4.06E-04	4.63E-08
BAYSH6	76	91203	Naphthalene	1.01E-03	1.16E-07
BAYSH6	76	115071	Propylene	6.21E-02	7.08E-06
BAYSH6	76	100425	Styrene	2.43E-03	2.78E-07
BAYSH6	76	108883	Toluene	1.17E-01	1.33E-05
BAYSH6	76	1330207	Xylenes	9.73E-02	1.11E-05
PERA1	77	75070	Acetaldehyde	7.49E-04	8.55E-08
PERA1	77	107028	Acrolein	3.48E-04	3.97E-08
PERA1	77	71432	Benzene	6.61E-03	7.54E-07
PERA1	77	106990	1,3-Butadiene	1.47E-03	1.68E-07
PERA1	77	100414	Ethylbenzene	2.81E-03	3.21E-07
PERA1	77	50000	Formaldehyde	4.23E-03	4.83E-07
PERA1	77	110543	Hexane	4.28E-03	4.89E-07
PERA1	77	67561	Methanol	3.21E-04	3.67E-08
PERA1	77	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
PERA1	77	91203	Naphthalene	1.34E-04	1.53E-08
PERA1	77	115071	Propylene	8.19E-03	9.35E-07
PERA1	77	100425	Styrene	3.21E-04	3.67E-08
PERA1	77	108883	Toluene	1.54E-02	1.76E-06
PERA1	77	1330207	Xylenes	1.28E-02	1.47E-06
YORK1	78	75070	Acetaldehyde	7.49E-04	8.55E-08
YORK1	78	107028	Acrolein	3.48E-04	3.97E-08
YORK1	78	71432	Benzene	6.61E-03	7.54E-07
YORK1	78	106990	1,3-Butadiene	1.47E-03	1.68E-07

YORK1	78	100414	Ethylbenzene	2.81E-03	3.21E-07
YORK1	78	50000	Formaldehyde	4.23E-03	4.83E-07
YORK1	78	110543	Hexane	4.28E-03	4.89E-07
YORK1	78	67561	Methanol	3.21E-04	3.67E-08
YORK1	78	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
YORK1	78	91203	Naphthalene	1.34E-04	1.53E-08
YORK1	78	115071	Propylene	8.19E-03	9.35E-07
YORK1	78	100425	Styrene	3.21E-04	3.67E-08
YORK1	78	108883	Toluene	1.54E-02	1.76E-06
YORK1	78	1330207	Xylenes	1.28E-02	1.47E-06
RHODE1	79	75070	Acetaldehyde	7.49E-04	8.55E-08
RHODE1	79	107028	Acrolein	3.48E-04	3.97E-08
RHODE1	79	71432	Benzene	6.61E-03	7.54E-07
RHODE1	79	106990	1,3-Butadiene	1.47E-03	1.68E-07
RHODE1	79	100414	Ethylbenzene	2.81E-03	3.21E-07
RHODE1	79	50000	Formaldehyde	4.23E-03	4.83E-07
RHODE1	79	110543	Hexane	4.28E-03	4.89E-07
RHODE1	79	67561	Methanol	3.21E-04	3.67E-08
RHODE1	79	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
RHODE1	79	91203	Naphthalene	1.34E-04	1.53E-08
RHODE1	79	115071	Propylene	8.19E-03	9.35E-07
RHODE1	79	100425	Styrene	3.21E-04	3.67E-08
RHODE1	79	108883	Toluene	1.54E-02	1.76E-06
RHODE1	79	1330207	Xylenes	1.28E-02	1.47E-06
KANSAS	80	75070	Acetaldehyde	7.49E-04	8.55E-08
KANSAS	80	107028	Acrolein	3.48E-04	3.97E-08
KANSAS	80	71432	Benzene	6.61E-03	7.54E-07
KANSAS	80	106990	1,3-Butadiene	1.47E-03	1.68E-07
KANSAS	80	100414	Ethylbenzene	2.81E-03	3.21E-07
KANSAS	80	50000	Formaldehyde	4.23E-03	4.83E-07
KANSAS	80	110543	Hexane	4.28E-03	4.89E-07
KANSAS	80	67561	Methanol	3.21E-04	3.67E-08
KANSAS	80	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
KANSAS	80	91203	Naphthalene	1.34E-04	1.53E-08
KANSAS	80	115071	Propylene	8.19E-03	9.35E-07
KANSAS	80	100425	Styrene	3.21E-04	3.67E-08
KANSAS	80	108883	Toluene	1.54E-02	1.76E-06
KANSAS	80	1330207	Xylenes	1.28E-02	1.47E-06
VERMT	81	75070	Acetaldehyde	7.49E-04	8.55E-08
VERMT	81	107028	Acrolein	3.48E-04	3.97E-08
VERMT	81	71432	Benzene	6.61E-03	7.54E-07
VERMT	81	106990	1,3-Butadiene	1.47E-03	1.68E-07
VERMT	81	100414	Ethylbenzene	2.81E-03	3.21E-07
VERMT	81	50000	Formaldehyde	4.23E-03	4.83E-07
VERMT	81	110543	Hexane	4.28E-03	4.89E-07
VERMT	81	67561	Methanol	3.21E-04	3.67E-08
VERMT	81	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09

VERMT	81	91203	Naphthalene	1.34E-04	1.53E-08
VERMT	81	115071	Propylene	8.19E-03	9.35E-07
VERMT	81	100425	Styrene	3.21E-04	3.67E-08
VERMT	81	108883	Toluene	1.54E-02	1.76E-06
VERMT	81	1330207	Xylenes	1.28E-02	1.47E-06
SANBR	82	75070	Acetaldehyde	7.49E-04	8.55E-08
SANBR	82	107028	Acrolein	3.48E-04	3.97E-08
SANBR	82	71432	Benzene	6.61E-03	7.54E-07
SANBR	82	106990	1,3-Butadiene	1.47E-03	1.68E-07
SANBR	82	100414	Ethylbenzene	2.81E-03	3.21E-07
SANBR	82	50000	Formaldehyde	4.23E-03	4.83E-07
SANBR	82	110543	Hexane	4.28E-03	4.89E-07
SANBR	82	67561	Methanol	3.21E-04	3.67E-08
SANBR	82	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
SANBR	82	91203	Naphthalene	1.34E-04	1.53E-08
SANBR	82	115071	Propylene	8.19E-03	9.35E-07
SANBR	82	100425	Styrene	3.21E-04	3.67E-08
SANBR	82	108883	Toluene	1.54E-02	1.76E-06
SANBR	82	1330207	Xylenes	1.28E-02	1.47E-06
S26S	83	75070	Acetaldehyde	7.49E-04	8.55E-08
S26S	83	107028	Acrolein	3.48E-04	3.97E-08
S26S	83	71432	Benzene	6.61E-03	7.54E-07
S26S	83	106990	1,3-Butadiene	1.47E-03	1.68E-07
S26S	83	100414	Ethylbenzene	2.81E-03	3.21E-07
S26S	83	50000	Formaldehyde	4.23E-03	4.83E-07
S26S	83	110543	Hexane	4.28E-03	4.89E-07
S26S	83	67561	Methanol	3.21E-04	3.67E-08
S26S	83	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
S26S	83	91203	Naphthalene	1.34E-04	1.53E-08
S26S	83	115071	Propylene	8.19E-03	9.35E-07
S26S	83	100425	Styrene	3.21E-04	3.67E-08
S26S	83	108883	Toluene	1.54E-02	1.76E-06
S26S	83	1330207	Xylenes	1.28E-02	1.47E-06
S24S	84	75070	Acetaldehyde	7.49E-04	8.55E-08
S24S	84	107028	Acrolein	3.48E-04	3.97E-08
S24S	84	71432	Benzene	6.61E-03	7.54E-07
S24S	84	106990	1,3-Butadiene	1.47E-03	1.68E-07
S24S	84	100414	Ethylbenzene	2.81E-03	3.21E-07
S24S	84	50000	Formaldehyde	4.23E-03	4.83E-07
S24S	84	110543	Hexane	4.28E-03	4.89E-07
S24S	84	67561	Methanol	3.21E-04	3.67E-08
S24S	84	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
S24S	84	91203	Naphthalene	1.34E-04	1.53E-08
S24S	84	115071	Propylene	8.19E-03	9.35E-07
S24S	84	100425	Styrene	3.21E-04	3.67E-08
S24S	84	108883	Toluene	1.54E-02	1.76E-06
S24S	84	1330207	Xylenes	1.28E-02	1.47E-06

BARN3	85	75070	Acetaldehyde	7.49E-04	8.55E-08
BARN3	85	107028	Acrolein	3.48E-04	3.97E-08
BARN3	85	71432	Benzene	6.61E-03	7.54E-07
BARN3	85	106990	1,3-Butadiene	1.47E-03	1.68E-07
BARN3	85	100414	Ethylbenzene	2.81E-03	3.21E-07
BARN3	85	50000	Formaldehyde	4.23E-03	4.83E-07
BARN3	85	110543	Hexane	4.28E-03	4.89E-07
BARN3	85	67561	Methanol	3.21E-04	3.67E-08
BARN3	85	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
BARN3	85	91203	Naphthalene	1.34E-04	1.53E-08
BARN3	85	115071	Propylene	8.19E-03	9.35E-07
BARN3	85	100425	Styrene	3.21E-04	3.67E-08
BARN3	85	108883	Toluene	1.54E-02	1.76E-06
BARN3	85	1330207	Xylenes	1.28E-02	1.47E-06
MARIN1	86	75070	Acetaldehyde	7.49E-04	8.55E-08
MARIN1	86	107028	Acrolein	3.48E-04	3.97E-08
MARIN1	86	71432	Benzene	6.61E-03	7.54E-07
MARIN1	86	106990	1,3-Butadiene	1.47E-03	1.68E-07
MARIN1	86	100414	Ethylbenzene	2.81E-03	3.21E-07
MARIN1	86	50000	Formaldehyde	4.23E-03	4.83E-07
MARIN1	86	110543	Hexane	4.28E-03	4.89E-07
MARIN1	86	67561	Methanol	3.21E-04	3.67E-08
MARIN1	86	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
MARIN1	86	91203	Naphthalene	1.34E-04	1.53E-08
MARIN1	86	115071	Propylene	8.19E-03	9.35E-07
MARIN1	86	100425	Styrene	3.21E-04	3.67E-08
MARIN1	86	108883	Toluene	1.54E-02	1.76E-06
MARIN1	86	1330207	Xylenes	1.28E-02	1.47E-06
CESAR2	87	75070	Acetaldehyde	7.49E-04	8.55E-08
CESAR2	87	107028	Acrolein	3.48E-04	3.97E-08
CESAR2	87	71432	Benzene	6.61E-03	7.54E-07
CESAR2	87	106990	1,3-Butadiene	1.47E-03	1.68E-07
CESAR2	87	100414	Ethylbenzene	2.81E-03	3.21E-07
CESAR2	87	50000	Formaldehyde	4.23E-03	4.83E-07
CESAR2	87	110543	Hexane	4.28E-03	4.89E-07
CESAR2	87	67561	Methanol	3.21E-04	3.67E-08
CESAR2	87	78933	Methyl Ethyl Ketone	5.35E-05	6.11E-09
CESAR2	87	91203	Naphthalene	1.34E-04	1.53E-08
CESAR2	87	115071	Propylene	8.19E-03	9.35E-07
CESAR2	87	100425	Styrene	3.21E-04	3.67E-08
CESAR2	87	108883	Toluene	1.54E-02	1.76E-06
CESAR2	87	1330207	Xylenes	1.28E-02	1.47E-06
S25S	88	75070	Acetaldehyde	7.49E-04	8.55E-08
S25S	88	107028	Acrolein	3.48E-04	3.97E-08
S25S	88	71432	Benzene	6.61E-03	7.54E-07
S25S	88	106990	1,3-Butadiene	1.47E-03	1.68E-07
S25S	88	100414	Ethylbenzene	2.81E-03	3.21E-07

S25S	88	50000	Formaldehyde	4.23E-03	4.83E-07
S25S	88	110543	Hexane	4.28E-03	4.89E-07
S25S	88	67561	Methanol	3.21E-04	3.67E-08
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S25S	88	91203	Naphthalene	1.34E-04	1.53E-08
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S25S	88	100425	Styrene	3.21E-04	3.67E-08
S25S	88	108883	Toluene	1.54E-02	1.76E-06
S25S	88	1330207	Xylenes	1.28E-02	1.47E-06
QUESA1	89	75070	Acetaldehyde	7.49E-04	8.55E-08
QUESA1	89	107028	Acrolein	3.48E-04	3.97E-08
QUESA1	89	71432	Benzene	6.61E-03	7.54E-07
QUESA1	89	106990	1,3-Butadiene	1.47E-03	1.68E-07
QUESA1	89	100414	Ethylbenzene	2.81E-03	3.21E-07
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QUESA1	89	100425	Styrene	3.21E-04	3.67E-08
QUESA1	89	108883	Toluene	1.54E-02	1.76E-06
QUESA1	89	1330207	Xylenes	1.28E-02	1.47E-06
REVE1	90	75070	Acetaldehyde	7.49E-04	8.55E-08
REVE1	90	107028	Acrolein	3.48E-04	3.97E-08
REVE1	90	71432	Benzene	6.61E-03	7.54E-07
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REVE1	90	1330207	Xylenes	1.28E-02	1.47E-06
GAVEN1	91	75070	Acetaldehyde	7.49E-04	8.55E-08
GAVEN1	91	107028	Acrolein	3.48E-04	3.97E-08
GAVEN1	91	71432	Benzene	6.61E-03	7.54E-07
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GAVEN1	91	1330207	Xylenes	1.28E-02	1.47E-06

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Allocation of Onsite Vehicle Exhaust for HRA Modeling					
Building Level	Interior Travel Distance (ft)	Ramped Travel (ramp + landing) Distance (ft)	Ratio		
			Interior		Ramp
Level 1	295	776	28%	:	72%
Level 2	1402	1336	64%	:	36%
Level 3	1402	1252	65%	:	35%
Roof	563	181	84%	:	16%
		Avg Split	60%	:	40%

Source: Prologis 2022

San Francisco Gateway Project

Air Quality and HRA
Alternatives Analysis Memorandum

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Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
AECOM	AECOM Technical Services, Inc.
alternatives memorandum	Air Quality Alternatives Memorandum
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
EIR	Environmental Impact Report
HI	hazard index
HRA	health risk assessment
kV	kilovolt
m	meter
methodology memorandum	Air Quality and Health Risk Assessment Methodology Memorandum
NOX	oxides of nitrogen
PDR	production, distribution, and repair
planning department	San Francisco Planning Department
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
proposed project	San Francisco Gateway Project
results memorandum	Air Quality Results Memorandum
U.S. EPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator

1. Introduction

At the request of the San Francisco Planning Department (planning department), AECOM Technical Services, Inc. (AECOM) conducted an analysis of local air quality and health impacts associated with the construction and operation of the San Francisco Gateway Project (proposed project) at 749 Toland Street and 2000 McKinnon Avenue. The Air Quality and Health Risk Assessment Methodology Memorandum (methodology memorandum) describes the approach for the evaluation of air quality and health impacts from construction and operational sources, existing sources, and cumulative sources at modeled sensitive receptors. The results of this approach and data inputs described in the methodology memorandum are provided in the Air Quality Results Memorandum (results memorandum). Those two memoranda along with this memorandum comprise Appendix F to the San Francisco Gateway Project Environmental Impact Report (EIR).

The draft EIR determined that the proposed project would conflict with or obstruct the Bay Area Air Quality Management District's 2017 Clean Air Plan (Impact AQ-1) and that it would result in a cumulatively considerable net increase in oxides of nitrogen (NO_X), a criteria air pollutant for which the region is in nonattainment (Impact AQ-3). These impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures M-AQ-3a through M-AQ-3i. The project's operational mass emissions from all other criteria air pollutants were found to be less than significant without mitigation. The draft EIR determined that construction activities for the proposed project would result in a less-than-significant level of criteria air pollutants (Impact AQ-2). In addition, potential health risks from construction and operation of the proposed project would be less than significant without mitigation (Impact AQ-4).

2. Purpose

The purpose of this memorandum is to identify the operational NO_X emissions associated with each draft EIR alternative. Because health risks are directly correlated to the level and distribution of emissions, this memorandum also considers and evaluates potential health risks from the draft EIR alternatives. This memorandum does not discuss mass emissions of other criteria air pollutant emissions because other criteria air pollutants would not exceed significance thresholds. This Air Quality Alternatives Memorandum (alternatives memorandum) is the third part of Appendix F to the San Francisco Gateway Project EIR and provides supplemental technical information for the evaluation of potential air quality impacts associated with implementation of the project alternatives.

The draft EIR evaluates the following alternatives:

- No Project Alternative
- Code-Compliant Alternative
- Fleet Management Use Mix Alternative
- Expanded Parcel Delivery Use Alternative

Detailed descriptions of each alternative are presented in Chapter 5, Alternatives, of the draft EIR and are summarized in Section 3, Approach, which includes the assumptions used in analyzing the air quality impacts of each alternative. In addition, Section 3 describes the semi-quantitative approach used to estimate emissions reductions that would be achieved under each of the project alternatives (except for the No Project Alternative) with implementation of the mitigation measures identified for the proposed project that reduced the proposed project air quality impacts to less than significant. The results of this analysis are presented in Section 4, Results.

In addition to these draft EIR alternatives, two variants of an expanded wholesale/storage use mix alternative were analyzed:

- Expanded Wholesale/Storage Use Mix (32 percent parcel and last-mile delivery; 65 percent wholesale use)
- Expanded Wholesale/Storage Use Mix (49 percent parcel and last-mile delivery; 49 percent wholesale use)

3. Approach

Table 1, comparing the proposed project to each of the alternatives that were analyzed in the draft EIR, is presented in this section. This section also discusses the methods applied to estimate emissions and health risks for each alternative. The level of analysis for determining health risk impacts varied according to the alternatives' differences from or similarities to the proposed project. This section also describes the methods to estimate emissions for the expanded wholesale/storage use mix alternative variants, the results of which were the basis for withdrawing them from further consideration in the EIR.

Detailed emissions calculations and health risk analysis inputs and results are provided in Attachments A and B, respectively, to this memorandum.

The project setting sections of the initial study, draft EIR, and technical studies reflect baseline conditions at the project site when the environmental review process began in 2017. However, in August 2020, the project sponsor submitted building permit applications for an interim use of the project site. The No Project Alternative takes into account the change in site conditions and the effects attributable to site activities with the interim use. This same assessment of impacts from 2017 is presented in Chapter 3 of the draft EIR, for the proposed project and for each of the alternatives analyzed in this chapter. All of the alternatives described below (including the No Project Alternative) and their effects are then compared to the proposed project and expanded streetscape variant to determine, for the benefit of the public and decision-makers, whether the alternatives could have less, similar, or greater environmental impacts than the proposed project.

3.1 No Project Alternative

Under the No Project Alternative, the existing four single-story production, distribution, and repair (PDR) buildings would not be demolished; and, other than minimum tenant improvements (such as interior upgrades), no construction or site improvements, such as grading, excavation, or alterations to the height and massing of the buildings, would occur at the site.

3.1.1 Operational Emissions

Operational emissions estimates do not include emissions associated with retail or manufacturing and maker space use under the No Project Alternative. Existing onsite natural gas infrastructure would remain and could serve future users. Emissions associated with onsite natural gas use were calculated based on California Emissions Estimator Model (CalEEMod) emissions estimates for the existing site, which includes some vacant space, and was scaled for the total active No Project Alternative operational area square footage. The No Project Alternative is not anticipated to require emergency generator use; therefore, no stationary source emissions were calculated for the No Project Alternative operations. In addition, up to 5 percent of the total PDR space could be used for refrigerated uses; therefore, emissions were estimated for a parallel percentage of transportation refrigeration units on single-unit and tractor trailer trucks serving PDR uses.

Table 1 Proposed Project and Alternatives Comparison

Building Characteristics	Proposed Project	No Project Alternative	Code-Compliant Alternative	Fleet Management Use Mix Alternative	Expanded Parcel Delivery Use Alternative
Number of Buildings	2	4	2	2	2
Stories	3 (plus active roof)[1]	1	2 (plus active roof)[1]	3 (plus active roof)[1]	3 (plus active roof)[1]
Height	97 feet (115 feet maximum, including rooftop appurtenances)	32 feet	65 feet (75 feet maximum, including rooftop appurtenances)	97 feet (115 feet maximum, including rooftop appurtenances)	97 feet (115 feet maximum, including rooftop appurtenances)
Proposed Uses	Area (gross square feet)	Area (gross square feet)	Area (gross square feet)	Area (gross square feet)	Area (gross square feet)
Total Building Square Footages	**2,160,000**	**448,000**	**1,363,000**	**2,160,000**	**2,160,000**
PDR Uses and Percent of Total PDR Space	1,166,800	448,000	733,538	1,131,800	1,131,800
Manufacturing and Maker Space[2]	35,000 (3%)	NA	22,006 (3%)	NA	NA
Parcel Delivery	759,400 (65%)	336,000 (75%)	476,800 (65%)	567,200 (50%)	1,131,800 (100%)
Wholesale/Storage	372,400 (32%)	112,000 (25%)	234,732 (32%)	NA	NA
Fleet Management[3]	NA	NA	NA	564,600 (50%)	NA
PDR Support Spaces (Logistics Yard and Vehicle Circulation)	441,300	72,409 (unenclosed)	207,898	484,700	484,700
Parking	543,500	42,737 (unenclosed)	416,564	543,500	543,500
Retail	8,400	NA	5,000	NA	NA
Additional Information					
Vehicle Parking Spaces	1,166	170	547	1,166	1,166
Bicycle Parking Spaces[4]	100 Class I 12 Class II	NA	48 Class I 6 Class II	95 Class I 4 Class II	95 Class I 4 Class II
Net New Employees[5]	1,242	15	508	1,161	1,161
Street and Sidewalk Improvements and Transportation Demand Management Plan	Yes	No	Yes	Yes	Yes
New Docks	Yes	No	Yes, but with reduced capacity	Yes	Yes
Generators	Yes (two 400 kV generators)	No	Yes (two 400 kV generators)	Yes (two 400 kV generators)	Yes (two 400 kV generators)

Source: Prologis, L.P. 2022

Notes for Table 1:

1. The top level (Level 4) for the proposed project, the Fleet Management Use Mix Alternative, and the Expanded Parcel Delivery Use Alternative consists of elevator and stair access structures, solar array, and a screened, open-air multi-purpose deck for parking and/or material and vehicle staging. The top level (Level 3) of the Code-Compliant Alternative consists of a small portion of enclosed space, solar array, and a screened, open-air multi-purpose deck for parking and/or material and vehicle staging.
2. Manufacturing and Maker Space: This use is defined as a light industrial use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers, wholesalers, or the public. Makers are often characterized by their production and custom activities that usually involve individual or special design, handiwork, and/or design-related innovation and experimentation. Examples of this light industrial use include food and beverage processing, apparel and other garment products, furniture and fixtures, printing (including three-dimensional printing), prototyping, and publishing. This use is defined in Chapter 2, Project Description, of the EIR.
3. Fleet Management: This use would allow private and public fleets to be staged and maintained. Uses would include private retail vehicle staging, private fleet staging and maintenance, and public fleet staging and maintenance. Private retailers would store and maintain vehicles to be sold or rented. The private vehicles would be mostly parked, and the space would be used as storage; light maintenance and washing would be associated with this use. Private fleet staging and maintenance would involve storage and potential light maintenance of shuttles servicing specific institutions, businesses, and/or independent shuttle services. Public fleet staging and maintenance would include the storage and maintenance of buses, trolleys, and/or shuttles for a public transportation agency, such as the San Francisco Municipal Transportation Agency or San Francisco Paratransit. This use is defined in Chapter 2, Project Description, of the EIR.
4. Class I bicycle parking spaces are spaces are in secure, weather-protected facilities intended for use as long-term, overnight, and workday bicycle storage by dwelling unit residents, nonresidential occupants, and employees. Class II bicycle parking spaces are bike racks in publicly accessible, highly visible locations and are intended for transient or short-term use by visitors, guests, and patrons to the building or use. Class II bike racks allow the bicycle frame and one wheel to be locked to the rack (with one U-shaped lock), and provide support to bicycles without damage to the wheels, frame, or components (planning code section 155.1).
5. As calculated in the initial study (Appendix B), there were 735 existing employees prior to commencing the interim use of the project site in 2021; the project would result in a total of 1,980 (rounded), or a net increase of 1,242 employees relative to pre-2021 conditions. These calculations assume one employee per 597 gross square feet of PDR space and one employee per 370 gross square feet retail space. This employment density is based on a May 2019 report prepared to update the city's nexus fees: Keyser Marston Associates, Jobs Housing Nexus Analysis, San Francisco, May 2019, *https://commissions.sfplanning.org/cpcpackets/2019-011975PCA.pdf*, accessed January 26, 2020, and April 4, 2023.

No public open space is required or proposed for the project.

All numbers are rounded approximations.

kV = kilovolt

NA= not applicable
PDR = production, distribution, and repair

The No Project Alterative relied on the following data developed for the proposed project:

- fleet mix and vehicle trip rates;
- trip distances by vehicle category; and
- mobile-source emissions factors.

The No Project Alternative required a refinement of emissions associated with onsite mobile activity to reflect the existing site layout of single-story buildings and ground-floor mobile activity, rather than the proposed project's configuration.

3.1.2 Health Risk Modeling

A qualitative approach was performed to assess health risk impacts from the No Project Alternative relative to the proposed project. This qualitative approach is used because of the substantially lower emission estimates associated with this alternative.

3.2 Code-Compliant Alternative

The Code-Compliant Alternative would entail demolishing the existing four single-story PDR buildings on site and constructing two new three-story buildings. Under the Code-Compliant Alternative, the buildings would not exceed the 65-J height and bulk district requirements (65 feet maximum height). This alternative would include the same tenant use mix as the proposed project, but less space than analyzed for the proposed project

3.2.1 Operational Emissions

Operational emissions estimates include emissions associated with manufacturing and maker use, following the same approach used for the proposed project but accounting for the reduced square footage under the Code-Compliant Alternative. The Code-Compliant Alternative is anticipated to require one emergency generator for each building, and each generator is estimated to be of the same horsepower used for the proposed project. Therefore, there is no change in stationary source emissions relative to the proposed project. Refrigeration use and the related transportation refrigeration units would be required for uses under the Code-Compliant Alternative. To calculate the percentage of each use that would be refrigerated and the applicable emissions, the methodology that was used under the proposed project was also used under the Code-Compliant Alternative.

The Code-Compliant Alternative relied on the following data developed for the proposed project:

- fleet mix and vehicle trip rates;
- trip distances by vehicle category; and
- mobile-source emissions factors by vehicle category.

Emissions associated with onsite mobile activity were refined to reflect the reduced building height and internal circulation patterns of the buildings under the Code-Compliant Alternative, compared to the proposed project.

To evaluate the Code-Compliant Alternative with implementation of emissions reduction measures, emissions reductions achieved for the proposed project were scaled for the Code-Compliant Alternative, based on the percent reduction in operational building size of this alternative compared to the proposed project. This percent reduction was applied to mobile source and transportation refrigeration unit emissions, which depend on the size of the building. The mass emissions limit required of manufacturing and maker space was applied directly to the Code-Compliant Alternative, without any scaling, because the building size for this use is not directly relevant to this limit.

3.2.2 Health Risk Modeling

Although the Code-Compliant Alternative would result in less vehicle trips and related emissions than the proposed project, there would be no change to vehicle circulation associated with offsite traffic for this

alternative compared to the proposed project. However, the reduced building height under the Code-Compliant Alternative compared to the proposed project would result in changes to the distribution of onsite vehicle exhaust emissions and heights of stationary source exhaust points. These changes would cause the dispersion of emissions to occur at lower heights than under the proposed project, and thus closer to model receptors. Accordingly, a detailed quantitative health risk assessment was prepared to evaluate the potential health effects associated with this alternative.

This section discusses differences in health risk modeling between the Code-Compliant Alternative and the proposed project. Unless otherwise stated, the inputs and assumptions used for the health risk modeling of the proposed project were also used for the Code-Compliant Alternative.

Building heights for the two code-compliant buildings would be reduced to a maximum height of 65 feet, compared to 97 feet for the proposed project. The internal vehicle circulation for the first and second floors remains unchanged from the proposed project. The configuration for the third-floor vehicle circulation is the same as used for the fourth floor under the proposed project because the top floors of both Code-Compliant Alternative and the proposed project include an active rooftop. The release heights of the rooftop exhaust vents would be reduced to 67 feet under the Code-Compliant Alternative, compared to 99 feet for the proposed project. The third-floor horizontal exhaust vent stacks included under the proposed project have been removed from the Code-Compliant Alternative model setup because they have been replaced with the rooftop exhaust fans.

Emissions associated with onsite vehicle exhaust were distributed between the exhaust vents (60 percent) and ramps (40 percent), the same proportion used for the proposed project. However, the percentage allocated by floor was changed for the Code-Compliant Alternative to account for the one fewer floor than the proposed project.

The total emissions assigned to the exhaust vents were distributed evenly between the first two floors (30 percent per floor, for a total of 60 percent). Emissions from the exhaust vents were further distributed between the exhaust vents on the floor (two vents for first floor and four vents on the second floor) and the exhaust vents on the roof (six per building). For example, the 30 percent of exhaust emissions allocated to the first floor were evenly distributed through the two first floor vents and six roof vents. The remaining 40 percent of vehicle exhaust emissions from onsite vehicles were assigned to the adjacent volume sources that were used to characterize the openings along the ramps and the active roof. The emissions were distributed according to the following breakdown in the model: 18 percent to the first floor, 13 percent to the second floor, and 9 percent to the third floor. The first floor was assigned the highest percentage because all vehicles would originate here. The percentages gradually decrease for the higher floors to reflect the smaller number of vehicles that would travel to them.

3.3 Fleet Management Use Mix Alternative

The Fleet Management Use Mix Alternative would entail demolishing the existing four single-story PDR buildings on site and constructing two new three-story buildings, with a fourth-floor active roof, in the same configuration used for the proposed project. The combined building square footage of the Fleet Management Use Mix Alternative (2,160,000 square feet) is the same as that under the proposed project. Unlike the proposed project, this alternative would eliminate the manufacturing and maker space, as well as the wholesale/storage space. The active PDR floor area would be divided equally between parcel delivery service, including last-mile delivery, and fleet management, which is not included in the analyzed tenant use mix for the proposed project.[1] The amount of space for parcel delivery under this alternative would be less than under the proposed project (567,200 square feet under the Fleet Management Use Mix Alternative versus 759,400 square feet under the proposed project). In addition, the retail use that is included in the proposed project would be removed under the Fleet Management Use Mix Alternative and would instead be allocated as PDR support space.

[1] Fleet management uses allow private and public fleets to be staged and maintained. Uses could include private retail vehicle staging, private fleet staging and maintenance, or public fleet staging and maintenance. See Section 2.D in Chapter 2 of the EIR for further discussion.

3.3.1 Operational Emissions

Operational emissions estimates include emissions associated with the proposed PDR uses, following the same approach used for the proposed project, as applicable. Like the proposed project, the Fleet Management Use Mix Alternative is anticipated to require one emergency generator for each building, estimated to be of the same horsepower used for the proposed project; therefore, there is no change in stationary source emissions relative to the proposed project. Although not anticipated to be applicable to the fleet management spaces, refrigeration use and the related transportation refrigeration units could be required for parcel delivery uses under this alternative. To calculate the percentage of this use that would be refrigerated and the applicable emissions, the same methodology used for the proposed project was used for the Fleet Management Use Mix Alternative.

The Fleet Management Use Alternative relied on the following data developed for the proposed project:

- For parcel delivery use, data included fleet mix, vehicle trip rates, trip distances by vehicle category, and mobile source emissions factors by vehicle category.
- Because the fleet management use was not included as part of the proposed project, emissions factors and trip distances for bus trips associated with the fleet management use were incorporated to estimate the mobile source emissions. Specifically, emissions factors from California Air Resources Board EMFAC 2021 for buses were used, and the trip distances for bus trips rely on data developed by the project's transportation analysis (i.e., an average of 5 miles per trip for public bus fleets and 40 miles per trip for private bus fleets). The calculation of air quality emissions followed the same methodology as that applied to the PDR uses of the proposed project, but with refined emissions factors and trip distances specific to the bus trips associated with the fleet management use.

Emissions associated with onsite mobile activity were refined to reflect the onsite travel and idling associated with the fleet management use mix, compared to the PDR mix evaluated for the proposed project.

The evaluation of emissions reduction measures under the Fleet Management Use Mix Alternative was a qualitative analysis focused only on the emissions reductions applicable to the comparable uses in both the Fleet Management Alternative and the proposed project.

3.3.2 Health Risk Modeling

A high-level quantitative analysis was selected for the assessment of health risk impacts associated with the Fleet Management Use Mix Alternative. The configuration of buildings, vehicle circulation, and stationary sources for this alternative are identical to those for the proposed project; therefore, the air dispersion would also be the same as that under the proposed project. As a result, the percent change of emissions of the Fleet Management Use Mix Alternative—compared to the percentage change for the proposed project for onsite, offsite last-mile, and offsite worker/delivery activities—was used to evaluate the health risk impacts for this alternative.

3.4 Expanded Parcel Delivery Use Alternative

The Expanded Parcel Delivery Use Alternative would entail demolishing the existing four single-story PDR buildings on the site and constructing two new three-story buildings, with a fourth-floor active roof, in the same configuration used for the proposed project. The combined building square footage of the Expanded Parcel Delivery Use Mix Alternative (2,160,000 square feet) is the same as that under the proposed project. Unlike the proposed project, this alternative would eliminate the manufacturing and maker space, retail, and the wholesale/storage space, and the entire floor area in both buildings would be used for parcel delivery.

3.4.1 Operational Emissions

Operational emissions estimates include emissions associated with the parcel delivery use, following the same approach used for the proposed project. The Expanded Parcel Delivery Use Alternative is anticipated to require one emergency generator for each building, estimated to be of the same horsepower used for the proposed project. Therefore, there is no change in stationary source emissions relative to the proposed project. Refrigeration use and the related transportation refrigeration units would be required for uses under the Expanded Parcel Delivery Use Alternative. To calculate total refrigeration use and related trucks with transportation refrigeration units and the applicable emissions, the Expanded Parcel Delivery Use Alternative used the same methodology as applied to the proposed project.

The Expanded Parcel Delivery Use Alternative relied on the following data developed for the proposed project:

- fleet mix and vehicle trip rates;
- trip distances by vehicle category; and
- mobile-source emissions factors by vehicle category.

Emissions associated with onsite mobile activity were refined to reflect the onsite travel and idling associated with the expanded parcel delivery use, compared to the PDR mix of the proposed project.

The evaluation of emissions reduction measures under the Expanded Parcel Delivery Use Alternative was a qualitative analysis, focused only on the emissions reductions applicable to the comparable uses in both the Expanded Parcel Delivery Use Alternative and the proposed project.

3.4.2 Health Risk Modeling

A high-level quantitative analysis was used to assess health risk impacts of the Expanded Parcel Delivery Use Alternative. The configuration of buildings, vehicle circulation, and stationary sources for this alternative are identical to those for the proposed project; therefore, the air dispersion would also be the same as the proposed project. As a result, the percent change of emissions from the Expanded Parcel Delivery Use Alternative—compared to the percentage change for the proposed project for onsite, offsite last-mile, and offsite worker/delivery activities—was used to evaluate the health risk impacts for this alternative.

3.5 Expanded Wholesale/Storage Use Mix

An Expanded Wholesale/Storage Use Mix Alternative was considered but ultimately determined to have greater mass emissions than the proposed project. The Expanded Wholesale Use Mix Alternative would entail demolishing the existing four single-story PDR buildings on site and constructing two new three-story buildings, with a fourth-floor active roof, in the same configuration used for the proposed project. The combined building square footage of the Expanded Wholesale/Storage Use Mix Alternative (2,160,000 square feet) is the same as that of the proposed project. Similar to the proposed project, the Expanded Wholesale/Storage Use Mix Alternative would provide space for several main types of PDR uses. These uses could consist of manufacturing and maker spaces; parcel delivery service, including last-mile delivery; and wholesale/storage use. Similar to the proposed project, this alternative would also accommodate ground-floor retail space. This alternative would have the same square footage of maker space (3 percent of the total PDR space) and ground-floor retail (0.4 percent of the total building space) as the proposed project, but with less space for parcel delivery and more space for wholesale/storage. Two variants of the PDR use mix under the Expanded Wholesale/Storage Use Mix Alternative were considered: one variant considered a scenario with 32 percent of the PDR space allocated to parcel and last-mile delivery use, and 65 percent allocated to wholesale/storage use; the second variant considered a scenario with an approximately even split of 49 percent of the PDR space allocated to parcel and last-mile delivery use and 49 percent allocated to wholesale/storage use.

3.5.1 Operational Emissions

Operational emissions estimates include emissions associated with manufacturing and maker use, following the same approach used for the proposed project. The Expanded Wholesale/Storage Mix Use Alternative is anticipated to require one emergency generator for each building, estimated to be of the same horsepower used for the proposed project; therefore, there is no change in stationary source emissions relative to the proposed project. Refrigeration use and the related transportation refrigeration units would be required for uses under the Expanded Wholesale/Storage Mix Use Alternative. To calculate the percentage of each use that would be refrigerated and the applicable emissions, the methodology that was used under the proposed project was also used under the Expanded Wholesale/ Storage Use Mix Alternative.

The Expanded Wholesale/Storage Use Mix Alternative relied on the following data developed for the proposed project:

- fleet mix and vehicle trip rates;
- trip distances by vehicle category; and
- mobile-source emissions factors by vehicle category.

Emissions associated with onsite mobile activity were refined to reflect the onsite travel and idling associated with the expanded wholesale/storage use mix, compared to the PDR mix of the proposed project.

The evaluation of emissions reduction measures under the Expanded Wholesale/Storage Use Mix Alternative was done semi-quantitatively, based on the emissions reductions achieved under the proposed project and how such reductions would or would not be similarly achieved under this alternative. The percent reduction in mobile source emissions under the proposed project was applied to the Expanded Wholesale/Storage Use Mix Alternative, but with a margin of error to account for the differences in fleet mix between the proposed project and this alternative, and the resultant differences in mitigation applicable to mobile source emissions.

3.5.2 Health Risk Modeling

The mass emissions results for the Expanded Wholesale/Storage Mix Use Alternative (presented in Section 4.1, Operational Emissions) indicate that either variant of this alternative would result in operational mass emissions greater than those of the proposed project. Consequently, this alternative was not considered for further analysis, and health risks were not assessed.

4. Results

This section presents the results of the quantitative emissions estimates and health risk modeling that inform the evaluation of potential air quality impacts associated with the proposed project alternatives.

Unless otherwise specified, the calculations are based on the analysis approach and data inputs described in the methodology memorandum of this Appendix F to the EIR. Detailed emissions calculations and health risk modeling files are provided in Attachments A and B, respectively, to this memorandum.

4.1 Construction Emissions

Construction-related mass emissions associated with each alternative were evaluated qualitatively relative to the proposed project. As with the proposed project, all build scenario alternatives (i.e., Code Compliant, Fleet Management Use Mix, Expanded Parcel Delivery Use, and Expanded Wholesale/ Storage Use Mix) would require demolition of the four existing buildings onsite, and compliance with the City of San Francisco Construction Dust Control Ordinance. In addition, construction under each of these

alternatives would involve pursuing priority processing as a Type 3 Clean Construction Project; this requires, at a minimum, the use of equipment that meets Tier 4 interim emissions standards for all equipment greater than 25 horsepower. The following paragraphs summarize the relative level of construction emissions of each alternative compared to the proposed project.

- Under the No Project Alternative, the existing four single-story PDR buildings would not be demolished. As a result, no demolition and construction activities would occur at the site beyond minimal tenant improvements (such as interior upgrades) and no heavy construction equipment would be required. This would result in minimal construction-related emissions. The No Project Alternative would have substantially lower construction-related emissions than the proposed project.

- Under the Code-Compliant Alternative, the existing four single-story buildings would be demolished, resulting in demolition-related emissions similar to those for the proposed project. However, under the Code-Compliant Alternative, the total proposed building area would be approximately 1,363,000 square feet, about 63 percent of the size of the proposed project or expanded streetscape variant. Construction emissions under this alternative would be less than those for the proposed project because the construction period would be shortened to 26 months from 31 months. Additionally, the size of the buildings would be reduced, which would lower air emissions during the building construction phase and during the building envelope and interior buildout phase. In particular, during these phases, the Code-Compliant Alternative would reduce equipment use, and off-gassing emissions from the application of architectural coatings would be less, compared to the proposed project.

- Under the Fleet Management Use Mix, Expanded Parcel Delivery Use, and the Expanded Wholesale/Storage Use Mix Alternative, the disturbance area, proposed building space, and building configuration would be the same as under the proposed project. Consequently, construction of these alternatives would have the same construction schedule, on-road and off-road construction equipment usage, and paving and architectural coating activities as the proposed project. Therefore, these alternatives would result in construction emissions comparable to those of the proposed project.

4.2 Operational Emissions

Operational emissions for the proposed project, the four alternatives analyzed in the draft EIR, and two wholesale/storage alternative variants that were ultimately not analyzed further are presented in Table 2 and Table 3. As explained in Section 2, Purpose, only proposed project long-term oxides of nitrogen (NO_X) emissions exceed quantitative air quality significance thresholds. Therefore, Table 2 and Table 3 present NO_X emissions for the proposed project and each of the above-described alternatives; all other pollutants would trend similarly to NO_X emissions unless otherwise noted. The analysis represents operational activities occurring without any emission reduction measures. Consistent with the approach to evaluating the net increase in emissions from the proposed project, the existing emissions associated with existing onsite uses that would be eliminated or replaced by operations under each alternative are also provided in Table 2 and Table 3. This demonstrates the net increase in NO_X emissions from implementation of each alternative. The evaluation methodology and detailed results for existing onsite uses are provided in the Appendix F methodology memorandum and the results Memorandum, respectively.

As shown in Table 2 and Table 3, the No Project Alternative would result in a net increase in NO_X emissions of approximately 45 pounds per day, or 8 tons per year. Emissions reduction measures developed for the proposed project would not be applicable to the No Project Alternative and therefore were not evaluated.

Table 2 Summary of Daily Operational Emissions of NO_X from Proposed Project and Alternatives (pounds per day)

Emissions Source	Proposed Project	No Project Alternative	Code-Compliant Alternative	Fleet Management Use Mix Alternative	Expanded Parcel Delivery Use Alternative	Expanded Wholesale/ Storage Use Mix Alternative, 32/64 Use Split Scenario	Expanded Wholesale/ Storage Use Mix Alternative, 49/49 Use Split Scenario
Area[1]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Energy[2]	0.0	1.7	0.0	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[3]	34.8	0.0	21.9	0.0	0.0	34.8	34.8
Stationary Sources[4]	4.0	0.0	4.0	4.0	4.0	4.0	4.0
Mobile[5]	110.2	59.3	77.3	58.4	104.0	115.2	112.7
Transportation Refrigeration Units[6]	16.9	1.1	11.9	8.6	17.0	17.1	17.0
Total Project (Alternative) Daily Operational Emissions[7]	*165.9*	*62.2*	*115.1*	*71.1*	*125.0*	*171.1*	*168.5*
Total Existing Onsite Average Daily Emission	*17.5*	*17.5*	*17.5*	*17.5*	*17.5*	*17.5*	*17.5*
Net Increase in Project- (Alternative-) Generated Daily Operational Emissions	*148.4*	*44.7*	*97.6*	*53.6*	*107.5*	*153.6*	*151.0*

Notes: Emissions presented in this table do not account for any emissions reduction measures.

1. Area sources are modeled using CalEEMod defaults for the proposed land uses.
2. The project and the build alternatives would be designed without natural gas; therefore, no emissions would occur from energy sources. For the No Project Alternative, estimated natural gas emissions were based on scaling of the CalEEMod energy-related emissions for existing onsite uses (which included some vacant inactive space) to the total active area square footage of this alternative.
3. For applicable alternatives, manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
4. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors.
5. Mobile emissions account for onsite activity and trips to/from the site, based on the project-specific vehicle miles traveled analysis and relevant travel assumptions, as detailed in the methodology memorandum. Emissions were calculated using CARB EMFAC 2021 emission factors.
6. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory.
7. Totals may not add due to rounding.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
U.S. EPA = United States Environmental Protection Agency

Source: Modeled by AECOM 2023 (see Attachment A, Alternatives Emissions Estimates)

Table 3 Summary of Annual Operational Emissions of NO_X from Proposed Project and Alternatives (tons per year)

Emissions Source	Proposed Project	No Project Alternative	Code-Compliant Alternative	Fleet Management Use Mix Alternative	Expanded Parcel Delivery Use Alternative	Expanded Wholesale/ Storage Use Mix Alternative, 32/64 Use Split Scenario	Expanded Wholesale/ Storage Use Mix Alternative. 49/49 Use Split Scenario
Area[1]	<0.0	<0.0	<0.0	<0.01	<0.0	<0.0	<0.0
Energy[2]	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Manufacturing and Maker Space[3]	4.6	0.0	2.9	0.0	0.0	4.6	4.6
Stationary Sources[4]	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Mobile[5]	20.1	10.8	14.1	10.7	19.0	21.0	20.6
Transportation Refrigeration Units[6]	3.1	0.2	2.2	1.6	3.1	3.1	3.1
Total Annual Operational Emissions[7]	*27.9*	11.4	19.3	12.3	22.2	*28.8*	*28.4*
Total Existing Onsite Annual Emission	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Net Increase in Generated Annual Operational Emissions	24.7	8.2	16.1	9.1	19.0	*25.6*	25.2

Notes: Emissions presented in this table do not account for any emissions reduction measures.

1. Area and energy sources are modeled using CalEEMod defaults for the proposed land uses.
2. The project and the build alternatives would be designed without natural gas; therefore, no emissions would occur from energy sources. For the No Project Alternative, estimated natural gas emissions were based on scaling of the CalEEMod energy-related emissions for existing onsite uses (which included some vacant inactive space) to the total active area square footage of this alternative.
3. Manufacturing and maker space emissions are based on emissions profiles from existing similar land uses, and the maximum potential emissions for a "worst-case" use emissions profile are presented for each pollutant.
4. Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod, using both CalEEMod input factors and U.S. EPA emissions factors.
5. Mobile emissions account for onsite activity and trips to/from the site, based on the project-specific vehicle miles traveled analysis and relevant travel assumptions, as detailed in the methodology memorandum. Emissions were calculated using CARB EMFAC 2021 emission factors.
6. Transportation refrigeration unit emissions account for travel to and from the site, as well as onsite idling. Emissions were estimated using CARB OFFROAD 2021 Emissions Inventory.
7. Totals may not add due to rounding.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
NO_X = oxides of nitrogen
U.S. EPA = United States Environmental Protection Agency

Source: Modeled by AECOM 2023 (see Attachment A, Alternatives Emissions Estimates)

The Code-Compliant Alternative would result in a net increase in operational NO_X emissions of approximately 98 pounds per day, or 16 tons per year. These daily and annual emissions would be approximately 34 percent less than those for the proposed project. The Code-Compliant Alternative proposes the same mix of uses at the same relative percentage of total development as the proposed project. Therefore, the emissions reductions estimated through implementation of Mitigation Measures M-AQ-3a through M-AQ-3f under the proposed project would apply similarly to the Code-Compliant Alternative, but at a reduced rate comparable to the reduced project size under this alternative. The proposed project mitigated operational mobile source emissions of NO_X would be reduced by approximately 35 percent with implementation of emissions reduction measures. Applying the same proportion of emissions reductions to the Code-Compliant Alternative mobile source emissions would reduce the Code-Compliant Alternative operational emissions of NO_X of approximately 27 pounds per day, or 5 tons per year. In addition, manufacturing and maker space emissions of NO_X would be limited to 10 pounds per day (a reduction of about 12 pounds per day, or 1.5 tons per year), and emissions from use of transportation refrigeration units would be reduced to zero through use of electric or other clean-powered units. The combination of these emissions reductions would decrease overall emissions from the Code-Compliant Alternative compared to the proposed project and result in a net increase compared to baseline 2017 conditions of approximately 48 pounds per day, or about 7.5 tons per year under the Code-Compliant Alternative with implementation of Mitigation Measures M-AQ-3a through M-AQ-3f.

The Fleet Management Use Mix Alternative would result in a net increase in operational NO_X emissions of just less than 54 pounds per day, or about 9 tons per year. These daily and annual emissions would be approximately 56 percent less than those for the proposed project. Emissions reduction measure M-AQ-3b would reduce emissions from use of transportation refrigeration units to zero through use of electric or other clean-powered units—a reduction of more than 8.6 pounds per day, or about 1.6 tons per year. Under the proposed project, parcel delivery use and wholesale/storage use accounted for approximately 96 percent of the total operational space (the remainder being manufacturing and maker space and retail), whereas parcel delivery use accounts for 50 percent of the total operational space under the Fleet Management Use Mix Alternative. Therefore, the mobile source emissions reductions that were applicable to 96 percent of proposed operational space under the proposed project would be applicable to 50 percent of the operational space under the Fleet Management Use Mix Alternative, or approximately 48 percent less of the operations under the Fleet Management Alternative. As noted above, the proposed project operational mobile source emissions of NO_X would be reduced by approximately 35 percent with implementation of emissions reduction measures. Therefore, emissions reduction measures M-AQ-3c and M-AQ-3d, directly applicable to heavy-duty truck mobile source emissions associated with parcel delivery use, would result in approximately 48 percent of the mobile source emissions rate achieved under the proposed project. As a result, these measures would reduce mobile source emissions by 9.8 pounds per day, or 1.8 tons per year under the Fleet Management Mix Use Alternative. Because the Fleet Management Use Alternative would not include manufacturing and maker space use, emissions reduction measure M-AQ-3e, which would limit manufacturing and maker space emissions, is not applicable to this alternative. Total quantifiable emissions reductions achieved under the Fleet Management Use Mix Alternative would be approximately 18.4 pounds per day, or 3.3 tons per year, resulting in a net increase of operational NO_X emissions of just over 35 pounds per day, or 5.8 tons per year.

The Expanded Parcel Delivery Use Alternative would result in a net increase in operational NO_X emissions of approximately 107.5 pounds per day, or 19 tons per year. These daily and annual emissions represent approximately 28 percent less than those for the proposed project. Emissions reduction measure M-AQ-3b would reduce emissions from use of transportation refrigeration units to zero through use of electric or other clean-powered units—a reduction of more than 17 pounds per day, or about 3.1 tons per year. In addition, although the fleet mix is slightly different for the Expanded Parcel Delivery Use Alternative compared to the proposed project, emissions reduction measures M-AQ-3c and M-AQ-3d would result in comparable emissions reductions for the Expanded Parcel Delivery Use Alternative. These measures are particularly applicable to single-unit and tractor trailer trucks, of which total trips are reduced by approximately 15 percent under this alternative. Therefore, assuming that the mobile source emissions reductions are also reduced by approximately 15 percent compared to those reductions achieved under the proposed project, emissions reduction measures M-AQ-3c and M-AQ-3d would reduce mobile source emissions under the Expanded Parcel Delivery Use Alternative by approximately 30.9 pounds per day, or 5.6 tons per year. In addition, emissions reduction measure M-AQ-3e would require onsite backup

generators to meet or exceed Tier 4 emissions standards, thereby reducing such emissions by nearly 4 pounds per day. Because the Expanded Parcel Delivery Use Alternative would not include manufacturing and maker space use, emissions reduction measure M-AQ-3f, which would limit manufacturing and maker space emissions, is not applicable to this alternative. Total quantifiable emissions reductions from emissions reduction measures M-AQ-3a through M-AQ-3e achieved under the Expanded Parcel Delivery Use Mix Alternative would be approximately 52 pounds per day, or 8.8 tons per year, resulting in a net increase of operational NO_X emissions of approximately 55.6 pounds per day, or 10.2 tons per year.

4.3 Health Risk Assessment

This analysis evaluates the EIR alternatives' excess cancer risk and impacts from particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) on sensitive receptors, including nearby residents and workers within 1,000 feet of project-generated construction emissions and future operations (i.e., receptors along the haul routes for construction and along transportation routes for operational traffic).

Health risks were not quantified for the No Project Alternative, because estimated emissions would be substantially reduced, given the smaller footprint and reductions in the square footage for parcel delivery and wholesale/storage uses compared to the proposed project. Therefore, health risks would be substantially less for this alternative than for the proposed project. Health risks were not evaluated for the expanded wholesale/storage use alternative variants, because their emissions were greater than estimated for the proposed project as explained previously and shown in Tables 2 and 3.

The percent change of annual $PM_{2.5}$ exhaust (diesel particulate matter) and total $PM_{2.5}$ (which includes tire and brake wear and resuspended dust) emissions of each alternative evaluated relative to the proposed project is summarized in Table 4. Onsite stationary emissions include the emergency generators and manufacturer and maker space activities, as applicable. There is no change with the emergency generators between the proposed project and the build alternatives; however, $PM_{2.5}$ exhaust decreases by 31 percent for the Code-Compliant Alternative due to the reduced area for manufacturing and maker space, and is completely eliminated for the Fleet Management Use Mix and Expanded Parcel Delivery Use alternatives. Offsite last-mile uses consist of parcel delivery; offsite workers and deliveries are counted under on-road traffic to and from the project site and nearby highways. As discussed in Section 3, Approach, offsite traffic patterns are identical for the proposed project and all build alternatives.

Table 4 Percent Change in Emissions of Alternatives from Proposed Project by HRA Emission Source Groups

Emission Sources – Pollutant	Code-Compliant Alternative	Fleet Management Use Mix Alternative	Expanded Parcel Delivery Use Alternative
Onsite (Mobile) – $PM_{2.5}$ Exhaust	-30%	-47%	-8%
Onsite (Mobile) – $PM_{2.5}$ Total	-24%	-18%	-1%
Onsite (Stationary) – $PM_{2.5}$ Exhaust	-31%[1,2]	-84%[3]	-84%[3]
Onsite (Stationary)[1] – $PM_{2.5}$ Total	0%	0%	0%
Offsite (last-mile vehicle travel) – $PM_{2.5}$ exhaust	-30%	-23%	+52%
Offsite (last-mile vehicle travel) – $PM_{2.5}$ total	-30%	-23%	+53%
Offsite (other vehicle trips)[4] – $PM_{2.5}$ exhaust	-30%	-2%	-8%
Offsite (other vehicle trips)[4] – $PM_{2.5}$ total	-31%	+20%	-18%

Notes:

1 Stationary sources include emergency generators and maker space activities exhausted from rooftop vents.
2 Reduction is associated with less emission from maker space activities due to the smaller space allocated under the alternative.
3 All manufacture and maker space is removed. The only stationary sources are the emergency generators.
4 Other vehicle trips include workers, deliveries to/from the proposed project site and nearby highways, and buses.

HRA = health risk assessment; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter.

Source: Modeled by AECOM 2023

As shown in Table 4, $PM_{2.5}$ exhaust and total $PM_{2.5}$ emissions from onsite and offsite sources for the Code-Compliant Alternative generally decrease by about 30 percent, reflecting this alternative's

approximately one-third reduction in size compared to the proposed project. The Fleet Management Use Mix Alternative includes less parcel delivery and less onsite mobile sources overall. There is an increase of approximately 20 percent in offsite mobile emissions for the Fleet Management Use Mix Alternative, as shown in Table 4. This change is attributed to an increase in vehicle trips for this category, inclusive of worker commute trips, patrons and vendors/deliveries to the site, and bus trips. However, $PM_{2.5}$ exhaust is slightly lower under the Fleet Management Use Mix Alternative than under the proposed project because there would be an increase in vehicles trips by buses that would replace trips by diesel trucks (i.e., single-unit and tractor trailer trucks) under the proposed project. Parcel delivery use is expanded in the Expanded Parcel Delivery Use Alternative and is reflected in increases of $PM_{2.5}$ exhaust and total emission of about 52 percent and 53 percent, respectively.

Health risks were evaluated for sources emitting toxic air contaminants during construction and future operations of the proposed project and project alternatives. Consistent with the analysis of the proposed project, two scenarios[2] were evaluated to assess long-term cancer risk and annual $PM_{2.5}$ concentrations for both residential and worker exposure. These included:

- *Residential Exposure Scenario 1:* This scenario includes project emissions from both construction activities and operation of the proposed project. Cancer risk was assessed over a 30.6-year period, with construction occurring during the first 2.6 years, and operations for the remaining 28 years of an approximately 30-year total exposure period.
- *Residential Exposure Scenario 2:* This scenario includes only operation of the proposed project for a 30-year period.
- *Worker Exposure Scenario 1:* This scenario includes project emissions from both construction activities and operation of the proposed project. Cancer risk was assessed over a 25.6-year period, with construction occurring during the first 2.6 years, and operations for the remaining 23 years of an approximately 25-year total exposure period.
- *Worker Exposure Scenario 2:* This scenario includes only operation of the proposed project for a 25-year period.

Health risks calculated at the maximally exposed individual residential and worker receptors are summarized in Table 5 and Table 6 for cancer risk and annual $PM_{2.5}$, respectively. The cancer risk and $PM_{2.5}$ concentration for the Code-Compliant Alternative were obtained through a full modeling analysis, as discussed in Section 3.2.1, Operational Emissions. Supporting modeling files for the Code-Compliant Alternative are provided in Attachment B. The health risks for the Fleet Management Use Mix and Expanded Parcel Delivery Use alternatives shown in Table 5 and Table 6 were computed by taking the product of the percent change of emissions between the alternative and the proposed project for a given emission source group, multiplied by the health risk associated with that same source group from the proposed project analysis. For example, the 30-year cancer risk for the maximally exposed individual residential receptor of the proposed project for Scenario 2 was 4.68 per one million. The contribution from onsite sources (both mobile and stationary) is 3.07 per one million, or approximately 66 percent. Therefore, the percent change for the Fleet Management Use Mix Alternative onsite $PM_{2.5}$ exhaust is negative 47 percent multiplied by 3.07 per one million (of the proposed project onsite sources), which results in a cancer risk of 1.63 per one million for onsite sources. This process is repeated for offsite last-mile and offsite worker/deliveries to arrive at the total cancer risk for that scenario. Tables showing this step-by-step process are provided in Attachment B, Alternatives Health Risk Assessment and $PM_{2.5}$ Model Inputs, for both the Fleet Management Use Mix and Expanded Parcel Delivery Use alternatives.

[2] Both scenarios include the use of Tier 4 Interim emission standards for construction equipment rated 25 horsepower or greater as part of the proposed project's approval as a Type 3 Clean Construction Project, pursuant to Director Bulletin No. 2, *https://sfplanning.org/sites/default/files/forms/DB2_Type3_SupplementalApplication.pdf*.

Table 5 Lifetime Cancer Risk at the Maximally Exposed Individual Sensitive Residential and Worker Receptors from the Proposed Project and the Build Alternatives

				Lifetime Cancer Risk (per one million) (percent change from proposed project)[1]			
UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Proposed Project	Code-Compliant Alternative	Fleet Management Use Mix Alternative	Expanded Parcel Delivery Use Alternative
553,000	4,177,080	Residential	Scenario 1	4.05 (0%)	3.72 (-8%)	3.14 (-23%)	4.14 (+2%)
552,920	4,177,300	Worker	Scenario 1	5.09 (0%)	4.09 (-20%)	3.27 (-37%)	5.22 (+2%)
553,000	4,177,080	Residential	Scenario 2	4.68 (0%)	4.11 (-12%)	3.02 (-36%)	4.84 (+3%)
552,920	4,177,300	Worker	Scenario 2	4.82 (0%)	3.75 (-22%)	2.84 (-41%)	4.96 (+3%)

Notes:

[1] Cancer risk presented in this table do not account for any emissions reduction measures.

m = meter
UTM = Universal Transverse Mercator

Source: Modeled by AECOM 2023 (see Attachment B, Alternatives Health Risk Assessment and $PM_{2.5}$ Model Inputs)

Table 6 Annual Average $PM_{2.5}$ Concentration at the Maximally Exposed Individual Sensitive Residential and Worker Receptors from the Proposed Project and the Build Alternatives

				$PM_{2.5}$ Concentration ($\mu g/m^3$) (percent change from proposed project)[1]			
UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Proposed Project	Code-Compliant Alternative	Fleet Management Use Mix Alternative	Expanded Parcel Delivery Use Alternative
553,000	4,177,080	Residential	Scenarios 1 and 2	0.080 (0%)	0.065 (-19%)	0.068 (-14%)	0.098 (+22%)
552,920	4,177,300	Worker	Scenarios 1 and 2	0.174 (0%)	0.142 (-19%)	0.159 (-9%)	0.176 (+1%)

Notes:

[1] $PM_{2.5}$ concentrations presented in this table do not account for any emissions reduction measures.

m = meter
$\mu g/m^3$ = micrograms per cubic meter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
UTM = Universal Transverse Mercator

Source: Modeled by AECOM 2023 (see Attachment B, Alternatives Health Risk Assessment and $PM_{2.5}$ Model Inputs)

As shown in Table 5, the cancer risk at the maximally exposed individual residential and worker receptors for the Code Compliant and Fleet Management Use Mix Alternatives decreased in comparison to the proposed project. For the Expanded Parcel Delivery Use Alternative, there is a slight increase (approximately 2 to 3 percent at the maximally exposed individual resident and worker receptors) in cancer risk.

Estimated annual $PM_{2.5}$ concentrations for the build alternatives compared to the proposed project are shown in Table 6. Annual $PM_{2.5}$ concentration decreases for the Code-Compliant and Fleet Management Use Mix alternatives in comparison to the proposed project at the maximally exposed individual worker receptor. A slight increase in annual $PM_{2.5}$ concentration of approximately 1 percent occurs at the maximally exposed individual worker receptor for the Expanded Parcel Delivery Use Alternative. A decrease in annual $PM_{2.5}$ concentration is projected at the maximally exposed individual residential receptor for the Code-Compliant and Fleet Management Use Mix alternatives, and an increase of about 22 percent is projected from the Expanded Parcel Delivery Use Alternative.

As part of the detailed health risk analysis conducted for the Code-Compliant Alternative, noncancer chronic health risks were also computed. Table 7 summarizes the noncancer chronic and acute hazard indices for this alternative at the maximally exposed individual residential and worker receptors. It is presumed that the noncancer health risks would follow a trend similar to those seen in the cancer risk calculations for the Fleet Management Use Mix and Expanded Parcel Delivery Use alternatives.

Table 7 Noncancer Chronic and Acute Health Risks from the Code-Compliant Alternative at Offsite Maximally Exposed Individual Residential and Worker Receptors

UTM_x (m)	UTM_y (m)	Receptor Type	Scenario	Project Phase	Noncancer Chronic HI[1]	Acute HI[1]
553,000	4,177,080	Residential	Scenarios 1 and 2	Operation	1.54E-03	7.28E-04
552,920	4,177,300	Worker	Scenarios 1 and 2	Operation	4.53E-03	1.87E-03

Notes:

[1] Noncancer chronic and acute risk presented in this table do not account for any emissions reduction measures.

HI = hazard index
m = meter
UTM = Universal Transverse Mercator

Attachment A

Alternatives Emissions Estimates

SF Gateway - No Project
Operational Emissions Summary

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	5.63	0.00	0.001	0.001
Energy	0.19	1.73	0.13	0.13
Manufacturing & Maker Space Industry TACs	0.00	0.00	0.000	0.000
Stationary Sources	0.00	0.00	0.000	0.000
Mobile	4.84	59.34	18.600	5.555
TRUs	1.11	1.10	0.029	0.027
Total Proposed Daily Operational Emissions	***11.77***	***62.18***	***18.762***	***5.715***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	1.30	16.10	6.25	1.84
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**2.44**	**44.70**	**12.41**	**3.77**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.03	0.32	0.02	0.02
Manufacturing & Maker Space	0.00	0.00	0.000	0.000
Stationary Sources	0.00	0.00	0.000	0.000
Mobile	0.88	10.83	3.394	1.014
TRUs	0.20	0.20	0.005	0.005
Total Proposed Annual Operational Emissions	***5.06***	***11.35***	***3.42***	***1.04***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.24	2.94	1.14	0.34
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**3.36**	**8.16**	**2.26**	**0.69**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stationary Sources	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile (trips to/from site)	3.4411	102.7263	52.3732	0.7872	17.6536	0.7483	4.7501	0.63	18.75	9.56	0.14	3.22	0.14	0.87
Mobile (activity within buildings)	1.4024	18.0550	6.9625	0.0227	0.1364	0.0213	0.0355	0.26	3.30	1.27	0.00	0.02	0.00	0.01
TRUs in-transit	0.7382	0.0803	0.7296	0.0190	0.0000	0.0175	0.0000	0.13	0.01	0.13	0.00	0.00	0.00	0.00
TRUs on-site	0.3724	0.0405	0.3743	0.0104	1.0000	0.0095	1.0000	0.07	0.01	0.07	0.00	1.00	0.00	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

Land Use Emissions Source	ROG (Pollutant (lb/day))	PM2.5 Exhaust	PM2.5 Total	ROG (Pollutant (lb/year))	PM2.5 Exhaust	PM2.5 Total	ROG (Pollutant (lb/hr))	PM2.5 Exhaust	PM2.5 Total
Manufacturing & Maker Space TACs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary Sources									
220 Horsepower Backup Generators (4 total)	NA	0.0000	0.0000	NA	0.0000	0.0000	NA	0.0000	0.0000
440 Horsepower Backup Generators (2 total)	NA	0.0000	0.0000	NA	0.0000	0.0000	NA	0.0000	0.0000

Mobile Emissions Source	ROG (Pollutant (lb/day))	PM2.5 Exhaust	PM2.5 Total	ROG (Pollutant (lb/year))	PM2.5 Exhaust	PM2.5 Total	ROG (Pollutant (lb/hr))	PM2.5 Exhaust	PM2.5 Total
On-site Vehicle and TRU Activity (Ramp Exhaust) - Transit									
Ground Level	1.0687	0.0095	0.0553	390.0779	3.4649	20.1823	0.0891	0.0008	0.0046
2nd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Transit									
Ground Level	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2nd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Ramp Exhaust) - Idling									
Ground Level	0.0605	0.0092	0.0111	22.0781	3.3470	4.0458	0.0050	0.0008	0.0009
2nd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Idling									
Ground Level	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2nd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Site Trips									
Autos/Pickups (last-mile)	0.0473	0.0000	0.0844	17.2630	0.0048	30.8100	0.0039	0.0000	0.0070
Autos/Pickups	0.4332	0.0000	0.0905	158.1303	0.0077	33.0172	0.0361	0.0000	0.0075
Vans (last-mile only)	0.0452	0.0005	0.0697	16.5031	0.1975	25.4368	0.0038	0.0000	0.0058
Vans	0.0012	0.0000	0.0019	0.4468	0.0053	0.6887	0.0001	0.0000	0.0002
Single-Unit Trucks (last-mile only)	0.0047	0.0051	0.0360	1.7080	1.8483	13.1429	0.0004	0.0004	0.0030
Single-Unit Trucks	0.00142275	0.00153964	0.01094789	0.5193	0.5620	3.9960	0.0001	0.0001	0.0009
Tractor Trailer Trucks	0.00035134	0.00249894	0.01260027	0.1282	0.9121	4.5991	0.0000	0.0002	0.0011
TRUs on Single Unit Trucks	0.00000000	0.00041561	0.00041561	0.0000	0.1517	0.1517	0.0000	0.0000	0.0000
TRUs on Tractor Trailer Trucks	0.00000000	0.00003948	0.00003948	0.0000	0.0144	0.0144	0.0000	0.0000	0.0000

**Note that emissions in all tables above represent total emissions for all sources on the project site.
*** Forklifts are all electric (no diesel) and therefore are not included

Operational Days/Year		
Manufacturing & Maker Space TACs	264	
Stationary Sources[1]	50	<-- Unless we have information saying there are existing ...
Vehicle activity	365	
Operational Hrs/Day		
Manufacturing & Maker Space TACs	12	
Stationary Sources	1	
Vehicle activity	12	
Ramp Exhaust Emissions by Floor[2]		Total 100%
Ground Level	1	<-- changed from 0.4 to 1.0 (100% via volume sources as no vents would exist in Alt 1)
2nd Floor	0	
3rd Floor	0	
4th Floor	0	
Total Fan Exhaust Emissions by Floor[2]		Total 0%
Ground Level	0	<-- changed from 0.6 to 0.0 (100% via volume sources as no vents would exist in Alt 1)
2nd Floor	0	
3rd Floor	0	
4th Floor	0	
Idling Exhaust Emissions		Total 100%
Ramps	1	<-- changed from 0.1 to 1.0 (100% via volume sources as no vents would exist in Alt 1)
Fans	0	<-- changed from 0.9 to 0.0 (100% via volume sources as no vents would exist in Alt 1)

% Vehicle Activity Per Floor

Floor	Single Unit Trucks	Tractor Trailer Trucks[3]
1st/Ground	100%	100%
2nd	0%	0%
3rd	0%	0%
4th/Roof	0%	0%
Total	100%	100%

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 50 hours per year.
2. Percent of emissions modeled to be released through exhaust vents vs openings along the ramps on each floor is detailed in the methodology memo page 18 of 24. No tractor trailer trucks would operate on the 4th floor; these 'ramp exhaust' emissions are redistributed evenly throughout the first three floors to account for 100% of the tractor trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table IV. Mobile Emissions within HRA Domain

Mobile Emissions Source	ROG[1] (Vehicle Emissions: Pollutant (lb/day))	PM2.5 Exhaust[2]	PM2.5 Total[3]	PM2.5 Exhaust[2] (TRU Emissions (DPM in lb/day))
On-Site Mobile Activity[4]				
Autos/Pickups	0.923822249	2.73339E-05	0.031949903	0
Vans	0.136020835	0.000144889	0.007229675	0
Single Unit Trucks - Idling	0.05398756	0.006589085	0.008460164	0.002009074
Single Unit Trucks	0.008481444	0.001939537	0.00676114	0.006126069
Tractor Trailer Trucks - Idling	0.006500464	0.000226273	0.000269609	0.000345472
Tractor Trailer Trucks	0.000382179	0.000201657	0.002173854	0.001053414
Off-Site Worker Vehicle Trips[5]				
Autos/Pickups	0.429855212	2.02833E-05	0.084428553	0
Off-Site Visitor Vehicle Trips[6]				
Autos/Pickups (visiting worker)				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.047296026	1.31844E-05	0.084410932	0
Wholesale and Storage	0.00337835	9.41762E-07	0.006029464	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Vans				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.045214061	0.000541048	0.06968974	0
Wholesale and Storage	0.001224242	1.46497E-05	0.00188696	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Single Unit Trucks				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.004679459	0.00506393	0.036007937	0.000318711
Wholesale and Storage	0.001422748	0.001539643	0.010947891	9.69013E-05
General Retail / Café/Quick Service Restaurants	0	0	0	0
		0.006603573		
Tractor Trailer Trucks				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.000245275	0.001744544	0.008796414	2.75601E-05
Wholesale and Storage	0.000106065	0.000754398	0.003803855	1.19179E-05
General Retail / Café/Quick Service Restaurants	0	0	0	0

Notes:
1. ROG emissions are those generated by gasoline-powered vehicles.
2. PM2.5 Exhaust emissions are those generated by diesel-powered vehicles.
3. PM2.5 Total emissions are all PM2.5 Exhaust, Tire Wear, Break Wear, and RE-entrained dust generated by mobile activity.
4. 100% of on-site mobile source emissions accounted for to serve as an input to the HRA modeling.
5. Percent of off-site worker vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average worker trip distance that would occur within the HRA modeling domain.
6. Percent of off-site visitor vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average trip distance for each land use and vehicle category that would occur within the HRA modeling domain.

Table III.a
% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Visitor Trips

Land Use Type	Autos/Pickups		Single U	Tractor Trailer Trucks
Maker and Manufacturing	3.36%	9.94%	1.68%	1.03%
Parcel and Last Mile Delivery	9.09%	5.99%	4.03%	1.03%
Wholesale and Storage	9.90%	9.94%	1.68%	1.03%
General Retail / Café/QSR	9.90%	9.94%	1.68%	1.03%

Table II.a
HRA Modeling Domain Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups		Single U	Tractor Trailer Trucks
Maker and Manufacturing	0.67	0.67	0.67	0.67
Parcel and Last Mile Delivery	1.41	1.41	1.41	0.67
Wholesale and Storage	0.67	0.67	0.67	0.67
General Retail / Café/QSR	0.67	0.67	0.67	0.67

Table I.a
Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups		Single U	Tractor Trailer Trucks
Maker and Manufacturing	30	30	40	65
Parcel and Last Mile Delivery	30	30	40	65
Wholesale and Storage	30	30	40	65
General Retail / Café/QSR	30	30	40	65

Conversion Factors

feet	miles
5280	1

Table III.b
% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Worker Trips

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	67.1%
Parcel and Last Mile Delivery	67.1%
Wholesale and Storage	67.1%
General Retail / Café/QSR	7.37%

Table III c..

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]: Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	1314
Wholesale and Storage	430
General Retail/QSR	0
Total Vehicle Trips[1]	1744

Table III d.

Weighted Average % one-way trip within HRA Modeling Domain.
67.1%

Table II.b
Modeling Domain One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	0.67
Parcel and Last Mile Delivery	0.67
Wholesale and Storage	0.67
General Retail / Café/QSR	0.67

Table I.b
One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	1.00
Parcel and Last Mile Delivery	1.00
Wholesale and Storage	1.00
General Retail / Café/QSR	9.11

1. Except for Retail/QSR, miles per trip distance estimated based on total PDR worker VMT from the SF Travel Demand Memo Page A-92 Table 4 and the total PDR trips on Page A-91 in Table 2.

Table I c.

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]: Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	1314
Wholesale and Storage	430
General Retail/QSR	0
Total Vehicle Trips[1]	1744

Table I d.

Weighted Average one-way trip distance for worker trips
1.00

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	ROG (Total Emissions (lbs/day))	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG (Gasoline-Powered Vehicle Emissions (lbs/day))	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG (Diesel-Powered Vehicle Emissions (lbs/day))	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.588488642	0.04996572	0.996894196	0.586562816	0.049802208	0.993631865	0.001925826	0.000163513	0.003262331
Wholesale and Storage	0.100973922	0.008573207	0.17104887	0.100643486	0.008545151	0.170489114	0.000330437	2.80558E-05	0.000559757
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Vans									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.929107829	0.106274341	1.19015836	0.841113588	0.096209276	1.077440462	0.087994241	0.010065064	0.112717898
Wholesale and Storage	0.060429777	0.006912152	0.077408674	0.054706575	0.006257514	0.070077428	0.005723203	0.000654638	0.007331245
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Single Unit Trucks									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.524810209	0.16127283	0.731864242	0.116068798	0.035667644	0.161861567	0.408741411	0.125605187	0.570002675
Wholesale and Storage	0.383288355	0.117783528	0.534507592	0.084769347	0.026049403	0.118213504	0.298519008	0.091734125	0.416294088
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Tractor Trailer Trucks									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.147741122	0.201255857	0.650411538	0.023747526	0.032349346	0.104545469	0.123993596	0.168906511	0.545866069
Wholesale and Storage	0.063888053	0.08702956	0.281259043	0.0102692	0.013988906	0.045208852	0.053618852	0.073040653	0.236050192
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Total	2.798727909	0.739067194	4.633552516	1.817881335	0.268869448	2.74146826	0.980846574	0.470197746	1.892084255

Conversion Factors

lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

% Fleet makeup that is Diesel or Gasoline

Vehicle Category	% Diesel	% Gasoline
Autos/Pickups	0.33%	99.7%
Vans	9%	91%
Single Unit Trucks	78%	22%
Tractor Trailer Trucks	84%	16%

Reflects % VMT of total Diesel + Gasoline poweded vehicles and does not include electric, as electric do not contriubte to total emissions.
Gasoline includes hybrid and natural gas vehicles.

Existing Land Use on Project Site

Existing Uses at the Project Site

Use	Area (square feet)[1]	CalEEMod Land Use Type
Automotive storage and fleet management	141,400	Retail > Automotive Care Center
General storage (for contractors, supply companies, etc.)	184,400	Industrial > Unrefrigerated Warehouse - No Rail
Food-related storage and wholesale (multiple tenants)	77,100	Industrial > Regrigerated Warehouse - No Rail
Temporary storage	35,700	Industrial > Unrefrigerated Warehouse - No Rail
Vacant	9,400	NA
Total	448,000	438,600

Source: Prologis, Inc., 2019

[1] These areas are approximations of uses that exist or have recently existed at the project site as of December 2017, and reflect data in Table 1 of the Project Description.

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV Is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*0.642387*	*8.779579*	*0.652817*	*0.010034*	*0.458468*	*0.009232*	*0.116527*	*0.117236*	*1.602273*	*0.119139*	*0.001831*	*0.08367*	*0.001685*	*0.021266*
Visitor	*2.798728*	*93.94673*	*51.72034*	*0.777211*	*17.19509*	*0.739067*	*4.633553*	*0.510768*	*17.14528*	*9.438962*	*0.141841*	*3.138105*	*0.13488*	*0.845623*
Sub-Total	3.441115	102.7263	52.37316	0.787245	17.65356	0.7483	4.75008	0.628003	18.74755	9.558101	0.143672	3.221775	0.136565	0.86689
On-Site Vehicle Activity Within Buildings	1.402	18.055	6.962511	0.022736	0.136428	0.021343	0.035502	0.255935	3.295037	1.270658	0.004149	0.024898	0.003895	0.006479
Gross Mobile Source Emissions from Proposed Project	**4.843497**	**120.7813**	**59.33567**	**0.809981**	**17.78999**	**0.769642**	**4.785581**	**0.883938**	**22.04259**	**10.82876**	**0.147821**	**3.246673**	**0.14046**	**0.873369**
Existing Land Use Mobile Emissions	1.29593	36.84234	16.09655	0.236917	6.00896	0.225024	1.61766	0.236507	6.723727	2.93762	0.043237	1.096635	0.041067	0.295223
Net Mobile Emissions (Proposed - Existing)	**3.547567**	**83.93897**	**43.23912**	**0.573063**	**11.78103**	**0.544618**	**3.167922**	**0.647431**	**15.31886**	**7.891139**	**0.104584**	**2.150038**	**0.099393**	**0.578146**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	872	1744	0.64238703	8.779578898	0.65281747	0.010034202	0.458468336	0.009232327	0.116527043	0.117235632	1.602273149	0.11913919	0.00183124	0.08367047	0.0016849	0.02126619

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.1176097	0.042561792	0.25445557	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212

Operational Days Per Year:

Autos/Pickups (on-site worker)	365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table III.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	1,314
Wholesale and Storage	430
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[1]	**1744**

Source: SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - Alt 1 2 3 4 - VMT Summaries (Adavant 11.23.2022)

Notes:

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	437	17480	0.689462564	30.92936712	1.885343014	0.063598309	4.595198689	0.058538927	1.167943066	0.125826918	5.6446095	0.3440751	0.011606691	0.838623761	0.010683354	0.21314961
Maker and Manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	373	14920	0.588488642	26.39966576	1.609228706	0.05428414	3.922217646	0.04996572	0.996894196	0.107399177	4.817939001	0.293684239	0.009906856	0.71580472	0.009118744	0.181933191
Wholesale and Storage	64	2560	0.100973922	4.529701363	0.276114309	0.009314169	0.672981044	0.008573207	0.17104887	0.018427741	0.826670499	0.050390861	0.001699836	0.12281904	0.00156461	0.031216419
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
												0				
Vans	262	15720	0.989537606	28.76149135	4.757529298	0.12020084	4.756344413	0.113186493	1.267567034	0.180590613	5.248972171	0.868249097	0.021936653	0.868032855	0.020656535	0.231330984
Maker and Manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	246	14760	0.929107829	27.00506439	4.466993158	0.11286033	4.465880632	0.106274341	1.19015836	0.169562179	4.928424252	0.815226251	0.02059701	0.815023215	0.019395067	0.217203901
Wholesale and Storage	16	960	0.060429777	1.756426952	0.29053614	0.007340509	0.290463781	0.006912152	0.077408674	0.011028434	0.320547919	0.053022846	0.001339643	0.05300964	0.001261468	0.014127083
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
										0		0				
Single Unit Trucks	154	12320	0.908098564	11.45926442	23.71637788	0.291962694	4.564171329	0.279056358	1.266371834	0.165727988	2.091315756	4.328238963	0.053283192	0.832961267	0.050927785	0.23111286
Maker and Manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	89	7120	0.524810209	6.622561904	13.70621838	0.168731687	2.637735378	0.16127283	0.731864242	0.095777863	1.208617547	2.501384855	0.030793533	0.481386707	0.029432291	0.133565224
Wholesale and Storage	65	5200	0.383288355	4.836702514	10.01015949	0.123231007	1.92643595	0.117783528	0.534507592	0.069950125	0.882698209	1.826854108	0.022489659	0.351574561	0.021495494	0.097547636
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
												0				
Tractor Trailer Trucks	53	6890	0.211629175	22.79660614	21.36108817	0.30144912	3.279380173	0.288285416	0.931670581	0.038622324	4.16038062	3.898398592	0.055014464	0.598486882	0.052612088	0.170029881
Maker and Manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	37	4810	0.147741122	15.91461183	14.91245778	0.210445612	2.289378612	0.201255857	0.650411538	0.026962755	2.90441666	2.721523545	0.038406324	0.417811597	0.036729194	0.118700106
Wholesale and Storage	16	2080	0.063888053	6.881994306	6.448630392	0.091003508	0.990001562	0.08702956	0.281259043	0.01165957	1.255963961	1.176875047	0.01660814	0.180675285	0.015882895	0.051329775
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
												0				
Total	906	52410	2.798727909	93.94672903	51.72033836	0.777210961	17.1950946	0.739067194	4.633552516	0.510767843	17.14527805	9.438961751	0.141841	3.138104765	0.134879763	0.845623334

Notes:

1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
		Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:		Autos/Pickups												
Autos/Pickups (visiting worker)	365	(visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.254455574	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212
Vans	365	Vans	0.0244306	0.247319397	0.782912077	2.819141908	0.131203427	0.364355418	0.00344953	0.001128128	0.137241828	0.003248649	0.001037278	0.036574983
Single Unit Trucks	365	Single Unit Trucks	0.032620144	0.065106563	0.404852827	1.36394853	0.855556494	1.409818459	0.010747862	0.000119404	0.168041663	0.010272803	0.000109788	0.046624724
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.013932276	0	1.500778898	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018978819	0	0.061335075

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

	Net Visitor VMT by Vehicle Type and Land Use[4]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total Visitor VMT by Land Use
Maker and Manufacturing	0	0	0	0	-
Parcel and Last Mile Delivery	14920	14760	7120	4810	**41,610**
Wholesale and Storage	2560	960	5200	2080	**10,800**
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	-
Total Visitor VMT by Vehicle Type	**17480**	**15720**	**12320**	**6890**	**52,410**

Table II.

	Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]				
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	0	0	0	0	0
Parcel and Last Mile Delivery	746	492	178	74	1490
Wholesale and Storage	128	32	130	32	322
General Retail / Café/Quick Service Restaurants	0	0	0	0	0
Total Vehicle Trips[1]	**874**	**524**	**308**	**106**	1812

Source: SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - Alt 1 2 3 4 - VMT Summaries (Adavant 11.23.2022)

Table III.

	Total Daily Auto/Pickup Vehicle Trips by Land Use[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	2060
Wholesale and Storage	558
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[1]	**2618**

Source: SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - Alt 1 2 3 4 - VMT Summaries (Adavant 11.23.2022)

Table IV.

	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	1,314
Wholesale and Storage	430
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[1]	**1744**

Source: SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - Alt 1 2 3 4 - VMT Summaries (Adavant 11.23.2022)

Table V.

	Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]			
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:

1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Source: SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - Alt 1 2 3 4 - VMT Summaries (Adavant 11.23.2022)

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	0.9269	9.5676	0.7670	0.0091	0.0928	0.0084	0.0236	0.1692	1.7461	0.1400	0.0017	0.0169	0.0015	0.0043
Vans	0.1503	1.8154	0.2234	0.0017	0.0214	0.0015	0.0057	0.0274	0.3313	0.0408	0.0003	0.0039	0.0003	0.0010
Single Unit Trucks	0.2825	5.7948	4.8855	0.0115	0.0154	0.0110	0.0043	0.0515	1.0576	0.8916	0.0021	0.0028	0.0020	0.0008
Tractor Trailer Trucks	0.0428	0.8771	1.0866	0.0005	0.0068	0.0005	0.0019	0.0078	0.1601	0.1983	0.0001	0.0012	0.0001	0.0004
Total	1.40	18.05	6.96	0.02	0.14	0.02	0.04	0.26	3.30	1.27	0.00	0.02	0.00	0.01

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	0.9269	9.5676	0.7670	0.0091	0.0928	0.0084	0.0236	0.1692	1.7461	0.1400	0.0017	0.0169	0.0015	0.0043
Vans	0.1503	1.8154	0.2234	0.0017	0.0214	0.0015	0.0057	0.0274	0.3313	0.0408	0.0003	0.0039	0.0003	0.0010
Single Unit Trucks - Idling	0.2441	5.2391	4.2306	0.0088	0.0000	0.0085	0.0000	0.0445	0.9561	0.7721	0.0016	0.0000	0.0015	0.0000
Single Unit Trucks	0.0383	0.5557	0.6550	0.0026	0.0154	0.0025	0.0043	0.0070	0.1014	0.1195	0.0005	0.0028	0.0005	0.0008
Tractor Trailer Trucks - Idling	0.0404	0.7430	0.4946	0.0003	0.0000	0.0003	0.0000	0.0074	0.1356	0.0903	0.0001	0.0000	0.0000	0.0000
Tractor Trailer Trucks	0.0024	0.1341	0.5920	0.0003	0.0068	0.0002	0.0019	0.0004	0.0245	0.1080	0.0000	0.0012	0.0000	0.0004
Total	1.40	18.05	6.96	0.02	0.14	0.02	0.04	0.26	3.30	1.27	0.00	0.02	0.00	0.01

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	1309	145.76		0.9159	9.2142	0.7472	0.0073	0.0383	0.0068	0.0097	0.1672	1.6816	0.1364	0.0013	0.0070	0.0012	0.0018
Autos/Pickups - 10mph			207.41	0.0110	0.3534	0.0198	0.0017	0.0545	0.0016	0.0139	0.0020	0.0645	0.0036	0.0003	0.0100	0.0003	0.0025
Vans - 5mph	262	29.17		0.1466	1.7081	0.2162	0.0012	0.0088	0.0011	0.0024	0.0268	0.3117	0.0394	0.0002	0.0016	0.0002	0.0004
Vans - 10mph			41.51	0.0036	0.1073	0.0072	0.0005	0.0126	0.0005	0.0033	0.0007	0.0196	0.0013	0.0001	0.0023	0.0001	0.0006
Single Unit Trucks - idling				0.2441	5.2391	4.2306	0.0088	0.0000	0.0085	0.0000	0.0445	0.9561	0.7721	0.0016	0.0000	0.0015	0.0000
Single Unit Trucks - 5mph	154	17.15		0.0294	0.4995	0.5645	0.0012	0.0064	0.0012	0.0018	0.0054	0.0912	0.1030	0.0002	0.0012	0.0002	0.0003
Single Unit Trucks - 10mph			24.40	0.0090	0.0562	0.0904	0.0014	0.0090	0.0013	0.0025	0.0016	0.0103	0.0165	0.0003	0.0016	0.0002	0.0005
Tractor Trailer Trucks - idling				0.0404	0.7430	0.4946	0.0003	0.0000	0.0003	0.0000	0.0074	0.1356	0.0903	0.0001	0.0000	0.0000	0.0000
Tractor Trailer Trucks - 5mph	53	5.90		0.0010	0.0554	0.4694	0.0001	0.0028	0.0001	0.0008	0.0002	0.0101	0.0857	0.0000	0.0005	0.0000	0.0001
Tractor Trailer Trucks - 10mph			8.40	0.0014	0.0788	0.1227	0.0001	0.0040	0.0001	0.0011	0.0003	0.0144	0.0224	0.0000	0.0007	0.0000	0.0002
Total	1778	197.98	281.72	1.40	18.05	6.96	0.02	0.14	0.02	0.04	0.26	3.30	1.27	0.00	0.02	0.00	0.01

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)										
	Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:														
Autos/Pickups 365	Autos/Pickups	5	0.029653049	0.314075231	0.676172538	3.117609703	0.040015802	0.254455574	0.004727251	0.002019879	0.119241823	0.004349256	0.001857204	0.030307212
Vans 365	Autos/Pickups	10	0.023951976	0.314075231	0.772812712	3.117609703	0.04333483	0.254455574	0.003791868	0.002019879	0.119241823	0.003489068	0.001857204	0.030307212
Single Unit Trucks 365	Vans	5	0.058791572	0.247319397	1.24019504	2.819141908	0.088567751	0.364355418	0.008084807	0.001128128	0.137241828	0.0074378	0.001037278	0.036574983
Tractor Trailer Trucks 365	Vans	10	0.039499645	0.247319397	1.172414351	2.819141908	0.079057831	0.364355418	0.005371288	0.001128128	0.137241828	0.004942254	0.001037278	0.036574983
	Sinele Unit Trucks	5	0.192047485	0.065106563	0.963295312	1.36394853	2.271367996	1.409818459	0.030932078	0.000119404	0.168041663	0.029540918	0.000109788	0.046624724
	Sinele Unit Trucks	10	0.16701127	0.065106563	1.044283493	1.36394853	1.681231232	1.409818459	0.026015214	0.000119404	0.168041663	0.02483922	0.000109788	0.046624724
	Tractor Trailer Trucks	5	0.075421922	0	4.255299455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075
	Tractor Trailer Trucks	10	0.075421922	0	4.255299455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	308	0.1	110.73	2376.43	1918.95	4.01	3.84
Tractor Trailer Trucks	106	0.1	18.34	337.02	224.34	0.13	0.12
Total			129.07	2713.45	2143.29	4.14	1.96

Emissions for truck idling using EMFAC 2011 idling emission rates provided in g/hr-vehicle (https://www.arb.ca.gov/msei/emfac2011_idling_emission_rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	Aggregated	GAS	1.017757837	15.17523512	0.08759075	0	0
T6 instate small	Aggregated	DSL	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T7 Single	Aggregated	DSL	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
T7 tractor	Aggregated	DSL	3.031945026	55.70336178	37.07914401	0.021442872	0.020212877

*Source: EMFAC 2017

			Emission Factors (g/vehicle/idle-hr)				
Vehicle Category	Idle-hour factor		ROG_IDLEX	CO_IDLEX	NOx_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	0.098		10.38528405	154.849338	0.893783161	0	0
T6 instate small	0.098		2.293499646	76.43314517	111.3625296	0.233515896	0.223414102
T7 Single	0.79		0.284510083	9.481580034	13.81459228	0.028967795	0.027714661
		Weighted Average:	4.31396642	92.58811000	74.76444547	0.15627190	0.14951165
T7 tractor	1.46		2.076674675	38.15298752	25.39667398	0.014686898	0.013844436

*Source: For T6TS and T instate small, Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf); for T7 Single and T7 Tractor, idle-hour factors updated to EMFAC2021 documentation Table 4.4.2-5, as updated data was provided for EMFAC2021 for these vehicle categories.

Single Unit Trucks		% Population
T6TS	GAS	26.76%
T6 instate small	DSL	66.03%
T7 Single	DSL	7.21%
		100.00%

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Total Internal Building VMT Estimate

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	145.76	29.17	17.15	5.90	**197.98**
2nd	0.00	0.00	0.00	0.00	**0.00**
3rd	0.00	0.00	0.00	0.00	**0.00**
4th/Roof	0.00	0.00	0.00	0.00	**0.00**
Total	**145.76**	**29.17**	**17.15**	**5.90**	**197.98**

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	207.41	41.51	24.40	8.40	**0.00**
2nd	0.00	0.00	0.00	0.00	**0.00**
3rd	0.00	0.00	0.00	0.00	**0.00**
4th/Roof	0.00	0.00	0.00	0.00	**281.72**
Total	**207.41**	**41.51**	**24.40**	**8.40**	**0.00**

On-Site Mobile

Total Daily Internal Building Vehicle Activity

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph				
Floor	**Distance per Trip per Floor (meters)**	**Autos/ Pickups**	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	89.68	234572.80	46950.40	27596.80	9497.60	**0.00**
2nd	126.28	0.00	0.00	0.00	0.00	**0.00**
3rd	126.28	0.00	0.00	0.00	0.00	**0.00**
4th/Roof	25.60	0.00	0.00	0.00	0.00	**818617.60**
Total	**367.84**	**234572.80**	**46950.40**	**27596.80**	**9497.60**	**818617.60**

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph				
Floor	**Distance per Trip per Floor (meters)**	**Autos/ Pickups**	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.56	333795.00	66810.00	39270.00	13515.00	**453390.00**
2nd	378.60	0.00	0.00	0.00	0.00	**0.00**
3rd	378.60	0.00	0.00	0.00	0.00	**0.00**
4th/Roof	481.00	0.00	0.00	0.00	0.00	**0.00**
Total	**1365.76**	**333795.00**	**66810.00**	**39270.00**	**13515.00**	**453390.00**

	Total Daily Vehicle Activity (Trips) per Floor				
Floor	**Autos/ Pickups**	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	2618	524	308	106	**3556**
2nd	0	0	0	0	**0**
3rd	0	0	0	0	**0**
4th/Roof	0	0	0	0	**0**
Total	**2618**	**524**	**308**	**106**	**3556**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	**Length (m)**	**Levels**
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	**L1**	**L2**	**L3**	**L4**
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	**Row 1**	**Row 2**	**Row 3**	**Row 4**	**Row 5**	**Row 6**
Straight (m)	174.4	178	170.4	171.7	178.7	170.7

[1]Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

	Total Daily Vehicle Trips by Land Use and Vehicle Type				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	1744	0	0	0	0
Visiting Workers Maker and Manufacturing	0	0	0	0	0
Visiting Workers Parcel and Last Mile Delivery	746	492	178	74	1490
Visiting Workers Wholesale and Storage	128	32	130	32	322
ine Workers General Retail / Café /Quick Service Restaurants	0	0	0	0	0
Total Vehicle Trips[2]	**2618**	**524**	**308**	**106**	**3356**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

	% Vehicle Activity Per Floor			
Floor	**Autos/ Pickups**	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	100%	100%	100%	100%
2nd	0%	0%	0%	0%
3rd	0%	0%	0%	0%
4th/Roof	0%	0%	0%	0%
Total	100%	100%	100%	100%

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pickup Per Level	1309	0	0	0
Total Daily Van Per Level	262	0	0	0
Total Daily MT Per Level	154	0	0	0
Total Daily HT Per Level	53	0	0	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total
PDR Uses					
Manufacturing & Maker Space	-	-	-	-	0
Parcel Delivery/Last Mile	334000	-	-	-	334000
Wholesale and Storage	112000	-	-	-	112000
Retail	-	-	-	-	0
Logistics Yard	-	-	-	-	0
Vehicle Circulation	115146	-	-	-	115146
Parking	-	-	-	-	0
Total					563146

Source: 230119-ALTERNATIVE TABLE-REVS P5
Single story building under No Project Alternative - placed all land uses on L1

Step 2 - Estimated % Use per Floor

Sq Ft Per Use Per Floor	L1	L2	L3	L4
PDR Onsite Workers	100.0%	0.0%	0.0%	0.0%
PDR Visiting Workers				
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%
Parcel Delivery/Last Mile	100.0%	0.00%	0.00%	0.0%
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%
Retail Onsite Workers	100.0%	0.0%	0.0%	0.0%
Retail Visitors	100.0%	0.0%	0.0%	0.0%

Sinale Story Buildinas under No Project Alternative

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Van	MT	HT
PDR	2618	524	308	106
On-site Worker	1744	0	0	0
Visiting Worker	874	524	308	106
Manufacturing & Maker Space	0	0	0	0
Parcel Delivery/Last Mile	746	492	178	74
Wholesale and Storage	128	32	130	32
Retail/QSR	0	0	0	0
On-site Worker	0	0	0	0
Visiting Worker/Consumer	0	0	0	0

Source: SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT- Alt 1 2 3 4 - VMT Summaries (Adavant 11.23.2022)

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & van)	1571	0	0	0
PDR Auto/Pickup	1309	0	0	0
PDR Van	262	0	0	0
PDR MT	154	0	0	0
PDR HT	53	0	0	0
Retail Auto (incl pikcup & van)	0	0	0	0
Retail Auto/Pickup	0	0	0	0
Retail Van	0	0	0	0
Retail MT	0	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	1571	0	0	0
Total Daily Auto/Pickup Per Level	1309	0	0	0
Total Daily Van Per Level	262	0	0	0
Total Daily MT Per Level	154	0	0	0
Total Daily HT Per Level	53	0	0	0

Existing Land Use - Mobile Source Emissions

Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	Emissions (lbs/day)							Emissions (tons/year)						
				ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.20	6.19	0.40	0.01	0.79	0.01	0.20	0.04	1.13	0.07	0.00	0.14	0.00	0.04
Autos/Pickups (visiting worker)	gasoline	200	4000	0.23	7.76	0.49	0.01	1.05	0.01	0.27	0.04	1.42	0.09	0.00	0.19	0.00	0.05
Vans	gasoline	154	4610	0.33	8.91	1.46	0.04	1.39	0.03	0.37	0.06	1.63	0.27	0.01	0.25	0.01	0.07
Single Unit Trucks	diesel	132	5293	0.40	5.12	10.39	0.13	1.96	0.12	0.54	0.07	0.93	1.90	0.02	0.36	0.02	0.10
Tractor Trailer Trucks	diesel	14	888	0.03	2.94	2.80	0.04	0.42	0.04	0.12	0.00	0.54	0.51	0.01	0.08	0.01	0.02
Buses	diesel	18	720	0.11	5.91	0.56	0.01	0.38	0.01	0.11	0.02	1.08	0.10	0.00	0.07	0.00	0.02
Total		717	18532	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:

Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Autos/Pickups (visiting worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Vans	0.024431	0.247319	0.782912	2.819141908	0.131203427	0.364355418	0.00344953	0.00112813	0.137241828	0.003249	0.001037	0.036575
Single Unit Trucks	0.03262	0.065107	0.404853	1.36394853	0.855556494	1.409818459	0.010747862	0.0001194	0.168041663	0.010273	0.00011	0.046625
Tractor Trailer Trucks	0.013932	0	1.500779	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018979	0	0.061335
Buses	0.065799	0.020052	3.70166	0.872379279	0.350904342	0.057899073	0.006694704	5.9922E-09	0.24243064	0.006401	2.18E-05	0.070975

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
metric ton	grams
1	1000000

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in transit operations	Emissions (lb/day)					Emissions (tons/year)				
						ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$	ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	356	47	7.6	0.258	0.028	0.271	0.009	0.008	0.047	0.005	0.049	0.002	0.001
Wholesale and Storage	17.2	0.56	260	47	5.5	0.189	0.021	0.198	0.006	0.006	0.034	0.004	0.036	0.001	0.001
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	241	47	5.1	0.203	0.022	0.182	0.003	0.003	0.037	0.004	0.033	0.001	0.000
Wholesale and Storage	33.8	0.38	104	47	2.2	0.088	0.010	0.079	0.001	0.001	0.016	0.002	0.014	0.000	0.000
Total Off-Site Emissions						**0.738**	**0.080**	**0.730**	**0.019**	**0.018**	**0.135**	**0.015**	**0.133**	**0.003**	**0.003**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	17	5	3.4	0.117	0.013	0.123	0.004	0.004	0.021	0.002	0.022	0.001	0.001
10mph	17.2	0.56	24	10	2.4	0.083	0.009	0.087	0.003	0.003	0.015	0.002	0.016	0.001	0.000
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	6	5	1.2	0.047	0.005	0.042	0.001	0.001	0.009	0.001	0.008	0.000	0.000
10mph	33.8	0.38	8	10	0.8	0.033	0.004	0.030	0.000	0.000	0.006	0.001	0.005	0.000	0.000
TRU on-site Idling															
Single-Unit Truck	17.2	0.56	NA	NA	1.9	0.066	0.007	0.069	0.002	0.002	0.012	0.001	0.013	0.000	0.000
Tractor Trailer Truck	33.8	0.38	NA	NA	0.7	0.026	0.003	0.024	0.000	0.000	0.005	0.001	0.004	0.000	0.000
Total On-Site Emissions						**0.372**	**0.041**	**0.374**	**0.010**	**0.010**	**0.068**	**0.007**	**0.068**	**0.002**	**0.002**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	0	5%	0	0.25	0
Parcel and Last Mile Delivery	89	5%	4.45	0.25	1.1125
Wholesale and Storage	65	5%	3.25	0.25	0.8125
Total	154		7.7	0.25	1.925

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	0	5%	0	0.25	0
Parcel and Last Mile Delivery	37	5%	1.85	0.25	0.4625
Wholesale and Storage	16	5%	0.8	0.25	0.2
Total	53		2.65	0.25	0.6625

Table III.

Land Use	Total TRU VMT		
	% Refrigeration Req'd[1]	TRU VMT on Single-Unit Trucks	TRU VMT on Tractor Trailer Trucks
Maker and Manufacturing	5%	0	0
Parcel and Last Mile Delivery	5%	356	240.5
Wholesale and Storage	5%	260	104
Total		616	344.5

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

Vehicle Type and Land Use	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	0	0	0	0	-
Parcel and Last Mile Delivery	14920	14760	7120	4810	**41,610**
Wholesale and Storage	2560	960	5200	2080	**10,800**
Total Visitor VMT by Vehicle Type	**17480**	**15720**	**12320**	**6890**	**52,410**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity hi %Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

Emission Rates	g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.61	1.688564004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Mobile Trip Data (per Adavant 11/28/2022 SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - ALT 1 2 3 4.pdf)

Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	0	0	0	0	0	0
Parcel & Last-mile Delivery	2060	0	492	178	74	2804
Wholesale and Storage	558	0	32	130	32	752
Laboratory/&RD	-	0	-	-	-	0
General Retail	0	0	0	0	0	0
Quick Service Restaurant	0	0	0	0	0	0
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	2618	0	524	308	106	3556
% of Total Trips	74%	0%	15%	9%	3%	100%
% of Commercial/Service Trips	N/A	N/A	56%	33%	11%	100%

Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		0	100	32	132	75	57	15
SD2	6		0	136	44	180	126	54	21
SD3	2		0	314	102	416	96	320	48
SD4	7		0	102	34	136	108	28	15
East Bay	28		0	178	58	236	755	-519	27
North Bay	28		0	78	26	104	332	-228	12
South Bay	22		0	376	124	500	1239	-739	56
Out of Region	65		0	30	10	40	290	-250	4
			0	1314	430	1744	3021	-1277	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	0	-5595	2560	-3035	4000	-7035	200	14920	17480
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	0	-3690	960	-2730	4610	-7340	154	14760	15720
SU Trucks	40	-7.5	0	-1335	5200	3865	5293	-1428	132	7120	12320
Tractor Trailers *	65	7.5	0	555	2080	2635	888	1747	14	4810	6890
Total Non-Commuter VMT	N/A	N/A	0	-10065	10800	735	15511.14	-14776	517.655303	41610	52410

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Sto	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	0	1314	430	0	0	0	0	0	1744
Non-work	0	1490	322	0	0	0	0	0	1812
Total	0	2804	752	0	0	0	0	0	3556

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDA	Plug-in Hybrid	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybrid	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybrid	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03
	Total:		7,865,720	100.00%	1,025,014	100.00%																			
				Weighted Average Emission Factors*:			0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336
Vans																									
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
MDV	Plug-in Hybrid	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03
	Total:		1,436,619	100.00%	251,880	100.00%																			
				Weighted Average Emission Factors*:			0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954
Single Unit Trucks																									
T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02
	Total:		144,107	100.00%	47,006	100.00%																			
				Weighted Average Emission Factors*:			0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777
Tractor Trailer Trucks																									
T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.0014	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02
	Total:		13,619		2,531	100.00%																			
				Weighted Average Emission Factors*:			0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738
*Calculated																									
Buses																									
UBUS	Gasoline	136	6618	8.70%	542	13.72%	4.77E-03	0.00E+00	1.46E-01	5.85E-01	0.00E+00	6.36E+00	2.60E-02	0.00E+00	4.22E-01	1.28E-03	0.00E+00	1.73E-04	8.05E-03	9.13E-02	1.18E-03	0.00E+00	1.59E-04	2.01E-03	3.19E-02
UBUS	Diesel	784	63649	83.70%	3,137	79.38%	7.27E-02	0.00E+00	0.00E+00	8.46E-02	0.00E+00	0.00E+00	4.11E-01	0.00E+00	0.00E+00	7.83E-03	0.00E+00	0.00E+00	3.51E-02	1.10E-01	7.49E-03	0.00E+00	0.00E+00	8.77E-03	3.85E-02
UBUS	Electricity	1	68	0.09%	3	0.08%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-02	5.50E-02	0.00E+00	0.00E+00	0.00E+00	8.57E-03	1.93E-02
UBUS	Natural Gas	67	5711	7.51%	269	6.81%	6.00E-02	0.00E+00	0.00E+00	4.77E+01	0.00E+00	0.00E+00	5.88E-02	0.00E+00	0.00E+00	3.83E-04	0.00E+00	0.00E+00	3.19E-02	1.10E-01	3.67E-04	0.00E+00	0.00E+00	7.96E-03	3.85E-02
	Total:		76,045		3,952	100.00%																			
				Weighted Average Emission Factors*:			0.06580		0.02005	3.70166		0.87238	0.35090		0.05790	0.00669		0.00000	0.03249	0.10829	0.00640		0.00002	0.00812	0.03790
*Calculated																									

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural G	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural G	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
		Total:	100.00%					
		Weighted Average Emission Factors*:		0.55153	11.18427	8.72778	0.01634	0.01562
Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural G	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
		Total:	100.00%					
		Weighted Average Emission Factors*:		3.03195	55.70336	37.07914	0.02144	0.02021

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
			Weighted Average Emission Factors*:					0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
			Weighted Average Emission Factors*:					0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1544878	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281077917	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			3,645	100%							
			Weighted Average Emission Factors*:					0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
			*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.											
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
			*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.											

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
			Total:			70,774	100%							
			Weighted Average Emission Factors*:					0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
			Weighted Average Emission Factors*:					0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482354	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99992888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			4,287	100%							
			Weighted Average Emission Factors*:					0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NHS RUNEX	CO RUNEX	CO IDLEX	CO STREX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco	2025	LDA	Aggregate	Aggregate	Gasoline	126519	4522617	4522617	0	586607		0.039009504	0	0.251814039	0.001504246	0	0.009192971	0.002000001	0.003235916	0.001636005	0	0.002098258	0.008000002	0.009245474	0.00987364	0	0.318920933	0.091494696	0.235610625	1.385036446	0.014407592	0	0.349178278	0.091494696	0.235610625	1.385036446	0.038297666	0.766885618	0	3.198476435	0.002824107	0	0.000679646
San Francisco	2025	LDA	Aeinreads	Aeinreads	Diesel	522.922	13133.8	13133.8	0	2181.78		0.176302046	0	0	0.018752118	0	0	0.002000001	0.003316766	0.019609006	0	0	0.008000002	0.009476475	0.036491746	0	0	0	0	0	0.041543427	0	0	0	0	0	0.0031	0.471041794	0	0	0.002426018	0	0
San Francisco	2025	LDA	Aeinreads	Aeinreads	Electricity	10080.4	464806	0	464806	49586.4		0	0	0	0	0	0	0.002000001	0.002532171	0	0	0	0.008000002	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDA	Aggregate	Aggregate	Plug-in Hy	3902.38	172918	83076.9	89840.7	16116.3		0.003848369	0	0.116967433	0.000731552	0	0.003952217	0.002000001	0.00149273	0.000759329	0	0.002122414	0.008000002	0.004264643	0.001872521	0	0.175544867	0.040881342	0.036860583	0.413516449	0.002732379	0	0.192199534	0.040981342	0.036860583	0.413516449	0.020153856	0.246312279	0	1.369749453	0.001517471	0	0.000632195
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Gasoline	12873.8	389928	389928	0	57785.1		0.085478255	0	0.337317694	0.001894276	0	0.002365931	0.002000001	0.004163487	0.002060197	0	0.002573166	0.008000002	0.011895678	0.021321813	0	0.44477478	0.136491328	0.371983028	2.090419443	0.031112739	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148911458	0	4.361438201	0.00338548	0	0.000824164
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Diesel	7.45932	69.5602	69.5602	0	20.6059		1.514418449	0	0	0.277392351	0	0	0.002000001	0.004787907	0.289934802	0	0	0.008000002	0.013679733	0.349198191	0	0	0	0	0	0.397538924	0	0	0	0	0	0.0031	1.604483182	0	0	0.004377097	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582	1685.29	0	1685.29	189.527		0	0	0	0	0	0	0.002000001	0.001534653	0	0	0	0.008000002	0.00438721	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	21.6866	968.111	420.519	547.591	89.6741		0.00347934	0	0.116967433	0.000468675	0	0.001373883	0.002000001	0.001492477	0.000509727	0	0.001494223	0.008000002	0.00426422	0.00169296	0	0.175544867	0.024130781	0.020405943	0.268650215	0.018243359	0.222774746	0	0.369749453	0.001372106	0	0.000670971
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Gasoline	651466.3	2247694	2247694	0	306112		0.059799627	0	0.298685343	0.003158194	0	0.001958004	0.002000001	0.004010051	0.001728393	0	0.002136595	0.008000002	0.011457289	0.011066457	0	0.345876424	0.073542105	0.188839959	1.157658403	0.016148148	0	0.378691148	0.073542195	0.188839959	1.157658403	0.017420442	0.808624799	0	1.403234452	0.003486018	0	0.000834063
San Francisco	2025	LDT2	Aggregate	Aggregate	Diesel	323.61	10956.2	10956.2	0	1519.06		0.046067349	0	0	0.005705353	0	0	0.002000001	0.004085646	0.005963323	0	0	0.008000002	0.011673273	0.022818559	0	0	0	0	0	0.025977412	0	0	0	0	0	0.0031	0.237163918	0	0	0.003243055	0	0
San Francisco	2025	LDT2	Aggregate	Aggregate	Electricity	471.006	16624.5	0	16624.5	2393.17		0	0	0	0	0	0	0.002000001	0.00152658	0	0	0	0.008000002	0.004361657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Plug-in Hy	573.856	24120.1	11125.6	13194.5	2372.89		0.003664333	0	0.116967433	0.00058843	0	0.001635961	0.002000001	0.001492525	0.000639971	0	0.001779257	0.008000002	0.004264657	0.001782974	0	0.175544867	0.026394882	0.023454188	0.294961451	0.002601711	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187697	0.234581046	0	1.369749453	0.00144499	0	0.000735091
San Francisco	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.79	192265	192265	0	73401.8		0.122685523	0.035806036	0.605579514	0.001349256	0	0.000230311	0.002000001	0.027300008	0.001467439	0	0.000250485	0.008000002	0.078000022	0.030989209	0.41052157	0.147891953	0.038246673	0.199488999	2.044600648	0.045219381	0.599032111	0.161923073	0.038246673	0.199488999	2.044600648	0.044945055	0.999695839	3.763000677	1.246249344	0.00846866	0.001170284	0.000257423
San Francisco	2025	LHD1	Aggregate	Aggregate	Diesel	1645.33	74071.9	74071.9	0	20696.2		0.831542744	1.595461413	0	0.023103594	0.026842141	0	0.002000001	0.027300008	0.024364596	0.028053823	0	0.012000003	0.078000022	0.123540086	0.109759705	0	0	0	0	0.146964728	0.124954127	0	0	0	0	0.197938122	0.29875818	0.939795076	0	0.005958635	0.001193684	0
San Francisco	2025	LHD1	Aeinreads	Aeinreads	Electricity	43.1664	2971.83	0	2971.83	603.671		0	0	0	0	0	0	0.002000001	0.001365004	0	0	0	0.008000002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LHD2	Aggregate	Aggregate	Gasoline	613.122	23102.5	23102.5	0	9134.6		0.136029603	0.035003514	0.602406053	0.001262585	0	0.000187914	0.002000001	0.031850009	0.001371176	0	0.000204373	0.008000002	0.091000026	0.021703682	0.401463704	0.142249981	0.037405291	0.190932946	2.01563418	0.031678717	0.585814678	0.157475824	0.037405291	0.190932946	2.01563418	0.044983621	0.809875891	3.766304422	3.210582123	0.009488786	0.001351859	0.000251199
San Francisco	2025	LHD2	Aggregate	Aggregate	Diesel	997.915	41685.4	41685.4	0	12552.5		0.779228061	1.770292562	0	0.024159339	0.026839604	0	0.002000001	0.031850009	0.025253717	0.028053172	0	0.012000003	0.091000026	0.12517659	0.109759705	0	0	0	0	0.142525225	0.124954127	0	0	0	0	0.200558839	0.299730009	0.939795076	0	0.007192983	0.001956377	0
San Francisco	2025	LHD2	Aeinreads	Aeinreads	Electricity	11.0908	725.571	0	725.571	147.075		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Gasoline	27312.4	1051529	1051529	0	129176		0.063592069	0	0.322583185	0.00145799	0	0.001861306	0.002000001	0.003906839	0.001585692	0	0.002024126	0.008000002	0.011402398	0.013225212	0	0.386403973	0.070424599	0.199741652	1.20773186	0.016936343	0	0.423063332	0.070424599	0.199741652	1.20773186	0.017871122	0.826961861	0	3.411746556	0.004130955	0	0.000987725
San Francisco	2025	MDV	Aggregate	Aggregate	Diesel	499.07	18274.1	18274.1	0	2334.77		0.051159132	0	0	0.005623961	0	0	0.002000001	0.004134729	0.005878252	0	0	0.008000002	0.011813511	0.017898853	0	0	0	0	0	0.020376654	0	0	0	0	0	0.0031	0.341640847	0	0	0.004171945	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Electricity	501.213	17720.3	0	17720.3	2547.37		0	0	0	0	0	0	0.002000001	0.001526394	0	0	0	0.008000002	0.004361126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Plug-in Hy	310.944	14184.1	6466.55	7717.59	1285.75		0.00365179	0	0.116967433	0.000615677	0	0.001720158	0.002000001	0.001490931	0.000669605	0	0.001870828	0.008000002	0.00426574	0.00177687	0	0.175544867	0.028135305	0.024062001	0.301913285	0.002592805	0	0.192199534	0.028135305	0.024062001	0.301913285	0.019147816	0.233774772	0	1.369749453	0.001440238	0	0.000896491
San Francisco	2025	T6 Instate small	Aggregate	Aggregate	Diesel	2377.53	91004.7	91004.7	0	30599.3		0.928923302	10.9135279	1.642590688	0.012273913	0.021894582	0	0.003000001	0.011610138	0.012826795	0.022884558	0	0.012000003	0.046017538	0.028845002	0.224762965	0	0	0	0	0.033837839	0.255875527	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.010863471	0.020109638	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Electricity	18.6087	818.093	0	818.093	239.015		0	0	0	0	0	0	0.003000001	0.000857978	0	0	0	0.012000003	0.023022794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Natural Ga	9.61267	394.858	394.858	0	124.965		0.099141052	5.227383301	0	0.001402962	0.016966693	0	0.003000001	0.011615427	0.001525849	0.018452827	0	0.012000003	0.046161219	0.0107419	0.186572035	0	0	0	0	0.767278563	13.32657393	0	0	0	0	1.06	3.185032455	33.23233081	0	0.031712422	0.042547	0
San Francisco	2025	T6TS	Aggregate	Aggregate	Gasoline	639.839	29859	29859	0	12401.7		0.394172144	0.08759075	0.423939506	0.00120628	0	0.000148125	0.003000001	0.011576104	0.001203181	0	0.000453574	0.012000003	0.04501744	0.005953055	1.017757837	0.246773062	0.03335227	0.255006237	2.505971323	0.038483358	1.485209847	0.270183251	0.03335227	0.255006237	2.505971323	0.044993097	1.143147968	15.17523512	5.169725024	0.017921799	0.005355928	0.000453328	0
San Francisco	2025	T6TS	Aeinreads	Aeinreads	Electricity	3.0393	268.351	0	268.351	60.8304		0	0	0	0	0	0	0.003000001	0.000787652	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Diesel	354.873	20200	20200	0	3342.91		1.31371039	21.58285364	3.215788223	0.016219794	0.016482284	0	0.009000003	0.028142936	0.016953181	0.017228121	0	0.03600001	0.080408388	0.012914103	1.888098178	0	0	0	0	0.014724492	2.149456051	0	0	0	0	0.219870805	0.676952119	27.07430131	0	0.015712422	0.0425474	0
San Francisco	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503	237.568	0	237.568	30.0972		0	0	0	0	0	0	0.009000003	0.01413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Natural Ga	21.9816	1324.53	1324.53	0	207.067		0.310765714	11.69729479	0	0.001778665	0.034194864	0	0.009000003	0.028135888	0.00193446	0.037190934	0	0.03600001	0.080388252	0.015186001	0.437076083	0	0	0	0	1.084714323	31.21972024	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0
San Francisco	2025	T7 Tractor	Aeinreads	Aeinreads	Diesel	145.207	11375.8	11375.8	0	2109.86		1.555107005	40.11897128	3.925802711	0.023481872	0.015302123	0	0.009000003	0.027446676	0.023498402	0.015994017	0	0.03600001	0.078427645	0.013946176	3.454591977	0	0	0	0	0.01587666	3.932789098	0	0	0	0	0.219683645	0.678284829	50.6647472	0	0.014680828	0.078480774	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.74296	64.4874	0	64.4874	10.7952		0	0	0	0	0	0	0.009000003	0.01188109	0	0	0	0.03600001	0.039660257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Natural Ga	28.2625	2178.71	2178.71	0	410.655		0.513115096	22.43584367	0	0.00124999	0.045974698	0	0.009000003	0.027439035	0.001359478	0.050001679	0	0.03600001	0.078397243	0.014272078	0.94017224	0	0	0	0	1.019434108	67.15515999	0	0	0	0	1.06	8.972506791	83.05506955	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Gasoline	135.576	6617.69	6617.69	0	542.305		0.026038119	0	0.421961422	0.00117838	0	0.000158696	0.00201319	0.01919871	0.001281583	0	0.000127597	0.008053156	0.001253458	0.004785929	0	0.146136388	0.033534589	0.09110026	0.37451506	0.008954433	0	0.160000955	0.033534589	0.09110026	0.37451506	0.045	0.585073312	0	6.357994444	0.00881305	0	0.000384158
San Francisco	2025	UBUS	Aggregate	Aggregate	Diesel	784.367	63648.6	63648.6	0	3137.47		0.411261165	0	0	0.007492158	0	0	0.008769949	0.038491785	0.00783092	0	0	0.035079796	0.109976529	0.07273827	0	0	0	0	0	0.082806984	0	0	0	0	0	0.22	0.084642061	0	0	0.012518461	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603	67.8091	0	67.8091	3.14413		0	0	0	0	0	0	0.008569131	0.033250006	0	0	0	0.034276524	0.050000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Natural Ga	67.334	5710.54	5710.54	0	269.336		0.058820057	0	0	0.000366603	0	0	0.007963942	0.038462965	0.00038318	0	0	0.031855766	0.109894184	0.05997064	0	0	0	0	0	4.244494266	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06644666	0.008217386	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.242947064	0.060487048	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.002995733	0.000975218	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.150908984	0.010142381	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.129429317	1.006979635	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.002538045	0.00058547	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.092343235	0.008688678	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.160039934	0.012660791	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.002760048	0.000759009	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.163885328	0.003111213	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.202058493	0.050687102	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.183254222	0.002930739	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.299445569	0.050815815	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.109334957	0.007947495	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.137473529	0.013771799	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274454	0.000792405	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.673849856	0.005698018	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.056936086	0.005178359	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.225477885	0.044214919	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.001571889	0.000508124	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.127105592	0.006429829	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.186607791	0.701031401	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.001327133	0.000303997	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879064	0.005473985	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.134436438	0.011048481	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.001445642	0.000394766	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.146244745	0.002310545	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.086348373	0.042054042	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.160656361	0.002170053	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.141968008	0.042692187	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.0931103	0.005011149	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.11779779	0.011431576	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00143735	0.000412087	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.497668002	0.039888068	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.309957451	0.003696949	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.586535243	0.003591998	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.741149077	0.007393932	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.446023995	0.007124619	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.332150843	0.008126013	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107158	0.005215433	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

SF Gateway - Code Compliant **Operational Emissions Summary**

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	13.62	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	1.86	21.87	1.139	0.684
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	6.90	77.28	31.417	9.090
TRUs	12.01	11.89	0.311	0.287
Total Proposed Daily Operational Emissions	***35.87***	***115.06***	***33.080***	***10.273***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	1.30	16.10	6.25	1.84
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**26.54**	**97.58**	**26.73**	**8.32**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.25	2.89	0.150	0.090
Stationary Sources	0.04	0.10	0.005	0.005
Mobile	1.26	14.10	5.734	1.659
TRUs	2.19	2.16	0.057	0.052
Total Proposed Annual Operational Emissions	***7.67***	***19.26***	***5.95***	***1.81***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.24	2.94	1.14	0.34
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**5.97**	**16.07**	**4.79**	**1.45**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	1.8632	5.4951	21.8700	1.1395	0.0000	0.6837	0.0000	0.25	0.73	2.89	0.15	0.00	0.09	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.100312	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	5.0119	176.2993	68.0174	1.0836	29.8732	1.0268	7.9176	0.91	32.17	12.41	0.20	5.45	0.19	1.44
Mobile (activity within buildings)	1.8930	25.0908	9.2638	0.0393	0.4210	0.0367	0.1090	0.35	4.58	1.69	0.01	0.08	0.01	0.02
TRUs in-transit	10.1874	1.1084	10.0580	0.2609	0.0000	0.2403	0.0000	1.85	0.20	1.83	0.05	0.00	0.04	0.00
TRUs on-site	1.8259	0.1987	1.8334	0.0505	1.0000	0.0465	1.0000	0.33	0.04	0.33	0.01	1.00	0.01	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

Land Use Emissions Source	Pollutant (lb/day) ROG	PM2.5 Exhaust	PM2.5 Total	Pollutant (lb/year) ROG	PM2.5 Exhaust	PM2.5 Total	Pollutant (lb/hr) ROG	PM2.5 Exhaust	PM2.5 Total
Manufacturing & Maker Space TACs	1.8632	0.6837	0.6837	491.8926	180.4892	180.4892	0.1553	0.0570	0.0570
Stationary Sources									
220 Horsepower Backup Generators (4 total)	NA	0.0000	0.0000	NA	0.0000	0.0000	NA	0.0000	0.0000
440 Horsepower Backup Generators (2 total)	NA	0.2112	0.2112	NA	10.5592	10.5592	NA	0.2112	0.2112

Mobile Emissions Source	Pollutant (lb/day) ROG	PM2.5 Exhaust	PM2.5 Total	Pollutant (lb/year) ROG	PM2.5 Exhaust	PM2.5 Total	Pollutant (lb/hr) ROG	PM2.5 Exhaust	PM2.5 Total
On-site Vehicle and TRU Activity (Ramp Exhaust) - Transit									
Ground Level	0.2626	0.0034	0.0268	95.8624	1.2556	9.7846	0.0219	0.0003	0.0022
2nd Floor	0.1897	0.0025	0.0194	69.2340	0.9068	7.0667	0.0158	0.0002	0.0016
3rd Floor	0.1313	0.0017	0.0134	47.9312	0.6278	4.8923	0.0109	0.0001	0.0011
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Transit									
Ground Level	0.4377	0.0057	0.0447	159.7707	2.0927	16.3077	0.0365	0.0005	0.0037
2nd Floor	0.4377	0.0057	0.0447	159.7707	2.0927	16.3077	0.0365	0.0005	0.0037
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Ramp Exhaust) - Idling									
Ground Level	0.0035	0.0019	0.0020	1.2885	0.6857	0.7276	0.0003	0.0002	0.0002
2nd Floor	0.0041	0.0022	0.0023	1.4977	0.8064	0.8529	0.0003	0.0002	0.0002
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Idling									
Ground Level	0.0318	0.0169	0.0179	11.5964	6.1709	6.5480	0.0026	0.0014	0.0015
2nd Floor	0.0369	0.0199	0.0210	13.4790	7.2573	7.6760	0.0031	0.0017	0.0018
3rd Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Site Trips									
Autos/Pickups (last-mile)	0.0539	0.0000	0.0962	19.6697	0.0055	35.1052	0.0045	0.0000	0.0080
Autos/Pickups	0.0761	0.0000	0.1163	27.7933	0.0067	42.4378	0.0063	0.0000	0.0097
Vans (last-mile only)	0.0515	0.0006	0.0793	18.7841	0.2248	28.9524	0.0043	0.0001	0.0066
Vans	0.0024	0.0000	0.0038	0.8937	0.0107	1.3775	0.0002	0.0000	0.0003
Single-Unit Trucks (last-mile only)	0.0054	0.0058	0.0413	1.9575	2.1183	15.0626	0.0004	0.0005	0.0034
Single-Unit Trucks	0.00203562	0.00220287	0.01566391	0.7430	0.8040	5.7173	0.0002	0.0002	0.0013
Tractor Trailer Trucks	0.00043089	0.00306474	0.01545316	0.1573	1.1186	5.6404	0.0000	0.0003	0.0013
TRUs on Single Unit Trucks	0.00000000	0.00586056	0.00586056	0.0000	2.1391	2.1391	0.0000	0.0005	0.0005
TRUs on Tractor Trailer Trucks	0.00000000	0.00055448	0.00055448	0.0000	0.2024	0.2024	0.0000	0.0000	0.0000

**Note that emissions in all tables above represent total emissions for all sources on the project site.
*** Forklifts are all electric (no diesel) and therefore are not included

Operational Days/Year	
Manufacturing & Maker Space TACs	264
Stationary Sources[1]	50
Vehicle activity	365
Operational Hrs/Day	
Manufacturing & Maker Space TACs	12
Stationary Sources	1
Vehicle activity	12
Ramp Exhaust Emissions by Floor[2]	
Ground Level	0.18
2nd Floor	0.13
3rd Floor	0.09
4th Floor	0
Total Fan Exhaust Emissions by Floor[2]	
Ground Level	0.3
2nd Floor	0.3
3rd Floor	0
4th Floor	0
Idling Exhaust Emissions	
Ramps	0.1
Fans	0.9

Total	40%
	0.45
	0.325
	0.225
Total	60%
Total	100%

	% Vehicle Activity Per Floor	
Floor	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	48%	34%
2nd	52%	66%
3rd	0%	0%
4th/Roof	0%	0%
Total	100%	100%

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 50 hours per year.
2. Percent of emissions modeled to be released through exhaust vents vs openings along the ramps on each floor is detailed in the methodology memo page 18 of 24. No tractor trailer trucks would operate on the 4th floor; these 'ramp exhaust' emissions are redistributed evenly throughout the first three floors to account for 100% of the tractor trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table IV. Mobile Emissions within HRA Domain

Mobile Emissions Source	Vehicle Emissions: Pollutant (lb/day) ROG[1]	PM2.5 Exhaust[2]	PM2.5 Total[3]	TRU Emissions (DPM in lb/day) PM2.5 Exhaust[2]
On-Site Mobile Activity[4]				
Autos/Pickups	1.272682007	5.48692E-05	0.095854561	0
Vans	0.171766052	0.000300867	0.019473256	0
Single Unit Trucks - Idling	0.068360872	0.008343322	0.010712545	0.027404289
Single Unit Trucks	0.013765844	0.004048757	0.014354981	0.012047402
Tractor Trailer Trucks - Idling	0.007972267	0.000277504	0.000330652	0.004852256
Tractor Trailer Trucks	0.000879613	0.000464129	0.005003286	0.002195625
Off-Site Worker Vehicle Trips[5]				
Autos/Pickups	0.067254854	1.64914E-05	0.104553143	0
Off-Site Visitor Vehicle Trips[6]				
Autos/Pickups (visiting worker)				
Maker and Manufacturing	0.001478028	4.12021E-07	0.002637891	0
Parcel and Last Mile Delivery	0.053889574	1.50225E-05	0.096178676	0
Wholesale and Storage	0.004486871	1.25078E-06	0.008007882	0
General Retail / Café/Quick Service Restaurants	0.00292641	2.10145E-07	0.00106901	0
Vans				
Maker and Manufacturing	0.000535606	6.40925E-06	0.000825545	0
Parcel and Last Mile Delivery	0.051463159	0.000615826	0.079321655	0
Wholesale and Storage	0.001606818	1.92278E-05	0.002476634	0
General Retail / Café/Quick Service Restaurants	0.00030606	3.66243E-06	0.00047174	0
Single Unit Trucks				
Maker and Manufacturing	0.000131331	0.000142121	0.001010575	4.47237E-05
Parcel and Last Mile Delivery	0.005362975	0.005803605	0.041267524	0.004675387
Wholesale and Storage	0.001860516	0.002013379	0.014316473	0.001140454
General Retail / Café/Quick Service Restaurants	4.37768E-05	4.73736E-05	0.000336858	0
		0.008006479		
Tractor Trailer Trucks				
Maker and Manufacturing	6.62907E-06	4.71498E-05	0.000237741	3.72433E-06
Parcel and Last Mile Delivery	0.00028505	0.002027443	0.010222859	0.000409975
Wholesale and Storage	0.00013921	0.000990147	0.004992559	0.00014078
General Retail / Café/Quick Service Restaurants	0	0	0	0

Notes:
1. ROG emissions are those generated by gasoline-powered vehicles.
2. PM2.5 Exhaust emissions are those generated by diesel-powered vehicles.
3. PM2.5 Total emissions are all PM2.5 Exhaust, Tire Ware, Break Ware, and RE-entrained dust generated by mobile activity.
4. 100% of on-site mobile source emissions accounted for to serve as an input to the HRA modeling.
5. Percent of off-site worker vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average worker trip distance that would occur within the HRA modeling domain.
6. Percent of off-site visitor vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average trip distance for each land use and vehicle category that would occur within the HRA modeling domain.

Table III.a
% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Visitor Trips

Land Use Type	Autos/Pickups		Single U	Tractor Trailer Trucks
Maker and Manufacturing	3.36%	2.24%	1.68%	1.03%
Parcel and Last Mile Delivery	8.06%	5.38%	4.03%	1.03%
Wholesale and Storage	3.36%	2.24%	1.68%	1.03%
General Retail / Café/QSR	3.36%	2.24%	1.68%	1.03%

Table II.a
HRA Modeling Domain Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups		Single U	Tractor Trailer Trucks
Maker and Manufacturing	0.67	0.67	0.67	0.67
Parcel and Last Mile Delivery	1.61	1.61	1.61	0.67
Wholesale and Storage	0.67	0.67	0.67	0.67
General Retail / Café/QSR	0.67	0.67	0.67	0.67

Table I.a
Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups		Single U	Tractor Trailer Trucks
Maker and Manufacturing	20	30	40	65
Parcel and Last Mile Delivery	20	30	40	65
Wholesale and Storage	20	30	40	65
General Retail / Café/QSR	20	30	40	65

Conversion Factors

feet	miles
5280	1

Table III.b
% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Worker Trips

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	4.43%
Parcel and Last Mile Delivery	4.43%
Wholesale and Storage	4.43%
General Retail / Café/QSR	7.37%

Table III c..

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1] Autos/ Pickups[2]
Maker and Manufacturing	50
Parcel and Last Mile Delivery	1500
Wholesale and Storage	[illegible]
General Retail/QSR	[illegible]
Total Vehicle Trips[1]	**2198**

Table III d.

Weighted Average % one-way trip within HRA Modeling Domain.
4.54%

Table II.b
Modeling Domain One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	0.67
Parcel and Last Mile Delivery	0.67
Wholesale and Storage	0.67
General Retail / Café/QSR	0.67

Table I.b
One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	15.16
Parcel and Last Mile Delivery	15.16
Wholesale and Storage	15.16
General Retail / Café/QSR	9.11

1. Except for Retail/QSR, miles per trip distance estimated based on total PDR worker VMT from the SF Travel Demand Memo Page A-92 Table 4 and the total PDR trips on Page A-91 in Table 2.

Table I c.

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1] Autos/ Pickups[2]
Maker and Manufacturing	50
Parcel and Last Mile Delivery	1500
Wholesale and Storage	[illegible]
General Retail/QSR	[illegible]
Total Vehicle Trips[1]	**2198**

Table I d.

Weighted Average one-way trip distance for worker trips
14.94

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Total Emissions (lbs/day) ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW_TW	Gasoline-Powered Vehicle Emissions (lbs/day) ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW_TW	Diesel-Powered Vehicle Emissions (lbs/day) ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW_TW
Autos/Pickups (visiting worker)									
Maker and Manufacturing	0.044176091	0.003750778	0.074833881	0.044031525	0.003738504	0.074588987	0.000144566	1.22744E-05	0.000244893
Parcel and Last Mile Delivery	0.670529954	0.056931451	1.135871403	0.668335648	0.056745143	1.13215427	0.002194306	0.000186308	0.003717133
Wholesale and Storage	0.134105991	0.01138629	0.227174281	0.13366713	0.011349029	0.226430854	0.000438861	3.72616E-05	0.000743427
General Retail / Café/Quick Service Restaurants	0.087466106	0.00191303	0.029933552	0.087179874	0.00190677	0.029835595	0.000286232	6.26038E-06	9.79574E-05
Vans									
Maker and Manufacturing	0.026438028	0.003024067	0.033866295	0.023934126	0.002737662	0.030658875	0.002503901	0.000286404	0.00320742
Parcel and Last Mile Delivery	1.057521106	0.120962664	1.354651792	0.957365059	0.109506494	1.226354998	0.100156047	0.011456171	0.128296795
Wholesale and Storage	0.079314083	0.0090722	0.101598884	0.071802379	0.008212987	0.091976625	0.007511704	0.000859213	0.00962226
General Retail / Café/Quick Service Restaurants	0.015107444	0.001728038	0.019352168	0.013676644	0.001564378	0.017519357	0.001430801	0.00016366	0.001832811
Single Unit Trucks									
Maker and Manufacturing	0.035380464	0.010872326	0.049339162	0.007824863	0.00240456	0.010912016	0.027555601	0.008467765	0.038427147
Parcel and Last Mile Delivery	0.60146788	0.184829536	0.83876576	0.133022667	0.040877524	0.185504267	0.468445213	0.143952012	0.653261493
Wholesale and Storage	0.501223233	0.154024613	0.698971467	0.110852222	0.034064603	0.154586889	0.390371011	0.11996001	0.544384577
General Retail / Café/Quick Service Restaurants	0.011793488	0.003624109	0.016446387	0.002608288	0.00080152	0.003637339	0.0091852	0.002822588	0.012809049
Tractor Trailer Trucks									
Maker and Manufacturing	0.003993003	0.005439347	0.01757869	0.000641825	0.000874307	0.002825553	0.003351178	0.004565041	0.014753137
Parcel and Last Mile Delivery	0.171699142	0.233891942	0.755883679	0.027598476	0.037595186	0.121498789	0.144100665	0.196296755	0.634384891
Wholesale and Storage	0.083853069	0.114226297	0.369152495	0.013478326	0.01836044	0.059336618	0.070374744	0.095865857	0.309815877
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Total	3.524069082	0.915676687	5.723419897	2.296019052	0.330739107	3.367821031	1.22805003	0.58493758	2.355598866

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

% Fleet makeup that is Diesel or Gasoline

Vehicle Category	% Diesel	% Gasoline
Autos/Pickups	0.33%	99.7%
Vans	9%	91%
Single Unit Trucks	78%	22%
Tractor Trailer Trucks	84%	16%

Reflects % VMT of total Diesel + Gasoline poweded vehicles and does not include electric, as electric do not contriubte to total emissions. Gasoline includes hybrid and natural gas vehicles.

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	22006										
TACs		1.86	1.52	6.09	1.14	0.7	0.245946	0.200401	0.803746	0.150408	0.090245
Manufacturing & Maker Space (Apparel)[1]	22006										
TACs		0.90	5.50	21.87	0.45	0.44	0.118385	0.725349	2.88684	0.059619	0.057446
Maximum											
TACs		**1.86**	**5.50**	**21.87**	**1.14**	**0.68**	**0.25**	**0.73**	**2.89**	**0.15**	**0.09**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00000	0.01136
Formaldehyde (124)	0.00004	0.13396
Toluene (293)	0.00000	0.00605

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
180.48922	2.60E-03

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	8.33E-05	2.64E-01
Formaldehyde (124)	9.80E-04	3.11E+00
Glycols (131)	1.47E-02	4.65E+01
Isopropyl alcohol (157)	5.87E-03	1.86E+01
Toluene (293)	7.08E-05	2.24E-01
Ethyl Benzene	1.85E-05	5.86E-02
O-Xylene	8.29E-05	2.63E-01
M-Xylene	1.20E-04	3.80E-01
Chlorobenzene	1.41E-05	4.46E-02
Naphthalene	1.85E-05	5.86E-02

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	**g/s**
114.89139	2.28E-03

***Conditional formatting indicates worst-case scenario in orange.**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV Is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 ho	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*1.487787*	*60.01749*	*3.697933*	*0.120719*	*8.63295*	*0.111115*	*2.194202*	*0.271521*	*10.95319*	*0.674873*	*0.022031*	*1.575513*	*0.020278*	*0.400442*
Visitor	*3.524069*	*116.2818*	*64.31945*	*0.962911*	*21.24025*	*0.915677*	*5.72342*	*0.643143*	*21.22144*	*11.7383*	*0.175731*	*3.876346*	*0.167111*	*1.044524*
Sub-Total	5.011856	176.2993	68.01738	1.08363	29.8732	1.026791	7.917622	0.914664	32.17463	12.41317	0.197763	5.451859	0.187389	1.444966
On-Site Vehicle Activity Within Buildings	1.89	25.09085	9.263755	0.039256	0.420982	0.036738	0.108991	0.345474	4.579079	1.690635	0.007164	0.076829	0.006705	0.019891
Gross Mobile Source Emissions from Proposed Project	**6.904862**	**201.3902**	**77.28113**	**1.122886**	**30.29418**	**1.06353**	**8.026613**	**1.260137**	**36.75371**	**14.10381**	**0.204927**	**5.528688**	**0.194094**	**1.464857**
Existing Land Use Mobile Emissions	1.29593	36.84234	16.09655	0.236917	6.00896	0.225024	1.61766	0.236507	6.723727	2.93762	0.043237	1.096635	0.041067	0.295223
Net Mobile Emissions (Proposed - Existing)	**5.608932**	**164.5478**	**61.18458**	**0.885968**	**24.28522**	**0.838506**	**6.408953**	**1.02363**	**30.02998**	**11.16619**	**0.161689**	**4.432053**	**0.153027**	**1.169634**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1099	32839	1.48778672	60.0174888	3.69793256	0.120719458	8.632949527	0.111114748	2.194201867	0.271521077	10.95319171	0.67487269	0.0220313	1.57551329	0.02027844	0.40044184

1. Starts per day reflect 1/2 of total trips. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.
2. VMT per day based on Alterantives Trip Generation data. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.1176097	0.042561792	0.25445557	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212

Operational Days Per Year:
Autos/Pickups (on-site worker) 365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	16	64	80	9.11	728

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	56
Parcel and Last Mile Delivery	1,500
Wholesale and Storage	562
General Retail	16
Quick Service Restaurant	64
Total Vehicle Trips[1]	**2198**

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Starts/Day[1]	VMT/Day[2]	Emissions (lbs/day) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Emissions (tons/year) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	650	21968	0.9363	39.5633	2.4260	0.0804	5.7750	0.0740	1.4678	0.1709	7.2203	0.4427	0.0147	1.0539	0.0135	0.2679
Maker and Manufacturing	28	1120	0.0442	1.9817	0.1208	0.0041	0.2944	0.0038	0.0748	0.0081	0.3617	0.0220	0.0007	0.0537	0.0007	0.0137
Parcel and Last Mile Delivery	425	17000	0.6705	30.0800	1.8336	0.0619	4.4690	0.0569	1.1359	0.1224	5.4896	0.3346	0.0113	0.8156	0.0104	0.2073
Wholesale and Storage	85	3400	0.1341	6.0160	0.3667	0.0124	0.8938	0.0114	0.2272	0.0245	1.0979	0.0669	0.0023	0.1631	0.0021	0.0415
General Retail / Café/Quick Service Restaurants[3]	112	448	0.0875	1.4855	0.1049	0.0021	0.1178	0.0019	0.0299	0.0160	0.2711	0.0191	0.0004	0.0215	0.0003	0.0055
												0.0000				
Vans	312	18720	1.1784	34.2503	5.6655	0.1431	5.6640	0.1348	1.5095	0.2151	6.2507	1.0339	0.0261	1.0337	0.0246	0.2755
Maker and Manufacturing	7	420	0.0264	0.7684	0.1271	0.0032	0.1271	0.0030	0.0339	0.0048	0.1402	0.0232	0.0006	0.0232	0.0006	0.0062
Parcel and Last Mile Delivery	280	16800	1.0575	30.7375	5.0844	0.1285	5.0831	0.1210	1.3547	0.1930	5.6096	0.9279	0.0234	0.9277	0.0221	0.2472
Wholesale and Storage	21	1260	0.0793	2.3053	0.3813	0.0096	0.3812	0.0091	0.1016	0.0145	0.4207	0.0696	0.0018	0.0696	0.0017	0.0185
General Retail / Café/Quick Service Restaurants[3]	4	240	0.0151	0.4391	0.0726	0.0018	0.0726	0.0017	0.0194	0.0028	0.0801	0.0133	0.0003	0.0133	0.0003	0.0035
										0.0000		0.0000				
Single Unit Trucks	195	15600	1.1499	14.5101	30.0305	0.3697	5.7793	0.3534	1.6035	0.2099	2.6481	5.4806	0.0675	1.0547	0.0645	0.2926
Maker and Manufacturing	6	480	0.0354	0.4465	0.9240	0.0114	0.1778	0.0109	0.0493	0.0065	0.0815	0.1686	0.0021	0.0325	0.0020	0.0090
Parcel and Last Mile Delivery	102	8160	0.6015	7.5899	15.7083	0.1934	3.0230	0.1848	0.8388	0.1098	1.3852	2.8668	0.0353	0.5517	0.0337	0.1531
Wholesale and Storage	85	6800	0.5012	6.3249	13.0902	0.1611	2.5192	0.1540	0.6990	0.0915	1.1543	2.3890	0.0294	0.4598	0.0281	0.1276
General Retail / Café/Quick Service Restaurants[3]	2	160	0.0118	0.1488	0.3080	0.0038	0.0593	0.0036	0.0164	0.0022	0.0272	0.0562	0.0007	0.0108	0.0007	0.0030
												0.0000				
Tractor Trailer Trucks	65	8450	0.2595	27.9581	26.1976	0.3697	4.0219	0.3536	1.1426	0.0474	5.1024	4.7811	0.0675	0.7340	0.0645	0.2085
Maker and Manufacturing	1	130	0.0040	0.4301	0.4030	0.0057	0.0619	0.0054	0.0176	0.0007	0.0785	0.0736	0.0010	0.0113	0.0010	0.0032
Parcel and Last Mile Delivery	43	5590	0.1717	18.4954	17.3307	0.2446	2.6606	0.2339	0.7559	0.0313	3.3754	3.1629	0.0446	0.4856	0.0427	0.1379
Wholesale and Storage	21	2730	0.0839	9.0326	8.4638	0.1194	1.2994	0.1142	0.3692	0.0153	1.6485	1.5446	0.0218	0.2371	0.0208	0.0674
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Total	1222	64738	3.5241	116.2818	64.3194	0.9629	21.2403	0.9157	5.7234	0.6431	21.2214	11.7383	0.1757	3.8763	0.1671	1.0445

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

Operational Days Per Year:

Vehicle Category		Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX) ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
	Autos/Pickups												
Autos/Pickups (visiting worker) 365	(visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.254455574	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212
Vans 365	Vans	0.0244306	0.247319397	0.782912077	2.819141908	0.131203427	0.364355418	0.00344953	0.001128128	0.137241828	0.003248649	0.001037278	0.036574983
Single Unit Trucks 365	Single Unit Trucks	0.032620144	0.065106563	0.404852827	1.36394853	0.855556494	1.409818459	0.010747862	0.000119404	0.168041663	0.010272803	0.000109788	0.046624724
Tractor Trailer Trucks 365	Tractor Trailer Trucks	0.013932276	0	1.500778898	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018978819	0	0.061335075

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

Net Visitor VMT by Vehicle Type and Land Use[1]					
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1120	420	480	130	**2,150**
Parcel and Last Mile Delivery	17000	16800	8160	5590	**47,550**
Wholesale and Storage	3400	1260	6800	2730	**14,190**
General Retail / Café/Quick Service Restaurants[2]	448	240	160	0	**848**
Total Visitor VMT by Vehicle Type	**21968**	**18720**	**15600**	**8450**	**64,738**

Table II.

Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]					
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	56	14	12	2	84
Parcel and Last Mile Delivery	850	560	204	86	1700
Wholesale and Storage	170	42	170	42	424
General Retail / Café/Quick Service Restaurants	224	8	4	0	236
Total Vehicle Trips[1]	**1300**	**624**	**390**	**130**	2444

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III.

Total Daily Auto/Pickup Vehicle Trips by Land Use[1]	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	112
Parcel and Last Mile Delivery	2350
Wholesale and Storage	732
General Retail	92
Quick Service Restaurant	212
Total Vehicle Trips[1]	**3498**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	56
Parcel and Last Mile Delivery	1,500
Wholesale and Storage	562
General Retail	16
Quick Service Restaurant	64
Total Vehicle Trips[1]	**2198**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V.

Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]				
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:
1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups	1.2769	13.9816	1.0923	0.0182	0.3112	0.0168	0.0791	0.2330	2.5516	0.1993	0.0033	0.0568	0.0031	0.0144
Vans	0.1897	2.4686	0.2868	0.0035	0.0611	0.0032	0.0163	0.0346	0.4505	0.0523	0.0006	0.0112	0.0006	0.0030
Single Unit Trucks	0.3713	7.4207	6.3274	0.0166	0.0330	0.0159	0.0092	0.0678	1.3543	1.1548	0.0030	0.0060	0.0029	0.0017
Tractor Trailer Trucks	0.0551	1.2200	1.5572	0.0009	0.0157	0.0009	0.0045	0.0101	0.2226	0.2842	0.0002	0.0029	0.0002	0.0008
Total	1.89	25.09	9.26	0.04	0.42	0.04	0.11	0.35	4.58	1.69	0.01	0.08	0.01	0.02

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups	1.2769	13.9816	1.0923	0.0182	0.3112	0.0168	0.0791	0.2330	2.5516	0.1993	0.0033	0.0568	0.0031	0.0144
Vans	0.1897	2.4686	0.2868	0.0035	0.0611	0.0032	0.0163	0.0346	0.4505	0.0523	0.0006	0.0112	0.0006	0.0030
Single Unit Trucks - Idling	0.3091	6.6340	5.3569	0.0112	0.0000	0.0107	0.0000	0.0564	1.2107	0.9776	0.0020	0.0000	0.0020	0.0000
Single Unit Trucks	0.0622	0.7867	0.9705	0.0054	0.0330	0.0052	0.0092	0.0114	0.1436	0.1771	0.0010	0.0060	0.0009	0.0017
Tractor Trailer Trucks - Idling	0.0496	0.9112	0.6066	0.0004	0.0000	0.0003	0.0000	0.0091	0.1663	0.1107	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks	0.0055	0.3088	0.9506	0.0006	0.0157	0.0006	0.0045	0.0010	0.0563	0.1735	0.0001	0.0029	0.0001	0.0008
Total	1.89	25.09	9.26	0.04	0.42	0.04	0.11	0.35	4.58	1.69	0.01	0.08	0.01	0.02

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**Starts/Day[1]**	**5pmh VMT/Day[2]**	**10pmh VMT/Day[2]**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups - 5mph	1749	264.07		1.2283	12.4148	1.0044	0.0105	0.0694	0.0097	0.0176	0.2242	2.2657	0.1833	0.0019	0.0127	0.0018	0.0032
Autos/Pickups - 10mph			919.60	0.0486	1.5668	0.0879	0.0077	0.2417	0.0071	0.0614	0.0089	0.2859	0.0160	0.0014	0.0441	0.0013	0.0112
Vans - 5mph	312	47.48		0.1763	2.0689	0.2599	0.0016	0.0144	0.0015	0.0038	0.0322	0.3776	0.0474	0.0003	0.0026	0.0003	0.0007
Vans - 10mph			154.63	0.0135	0.3997	0.0270	0.0018	0.0468	0.0017	0.0125	0.0025	0.0729	0.0049	0.0003	0.0085	0.0003	0.0023
Single Unit Trucks - Idling				0.3091	6.6340	5.3569	0.0112	0.0000	0.0107	0.0000	0.0564	1.2107	0.9776	0.0020	0.0000	0.0020	0.0000
Single Unit Trucks - 5mph	195	26.35		0.0391	0.6423	0.7380	0.0018	0.0098	0.0018	0.0027	0.0071	0.1172	0.1347	0.0003	0.0018	0.0003	0.0005
Single Unit Trucks - 10mph			62.73	0.0231	0.1444	0.2325	0.0036	0.0232	0.0034	0.0064	0.0042	0.0264	0.0424	0.0007	0.0042	0.0006	0.0012
Tractor Trailer Trucks - Idling				0.0496	0.9112	0.6066	0.0004	0.0000	0.0003	0.0000	0.0091	0.1663	0.1107	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	65	9.19		0.0015	0.0862	0.6062	0.0002	0.0044	0.0002	0.0012	0.0003	0.0157	0.1103	0.0000	0.0008	0.0000	0.0002
Tractor Trailer Trucks - 10mph			21.72	0.0039	0.2225	0.3464	0.0004	0.0113	0.0004	0.0032	0.0007	0.0406	0.0632	0.0001	0.0021	0.0001	0.0006
Total	2321	347.09	1160.67	1.89	25.09	9.26	0.04	0.42	0.04	0.11	0.35	4.58	1.69	0.01	0.08	0.01	0.02

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
	Vehicle Category	**Speed Bin**	**ROG RunEx**	**ROG StrEx**	**CO RunEx**	**CO StrEx**	**NOx RunEx**	**NOx StrEx**	**PM_{10} RunEx**	**PM10 StrEx**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ RunEx**	**PM2.5 StrEx**	**$PM_{2.5}$ BW, TW, roadway dust**
Operational Days Per Year:														
Autos/Pickups	365	Autos/Pickups	5	0.029653049	0.314075231	0.676172538	3.117609703	0.040015802	0.254455574	0.004727251	0.002019879	0.119241823	0.004349258	0.001857204	0.030307212
Vans	365	Autos/Pickups	10	0.029951976	0.314075231	0.772812712	3.117609703	0.04033483	0.254455574	0.003791868	0.002019879	0.119241823	0.003489068	0.001857204	0.030307212
Single Unit Trucks	365	Vans	5	0.058791572	0.347319397	1.24019504	2.819141908	0.088567751	0.364355418	0.008084807	0.001128128	0.117241828	0.0074778	0.003037278	0.036574983
Tractor Trailer Trucks	365	Vans	10	0.039499645	0.347319397	1.172414351	2.819141908	0.079057831	0.364355418	0.005371288	0.001128128	0.117241828	0.004942254	0.003037278	0.036574983
		Single Unit Trucks	5	0.192047485	0.065106563	0.963295312	1.36394853	2.271367996	1.409818459	0.030932078	0.000119404	0.168041663	0.029540918	0.000109788	0.046624724
		Single Unit Trucks	10	0.16701127	0.065106563	1.044284493	1.36394853	1.681213232	1.409818459	0.026015214	0.000119404	0.168041663	0.024839222	0.000109788	0.046624724
		Tractor Trailer Trucks	5	0.075421922	0	4.255299455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075
		Tractor Trailer Trucks	10	0.075421922	0	4.255299455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	**Number of Vehicle Trips per Day**	**Idling Duration per Day**	**ROG**	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Single Unit Trucks	390	0.1	140.20	3009.11	2429.84	5.08	4.86
Tractor Trailer Trucks	130	0.1	22.50	413.32	275.13	0.16	0.15
Total			162.70	3422.44	2704.98	5.24	5.01

Emissions for truck idling using EMFAC 2011 idling emission rates onovided in e/hr-vehicle (https://www.arb.ca.eov/msei/emfac2011 idling emission rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	**Model Year**	**Fuel**	**ROG IDLEX**	**CO IDLEX**	**NOx IDLEX**	**PM10 IDLEX**	**PM2 5 IDLEX**
T6TS	Aeereated	GAS	1.017757837	15.17523512	0.08759075	0	0
T6 instate small	Aeereated	DSL	0.224702985	7.490448227	10.9135279	0.022884958	0.021894582
T7 Single	Aggregated	DSL	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
T7 tractor	Aeereated	DSL	3.033045026	55.70336178	37.07914401	0.021442872	0.020212877

*Source: EMFAC 2017

			Emission Factors (g/vehicle/idle-hr)				
Vehicle Categorv	**idle--hour factor**		**ROG IDLEX**	**CO IDLEX**	**NOx IDLEX**	**PM10 IDLEX**	**PM2 5 IDLEX**
T6TS	0.098		10.18528405	154.840338	0.893781561	0	0
T6 instate small	0.098		2.293499646	76.43314517	111.3625286	0.233515886	0.223414102
T7 Single	0.79		0.284520083	5.481580034	13.81459228	0.028967795	0.027714661
		Weighted Average:	4.31196542	92.58811000	74.76445647	0.15627190	0.14951165
T7 tractor	1.48		2.076876675	38.15298752	25.39667398	0.014686898	0.013844436

*Source: For T6TS and T instate small. Table 4.4-9 EMFAC2017 Idle Hours for Selected Cateeories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.eov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf): for T7 Sinele and T7 Tractor. idle-hour factors uodated to EMFAC2021 documentation Table 4.4.2-5. as uodated data was orovided for EMFAC2021 for these vehicle cateeories.

Sinele Unit Trucks		% Population
T6TS	GAS	26.76%
T6 instate	DSL	66.03%
T7 Sinele	DSL	7.21%
		100.00%

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Total Internal Buildine VMT Estimate

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	35.65	5.56	30.36	2.45	**41.82**
2nd	33.33	21.96	16.66	6.74	**78.68**
3rd	205.65	21.96	0.00	0.00	**227.60**
4th/Roof	0.00	0.00	0.00	0.00	**0.00**
Total	**964.07**	**47.48**	**58.36**	**9.10**	**847.00**

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	35.65	5.57	14.74	2.49	**234.05**
2nd	99.98	65.87	47.99	20.23	**867.66**
3rd	761.96	83.69	0.00	0.00	**0.00**
4th/Roof	0.00	0.00	0.00	0.00	**1160.97**
Total	**819.60**	**184.68**	**62.73**	**88.73**	**0.00**

Total Daily Internal Building Vehicle Activity

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	80.60	40320.00	5734.40	16665.60	3942.40	**66662.40**
2nd	166.20	53635.00	35336.00	25744.80	10853.40	**125569.00**
3rd	166.20	331002.60	35336.00	0.00	0.00	**366338.60**
4th/Roof	0.00	0.00	0.00	0.00	0.00	**0.00**
Total	**843.00**	**424977.00**	**76406.40**	**42410.40**	**14796.80**	**558890.00**

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	80.60	57375.00	8193.60	21715.00	5616.00	**94880.00**
2nd	376.60	169965.00	196008.00	77234.40	34550.60	**8767257.00**
3rd	481.00	1261653.00	134580.00	0.00	0.00	**1396548.00**
4th/Roof	0.00	0.00	0.00	0.00	0.00	**0.00**
Total	**887.10**	**1479968.00**	**348648.00**	**100948.40**	**88189.60**	**1887910.00**

Total Daily Vehicle Activity (Trips) per Floor

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	450	63	198	43	**744**
2nd	625	280	204	86	**995**
3rd	2823	280	0	0	**3906**
4th/Roof	0	0	0	0	**0**
Total	**8458**	**624**	**880**	**138**	**6648**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2
Straight DOWN	123.8	3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	0	0
Curve A (m)	43.1	87.5	87.5	0
Curve B (m)	46.5	58.7	58.7	0

Level 3 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	176.4	178	170.4	171.7	178.7	170.7

*Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

Total Daily Vehicle Trips by Land Use and Vehicle Type

Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	2118	-	-	-	-
Visiting Workers Maker and Manufacturing	56	14	12	2	84
Visitine Workers Parcel and Last Mile Delivery	830	560	204	86	1788
Visiting Workers Wholesale and Storage	170	42	170	42	424
Sitting Workers General Retail / Café/Quick Service Restaurants	224	8	4	0	236
Total Vehicle Trips[1]	**3498**	**624**	**390**	**130**	**6648**

% Vehicle Activity Per Floor

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	13%	10%	48%	34%
2nd	12%	45%	52%	66%
3rd	75%	45%	0%	0%
4th/Roof	0%	0%	0%	0%
Total	100%	100%	100%	100%

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pickup P	225	213	1312	0
Total Daily Van Per Level	32	140	140	0
Total Daily MT Per Level	93	102	0	0
Total Daily HT Per Level	22	43	0	0

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	tons
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total
PDR Uses					
Manufacturing & Maker Space	22,004	-	-	-	22004
Parcel Delivery /Last Mile	-	238,400	238,400	-	476800
Wholesale and Storage	234,732	-	-	-	234732
Retail	5,000	-	-	-	5000
Logistics Yard	41,459	48,369	48,369	-	138198
Vehicle Circulation	20,910	24,395	24,395	-	69700
Parking	124,969	145,797	145,797	-	416564
Total	449,077	456,962	456,962	-	1363000

Step 2 - Estimated % Use per Flow

Sq FT Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	100.0%	0.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	100.0%	0.0%	0.0%	0.0%	
Parcel Delivery /Last Mile	0.0%	50.00%	50.00%	0.0%	
Wholesale and Storage	100.0%	0.0%	0.0%	0.0%	
Retail Onsite Workers	0.0%	0.0%	100.0%	0.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitze Ground Level Loaxitics and Parkine

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Vans	MT	HT
PDR	3194	616	386	130
On-site Worker	2118	0	0	0
Visiting Worker	1076	616	386	130
Manufacturing & Maker Space	56	14	12	2
Parcel Delivery/Last Mile	830	560	204	86
Wholesale and Storage	42	42	170	42
	304	8	4	0
Retail/QSR	80	0	0	0
On-site Worker	224	8	4	0
Visiting Worker/Consumer				

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickups & vans)	141	353	1412	0
PDR Auto/Pickup	113	213	1272	0
PDR Van	28	140	140	0
PDR MT	91	102	0	0
PDR HT	22	43	0	0
Retail Auto (incl pickups & vans)	116	0	40	0
Retail Auto/Pickups	112	0	40	0
Retail Vans	4	0	0	0
Retail MT	2	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	257	353	1452	0
Total Daily Auto/Pickup Per Level	225	213	1312	0
Total Daily Van Per Level	32	140	140	0
Total Daily MT Per Level	93	102	0	0
Total Daily HT Per Level	22	43	0	0

Existing Land Use - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.20	6.19	0.40	0.01	0.79	0.01	0.20	0.04	1.13	0.07	0.00	0.14	0.00	0.04
Autos/Pickups (visiting worker)	gasoline	200	4000	0.23	7.76	0.49	0.01	1.05	0.01	0.27	0.04	1.42	0.09	0.00	0.19	0.00	0.05
Vans	gasoline	154	4610	0.33	8.91	1.46	0.04	1.39	0.03	0.37	0.06	1.63	0.27	0.01	0.25	0.01	0.07
Single Unit Trucks	diesel	132	5293	0.40	5.12	10.39	0.13	1.96	0.12	0.54	0.07	0.93	1.90	0.02	0.36	0.02	0.10
Tractor Trailer Trucks	diesel	14	888	0.03	2.94	2.80	0.04	0.42	0.04	0.12	0.00	0.54	0.51	0.01	0.08	0.01	0.02
Buses	diesel	18	720	0.11	5.91	0.56	0.01	0.38	0.01	0.11	0.02	1.08	0.10	0.00	0.07	0.00	0.02
Total		717	18532	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:

Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Autos/Pickups (visiting worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Vans	0.024431	0.247319	0.782912	2.819141908	0.131203427	0.364355418	0.00344953	0.00112813	0.137241828	0.003249	0.001037	0.036575
Single Unit Trucks	0.03262	0.065107	0.404853	1.36394853	0.855556494	1.409818459	0.010747862	0.0001194	0.168041663	0.010273	0.00011	0.046625
Tractor Trailer Trucks	0.013932	0	1.500779	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018979	0	0.061335
Buses	0.065799	0.020052	3.70166	0.872379279	0.350904342	0.057899073	0.006694704	5.9922E-09	0.24243064	0.006401	2.18E-05	0.070975

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
metric ton	grams
1	1000000

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	Emissions (lb/day) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	Emissions (tons/year) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	120	47	2.6	0.087	0.009	0.091	0.003	0.003	0.011	0.001	0.012	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	5,222	47	111.1	3.788	0.412	3.977	0.126	0.116	0.691	0.075	0.726	0.023	0.021
Wholesale and Storage	17.2	0.56	3,060	47	65.1	2.219	0.241	2.330	0.074	0.068	0.405	0.044	0.425	0.013	0.012
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	0.7	0.027	0.003	0.025	0.000	0.000	0.004	0.000	0.003	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	3,578	47	76.1	3.027	0.329	2.705	0.043	0.040	0.552	0.060	0.494	0.008	0.007
Wholesale and Storage	33.8	0.38	1,229	47	26.1	1.039	0.113	0.929	0.015	0.014	0.190	0.021	0.170	0.003	0.002
Total Off-Site Emissions						**10.187**	**1.108**	**10.058**	**0.261**	**0.240**	**1.853**	**0.202**	**1.830**	**0.047**	**0.044**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	26	5	5.3	0.180	0.020	0.189	0.006	0.006	0.033	0.004	0.034	0.001	0.001
10mph	17.2	0.56	63	10	6.3	0.214	0.023	0.225	0.007	0.007	0.039	0.004	0.041	0.001	0.001
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	9	5	1.8	0.073	0.008	0.065	0.001	0.001	0.013	0.001	0.012	0.000	0.000
10mph	33.8	0.38	24	10	2.4	0.094	0.010	0.084	0.001	0.001	0.017	0.002	0.015	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	26.3	0.895	0.097	0.940	0.030	0.027	0.163	0.018	0.172	0.005	0.005
Tractor Trailer Truck	33.8	0.38	NA	NA	9.3	0.370	0.040	0.331	0.005	0.005	0.068	0.007	0.060	0.001	0.001
Total On-Site Emissions						**1.826**	**0.199**	**1.833**	**0.050**	**0.046**	**0.333**	**0.036**	**0.335**	**0.009**	**0.008**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	6	25%	1.5	0.25	0.375
Parcel and Last Mile Delivery	102	64%	65.28	0.25	16.32
Wholesale and Storage	85	45%	38.25	0.25	9.5625
Total	193	-	105.03	0.25	26.2575

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	25%	0.25	0.25	0.0625
Parcel and Last Mile Delivery	43	64%	27.52	0.25	6.88
Wholesale and Storage	21	45%	9.45	0.25	2.3625
Total	65	-	37.22	0.25	9.305

Table III.

	Total TRU VMT		
Land Use	**% Refrigeration R**	**TRU VMT on Single-Unit Trucks**	**TRU VMT on Tractor Trailer Trucks**
Maker and Manufacturing	25%	120	32.5
Parcel and Last Mile Delivery	64%	5222.4	3577.6
Wholesale and Storage	45%	3060	1228.5
Total		8402.4	4838.6

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1120	420	480	130	**2,150**
Parcel and Last Mile Delivery	17000	16800	8160	5590	**47,550**
Wholesale and Storage	3400	1260	6800	2730	**14,190**
Total Visitor VMT by Vehicle Type	**21520**	**18480**	**15440**	**8450**	**63,890**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity_hpy	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

Emission Rates	g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Mobile Trip Data (per Adavant 11/28/2022 SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - ALT 1 2 3 4.pdf)

Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	112	0	14	12	2	140
Parcel & Last-mile Delivery	2350	0	560	204	86	3200
Wholesale and Storage	732	0	42	170	42	986
Laboratory/&RD	-	0	-	-	-	0
General Retail	92	0	2	0	0	94
Quick Service Restaurant	212	0	6	4	0	222
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	3498	0	624	390	130	4642
% of Total Trips	75%	0%	13%	8%	3%	100%
% of Commercial/Service Trips	N/A	N/A	55%	34%	11%	100%

Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		20	580	220	820	75	745	15
SD2	6		36	912	348	1296	126	1170	21
SD3	2		24	720	268	1012	96	916	48
SD4	7		28	812	308	1148	108	1040	15
East Bay	28		224	5722	2132	8078	755	7323	27
North Bay	28		111	2441	888	3440	332	3108	12
South Bay	22		346	9243	3499	13088	1239	11849	56
Out of Region	65		129	2325	775	3229	290	2939	4
			918	22755	8438	32111	3021	29090	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1120	-6375	3400	-1855	4000	-5855	200	17000	21520
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	420	-4200	1260	-2520	4610	-7130	154	16800	18480
SU Trucks	40	-7.5	480	-1530	6800	5750	5293	457	132	8160	15440
Tractor Trailers*	65	7.5	130	645	2730	3505	888	2617	14	5590	8450
Total Non-Commuter VMT	N/A	N/A	2150	-11460	14190	4880	16127	-10631		47550	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/stag	Total
Work	56	1500	562	0	16	64	0	0	2198
Non-work	84	1700	424	0	78	158	0	0	2444
Total	140	3200	986	0	94	222	0	0	4642

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDA	Plug-in Hybrid	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybrid	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybrid	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03
	Total:		7,865,720	100.00%	1,025,014	100.00%																			
				Weighted Average Emission Factors*:			0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336
Vans																									
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
MDV	Plug-in Hybrid	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03
	Total:		1,436,619	100.00%	251,880	100.00%																			
				Weighted Average Emission Factors*:			0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954

Single Unit Trucks

T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02
		Total:	144,107	100.00%	47,006	100.00%																			
				Weighted Average Emission Factors*:			0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777

Tractor Trailer Trucks

T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.0014	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02
		Total:	13,619		2,531	100.00%																			
				Weighted Average Emission Factors*:			0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural Gas	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural Gas	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
		Total:	100.00%					
			Weighted Average Emission Factors*:	0.55153	11.18427	8.72778	0.01634	0.01562
Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural Gas	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
		Total:	100.00%					
			Weighted Average Emission Factors*:	3.03195	55.70336	37.07914	0.02144	0.02021

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.64	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38012	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.16	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
			Total:			27,737	100%							
			Weighted Average Emission Factors*:					0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.005	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31339	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0221	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
			Total:			8,426	100%							
			Weighted Average Emission Factors*:					0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.607	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1545	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281078	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.356	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69476	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			3,645	100%							
			Weighted Average Emission Factors*:					0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
						*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.								
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
						*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.								

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.21	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.47	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
			Total:			70,774	100%							
			Weighted Average Emission Factors*:					0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.761	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.952	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0871	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
			Total:			26,002	100%							
			Weighted Average Emission Factors*:					0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.607	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99993	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.356	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69476	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			4,287	100%							
			Weighted Average Emission Factors*:					0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
			Weighted Average Emission Factors*:					0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NHS RUNEX	CO RUNEX	CO IDLEX	CO STREX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco	2025	LDA	Aggregate	Aggregate	Gasoline	126519	4522617	4522617	0	586607		0.039009504	0	0.251814039	0.001504246	0	0.009192971	0.002000001	0.003235916	0.001636005	0	0.002098258	0.008000002	0.009245474	0.00987364	0	0.318920933	0.091494696	0.235610625	1.385036446	0.014407592	0	0.349178278	0.091494696	0.235610625	1.385036446	0.038297666	0.766885618	0	3.198476435	0.002824107	0	0.000679646
San Francisco	2025	LDA	Aeinreads	Aeinreads	Diesel	522.922	13133.8	13133.8	0	2181.78		0.176302046	0	0	0.018752118	0	0	0.002000001	0.003316766	0.019609006	0	0	0.008000002	0.009476475	0.036491746	0	0	0	0	0	0.041543427	0	0	0	0	0	0.0031	0.471041794	0	0	0.002426018	0	0
San Francisco	2025	LDA	Aeinreads	Aeinreads	Electricity	10080.4	464806	0	464806	49586.4		0	0	0	0	0	0	0.002000001	0.002532171	0	0	0	0.008000002	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDA	Aggregate	Aggregate	Plug-in Hy	3902.38	172918	83076.9	89840.7	16116.3		0.003848369	0	0.116967433	0.000731552	0	0.003952217	0.002000001	0.00149273	0.000759329	0	0.002122414	0.008000002	0.004264643	0.001872521	0	0.175544867	0.040881342	0.036860583	0.413516449	0.002732379	0	0.192199534	0.040981342	0.036860583	0.413516449	0.020153856	0.246312279	0	1.369749453	0.001517471	0	0.000632195
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Gasoline	12873.8	389928	389928	0	57785.1		0.085478255	0	0.337317694	0.001894276	0	0.002365931	0.002000001	0.004163487	0.002060197	0	0.002573166	0.008000002	0.011895678	0.021321813	0	0.44477478	0.136491328	0.371983028	2.090419443	0.031112739	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148911458	0	4.361438201	0.00338548	0	0.000824164
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Diesel	7.45932	69.5602	69.5602	0	20.6059		1.514418449	0	0	0.277392351	0	0	0.002000001	0.004787907	0.289934802	0	0	0.008000002	0.013679733	0.349198191	0	0	0	0	0	0.397538924	0	0	0	0	0	0.0031	1.604483182	0	0	0.004377097	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582	1685.29	0	1685.29	189.527		0	0	0	0	0	0	0.002000001	0.001534653	0	0	0	0.008000002	0.00438721	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	21.6866	968.111	420.519	547.591	89.6741		0.00347934	0	0.116967433	0.000468675	0	0.001373883	0.002000001	0.001492477	0.000509727	0	0.001494223	0.008000002	0.00426422	0.00169296	0	0.175544867	0.024130781	0.020405943	0.268650215	0.018243359	0.222774746	0	0.369749453	0.001372106	0	0.000670971
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Gasoline	651466.3	2247694	2247694	0	306112		0.059799627	0	0.298685343	0.003158194	0	0.001958004	0.002000001	0.004010051	0.001728393	0	0.002136595	0.008000002	0.011457289	0.011066457	0	0.345876424	0.073542105	0.188839959	1.157658403	0.016148148	0	0.378691148	0.073542195	0.188839959	1.157658403	0.017420442	0.808624799	0	1.403234452	0.003486018	0	0.000834063
San Francisco	2025	LDT2	Aggregate	Aggregate	Diesel	323.61	10956.2	10956.2	0	1519.06		0.046067349	0	0	0.005705353	0	0	0.002000001	0.004085646	0.005963323	0	0	0.008000002	0.011673273	0.022818559	0	0	0	0	0	0.025977412	0	0	0	0	0	0.0031	0.237163918	0	0	0.003243055	0	0
San Francisco	2025	LDT2	Aggregate	Aggregate	Electricity	471.006	16624.5	0	16624.5	2393.17		0	0	0	0	0	0	0.002000001	0.00152658	0	0	0	0.008000002	0.004361657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Plug-in Hy	573.856	24120.1	11125.6	13194.5	2372.89		0.003664333	0	0.116967433	0.00058843	0	0.001635961	0.002000001	0.001492525	0.000639971	0	0.001779257	0.008000002	0.004264657	0.001782974	0	0.175544867	0.026394882	0.023454188	0.294961451	0.002601711	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187697	0.234581046	0	1.369749453	0.00144499	0	0.000735091
San Francisco	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.79	192265	192265	0	73401.8		0.122685523	0.035806036	0.605579514	0.001349256	0	0.000230311	0.002000001	0.027300008	0.001467439	0	0.000250485	0.008000002	0.078000022	0.030989209	0.41052157	0.147891953	0.038246673	0.199488999	2.044600648	0.045219381	0.599032111	0.161923073	0.038246673	0.199488999	2.044600648	0.044945055	0.999695839	3.763000677	1.246249344	0.00846866	0.001170284	0.000257423
San Francisco	2025	LHD1	Aggregate	Aggregate	Diesel	1645.33	74071.9	74071.9	0	20696.2		0.831542744	1.595461413	0	0.023103594	0.026842141	0	0.002000001	0.027300008	0.024364596	0.028053823	0	0.012000003	0.078000022	0.123540086	0.109759705	0	0	0	0	0.146964728	0.124954127	0	0	0	0	0.197938122	0.29875818	0.939795076	0	0.005958635	0.001193684	0
San Francisco	2025	LHD1	Aeinreads	Aeinreads	Electricity	43.1664	2971.83	0	2971.83	603.671		0	0	0	0	0	0	0.002000001	0.001365004	0	0	0	0.008000002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LHD2	Aggregate	Aggregate	Gasoline	613.122	23102.5	23102.5	0	9134.6		0.136029603	0.035003514	0.602406053	0.001262585	0	0.000187914	0.002000001	0.031850009	0.001371176	0	0.000204373	0.008000002	0.091000026	0.021703682	0.401463704	0.142249981	0.037405291	0.190932946	2.01563418	0.031678717	0.585814678	0.157475824	0.037405291	0.190932946	2.01563418	0.044983621	0.809875891	3.766304422	3.210582123	0.009488786	0.001351859	0.000251199
San Francisco	2025	LHD2	Aggregate	Aggregate	Diesel	997.915	41685.4	41685.4	0	12552.5		0.779228061	1.770292562	0	0.024159339	0.026839604	0	0.002000001	0.031850009	0.025253717	0.028053172	0	0.012000003	0.091000026	0.12517659	0.109759705	0	0	0	0	0.142525225	0.124954127	0	0	0	0	0.200558839	0.299730009	0.939795076	0	0.007192983	0.001956377	0
San Francisco	2025	LHD2	Aeinreads	Aeinreads	Electricity	11.0908	725.571	0	725.571	147.075		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Gasoline	27312.4	1051529	1051529	0	129176		0.063592069	0	0.322583185	0.00145799	0	0.001861306	0.002000001	0.003906839	0.001585692	0	0.002024126	0.008000002	0.011402398	0.013225212	0	0.386403973	0.070424599	0.199741652	1.20773186	0.016936343	0	0.423063332	0.070424599	0.199741652	1.20773186	0.017871122	0.826961861	0	3.411746556	0.004130955	0	0.000987725
San Francisco	2025	MDV	Aggregate	Aggregate	Diesel	499.07	18274.1	18274.1	0	2334.77		0.051159132	0	0	0.005623961	0	0	0.002000001	0.004134729	0.005878252	0	0	0.008000002	0.011813511	0.017898853	0	0	0	0	0	0.020376654	0	0	0	0	0	0.0031	0.341640847	0	0	0.004171945	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Electricity	501.213	17720.3	0	17720.3	2547.37		0	0	0	0	0	0	0.002000001	0.001526394	0	0	0	0.008000002	0.004361126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Plug-in Hy	310.944	14184.1	6466.55	7717.59	1285.75		0.00365179	0	0.116967433	0.000615677	0	0.001720158	0.002000001	0.001490931	0.000669605	0	0.001870828	0.008000002	0.00426574	0.00177687	0	0.175544867	0.028135305	0.024062001	0.301913285	0.002592805	0	0.192199534	0.028135305	0.024062001	0.301913285	0.019147816	0.233774772	0	1.369749453	0.001440238	0	0.000896491
San Francisco	2025	T6 Instate small	Aggregate	Aggregate	Diesel	2377.53	91004.7	91004.7	0	30599.3		0.928923302	10.9135279	1.642590688	0.012273913	0.021894582	0	0.003000001	0.011610138	0.012826795	0.022884558	0	0.012000003	0.046017538	0.028845002	0.224762965	0	0	0	0	0.033837839	0.255875527	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.010863471	0.020109638	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Electricity	18.6087	818.093	0	818.093	239.015		0	0	0	0	0	0	0.003000001	0.000857978	0	0	0	0.012000003	0.023022794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Natural Ga	9.61267	394.858	394.858	0	124.965		0.099141052	5.227383301	0	0.001402962	0.016966693	0	0.003000001	0.011615427	0.001525849	0.018452827	0	0.012000003	0.046161219	0.0107419	0.186572035	0	0	0	0	0.767278563	13.32657393	0	0	0	0	1.06	3.185032455	33.23233081	0	0.031712422	0.042547	0
San Francisco	2025	T6TS	Aggregate	Aggregate	Gasoline	639.839	29859	29859	0	12401.7		0.394172144	0.08759075	0.423939506	0.00120628	0	0.000148125	0.003000001	0.011576104	0.001203181	0	0.000453574	0.012000003	0.04501744	0.005953055	1.017757837	0.246773062	0.03335227	0.255006237	2.505971323	0.038483358	1.485209847	0.270183251	0.03335227	0.255006237	2.505971323	0.044993097	1.143147968	15.17523512	5.169725024	0.017921799	0.005355928	0.000453328	0
San Francisco	2025	T6TS	Aeinreads	Aeinreads	Electricity	3.0393	268.351	0	268.351	60.8304		0	0	0	0	0	0	0.003000001	0.000787652	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Diesel	354.873	20200	20200	0	3342.91		1.31371039	21.58285364	3.215788223	0.016219794	0.016482284	0	0.009000003	0.028142936	0.016953181	0.017228121	0	0.03600001	0.080408388	0.012914103	1.888098178	0	0	0	0	0.014724492	2.149456051	0	0	0	0	0.219870805	0.676952119	27.07430131	0	0.015712422	0.0425474	0
San Francisco	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503	237.568	0	237.568	30.0972		0	0	0	0	0	0	0.009000003	0.01413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Natural Ga	21.9816	1324.53	1324.53	0	207.067		0.310765714	11.69729479	0	0.001778665	0.034194864	0	0.009000003	0.028135888	0.00193446	0.037190934	0	0.03600001	0.080388252	0.015186001	0.437076083	0	0	0	0	1.084714323	31.21972024	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0
San Francisco	2025	T7 Tractor	Aeinreads	Aeinreads	Diesel	145.207	11375.8	11375.8	0	2109.86		1.555107005	40.11897128	3.925802711	0.023481872	0.015302123	0	0.009000003	0.027446676	0.023498402	0.015994017	0	0.03600001	0.078427645	0.013946176	3.454591977	0	0	0	0	0.01587666	3.932789098	0	0	0	0	0.219683645	0.678284829	50.6647472	0	0.014680828	0.078480774	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.74296	64.4874	0	64.4874	10.7952		0	0	0	0	0	0	0.009000003	0.01188109	0	0	0	0.03600001	0.039660257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Natural Ga	28.2625	2178.71	2178.71	0	410.655		0.513115096	22.43584367	0	0.00124999	0.045974698	0	0.009000003	0.027439035	0.001359478	0.050001679	0	0.03600001	0.078397243	0.014272078	0.94017224	0	0	0	0	1.019434108	67.15515999	0	0	0	0	1.06	8.972506791	83.05506955	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Gasoline	135.576	6617.69	6617.69	0	542.305		0.026038119	0	0.421961422	0.00117838	0	0.000158696	0.00201319	0.01919871	0.001281583	0	0.000127597	0.008053156	0.001253458	0.004785929	0	0.146136388	0.033534589	0.09110026	0.37451506	0.008954433	0	0.160000955	0.033534589	0.09110026	0.37451506	0.045	0.585073312	0	6.357994444	0.00881305	0	0.000384158
San Francisco	2025	UBUS	Aggregate	Aggregate	Diesel	784.367	63648.6	63648.6	0	3137.47		0.411261165	0	0	0.007492158	0	0	0.008769949	0.038491785	0.00783092	0	0	0.035079796	0.109976529	0.07273827	0	0	0	0	0	0.082806984	0	0	0	0	0	0.22	0.084642061	0	0	0.012518461	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603	67.8091	0	67.8091	3.14413		0	0	0	0	0	0	0.008569131	0.033250006	0	0	0	0.034276524	0.050000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Natural Ga	67.334	5710.54	5710.54	0	269.336		0.058820057	0	0	0.000366603	0	0	0.007963942	0.038462965	0.00038318	0	0	0.031855766	0.109894184	0.05997064	0	0	0	0	0	4.244494266	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06644666	0.008217386	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.242947064	0.060487048	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.002995733	0.000975218	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.150908984	0.010142381	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.129429317	1.006979635	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.002538045	0.00058547	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.092343235	0.008688678	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.160039934	0.012660791	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.002760048	0.000759009	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.163885328	0.003111213	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.202058493	0.050687102	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.183254222	0.002930739	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.299445569	0.050815815	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.109334957	0.007947495	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.137473529	0.013771799	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274454	0.000792405	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.673849856	0.005698018	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.056936086	0.005178359	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.225477885	0.044214919	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.001571889	0.000508124	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.127105592	0.006429829	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.186607791	0.701031401	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.001327133	0.000303997	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879064	0.005473985	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.134436438	0.011048481	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.001445642	0.000394766	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.146244745	0.002310545	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.086348373	0.042054042	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.160656361	0.002170053	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.141968008	0.042692187	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.0931103	0.005011149	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.11779779	0.011431576	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00143735	0.000412087	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.497668002	0.039888068	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.309957451	0.003696949	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.586535243	0.003591998	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.741149077	0.007393932	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.446023995	0.007124619	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.332150843	0.008126013	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107158	0.005215433	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
22006	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
4.30E-05	Benzene (41)	3.59E-06	1.14E-02	Carcinogen		
5.52E+03	Carbon Dioxide, non-biogenic CO2 (6960)	4.60E+02	1.46E+06		CO2	
1.52E+00	Carbon Monoxide (CO) pollutant (4990)	1.27E-01	4.01E+02		CO	
4.30E-01	Ethyl alcohol (105)	3.59E-02	1.14E+02			
5.07E-04	Formaldehyde (124)	4.23E-05	1.34E-01	Carcinogen		
2.20E-02	Methane (CH4) (6970)	1.84E-03	5.82E+00		CH4	
6.09E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	5.07E-01	1.61E+03		NOx	
1.00E-02	Nitrous Oxide (N2O) (2030)	8.36E-04	2.65E+00		N2O	
1.86E+00	Organics (other, including CH4) (990)	1.55E-01	4.92E+02		TOG	Use ratio below for ROG
1.63E+00	Particulates (part not spec elsewhere) (1990)	1.36E-01	4.30E+02		TPM	Use ratios below for PM2.5 and PM10
2.47E-02	Sulfur Dioxide (SO2) (3990)	2.06E-03	6.52E+00		SO2	
2.29E-05	Toluene (293)	1.91E-06	6.05E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	1.55E-01	4.92E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
22006	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.00E-03	Benzene (41)	8.33E-05	2.64E-01	Carcinogen	
1.93E+04	Carbon Dioxide, non-biogenic CO2 (6960)	1.61E+03	5.09E+06		CO2
5.50E+00	Carbon Monoxide (CO) pollutant (4990)	4.58E-01	1.45E+03		CO
1.18E-02	Formaldehyde (124)	9.80E-04	3.11E+00	Carcinogen	
1.76E-01	Glycols (131)	1.47E-02	4.65E+01		
7.04E-02	Isopropyl alcohol (157)	5.87E-03	1.86E+01	Acute, Chronic HI	
2.98E-01	Methane (CH4) (6970)	2.48E-02	7.86E+01		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
2.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	1.82E+00	5.77E+03		NOx
3.62E-02	Nitrous Oxide (N2O) (2030)	3.02E-03	9.56E+00		N2O
1.06E-01	Organic liquid evap - other/not spec (201)	8.81E-03	2.79E+01		
8.97E-01	Organics (other, including CH4) (990)	7.47E-02	2.37E+02		TOG
4.70E-01	Particulates (part not spec elsewhere) (1990)	3.92E-02	1.24E+02		TPM
8.91E-02	Sulfur Dioxide (SO2) (3990)	7.43E-03	2.35E+01		SO2
5.33E-04	Toluene (293)	4.44E-05	1.41E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

	PM PROFILE			OG PROFILE				
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	6.35E-04	2.01E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	4.19E-04	1.33E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	5.90E-05	1.87E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	2.64E-06	8.37E-03	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	5.20E-05	1.65E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	6.16E-06	1.95E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	3.52E-06	1.12E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.14E-05	3.63E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	8.81E-07	2.79E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	3.68E-04	1.17E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	8.81E-07	2.79E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	8.81E-07	2.79E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	3.08E-05	9.76E-02	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	1.76E-03	5.59E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	1.76E-03	5.58E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	5.28E-06	1.67E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	8.81E-06	2.79E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	7.93E-06	2.51E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	3.35E-05	1.06E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	1.97E-04	6.25E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.18E-04	3.74E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	2.64E-05	8.37E-02	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	1.85E-05	5.86E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	8.29E-05	2.63E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.20E-04	3.80E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	5.20E-05	1.65E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	1.67E-05	5.30E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	5.28E-06	1.67E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	2.03E-05	6.42E-02	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	8.81E-06	2.79E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	7.93E-06	2.51E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	1.41E-05	4.46E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	8.81E-06	2.79E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	2.64E-06	8.37E-03	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	2.64E-06	8.37E-03	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	2.91E-05	9.21E-02	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	3.17E-05	1.00E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	2.20E-04	6.98E-01	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	4.84E-05	1.53E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	2.29E-05	7.25E-02	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	8.81E-06	2.79E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	5.02E-05	1.59E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.23E-05	3.91E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	3.16E-04	1.00E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	1.50E-05	4.74E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	1.31E-04	4.16E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.14E-05	3.63E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	1.76E-05	5.58E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	5.28E-06	1.67E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	2.26E-04	7.15E-01	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	2.64E-05	8.37E-02	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	1.85E-05	5.86E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	1.85E-05	5.86E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	8.81E-07	2.79E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	2.91E-05	9.21E-02	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	8.90E-05	2.82E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	4.05E-05	1.28E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	3.52E-05	1.12E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	2.91E-05	9.21E-02	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	2.91E-05	9.21E-02	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	2.29E-05	7.25E-02	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	5.28E-06	1.67E-02	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	8.81E-06	2.79E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	2.64E-06	8.37E-03	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	5.28E-06	1.67E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.12E-04	3.55E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	5.28E-06	1.67E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.14E-04	3.60E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	1.85E-05	5.86E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	1.76E-05	5.58E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	2.47E-05	7.81E-02	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.07E-04	3.38E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	2.38E-05	7.53E-02	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	2.91E-05	9.21E-02	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	7.85E-05	2.49E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	3.11E-04	9.85E-01	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	3.43E-04	1.09E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	2.21E-04	7.01E-01	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	2.03E-05	6.42E-02	

SF Gateway - Fleet Management Use Mix **Operational Emissions Summary**

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	0.00	0.00	0.000	0.000
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	6.76	58.40	30.400	8.615
TRUs	8.77	8.63	0.222	0.204
Total Proposed Daily Operational Emissions	***38.58***	***71.05***	***30.834***	***9.031***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	1.30	16.10	6.25	1.84
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**29.25**	**53.57**	**24.48**	**7.08**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.00	0.00	0.000	0.000
Stationary Sources	0.04	0.10	0.005	0.005
Mobile	1.23	10.66	5.548	1.572
TRUs	1.60	1.58	0.040	0.037
Total Proposed Annual Operational Emissions	***6.81***	***12.33***	***5.59***	***1.61***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.24	2.94	1.14	0.34
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**5.11**	**9.14**	**4.43**	**1.26**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**No**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.100	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	4.8308	177.982	51.0836	0.8824	28.9547	0.8333	7.6045	0.88	32.48	9.32	0.16	5.28	0.15	1.39
Mobile (activity within buildings)	1.9285	25.2578	7.3132	0.0412	0.5216	0.0385	0.1386	0.35	4.61	1.33	0.01	0.10	0.01	0.03
TRUs in-transit	7.3968	0.8047	7.2613	0.1844	0.0000	0.1698	0.0000	1.35	0.15	1.33	0.03	0.00	0.03	0.00
TRUs on-site	1.3731	0.1494	1.3734	0.0373	1.0000	0.0344	1.0000	0.25	0.03	0.25	0.01	1.00	0.01	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

	Pollutant (lb/day)			Pollutant (lb/year)			Pollutant (lb/hr)		
Land Use Emissions Source	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**
Manufacturing & Maker Space TACs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	#DIV/0!	#DIV/0!	#DIV/0!
Stationary Sources									
220 Horsepower Backup Generators (4 total)	NA	0.0000	0.0000	NA	0.0000	0.0000	NA	0.0000	0.0000
440 Horsepower Backup Generators (2 total)	NA	0.2112	0.2112	NA	10.5592	10.5592	NA	0.2112	0.2112

	Pollutant (lb/day)			Pollutant (lb/year)			Pollutant (lb/hr)		
Mobile Emissions Source	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**
On-site Vehicle and TRU Activity (Remo Exhaust) - Transit									
Ground Level	0.2340	0.0025	0.0267	85.4237	0.9060	9.7417	0.0195	0.0002	0.0022
2nd Floor	0.1872	0.0020	0.0214	68.3390	0.7276	7.8011	0.0156	0.0002	0.0018
3rd Floor	0.1248	0.0013	0.0143	45.5593	0.4898	5.2136	0.0104	0.0001	0.0012
4th Floor	0.0780	0.0007	0.0085	28.4746	0.2550	1.1184	0.0065	0.0001	0.0007
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Transit									
Ground Level	0.3121	0.0033	0.0354	113.8983	1.1892	12.9374	0.0260	0.0003	0.0030
2nd Floor	0.3121	0.0033	0.0354	113.8983	1.1892	12.9374	0.0260	0.0003	0.0030
3rd Floor	0.3121	0.0033	0.0354	113.8983	1.1892	12.9374	0.0260	0.0003	0.0030
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Remo Exhaust) - Idling									
Ground Level	0.0006	0.0002	0.0005	0.2190	0.0843	0.1802	0.0001	0.0000	0.0000
2nd Floor	0.0024	0.0011	0.0015	0.8759	0.4847	0.5349	0.0002	0.0001	0.0001
3rd Floor	0.0024	0.0013	0.0015	0.8759	0.4847	0.5349	0.0002	0.0001	0.0001
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Idling									
Ground Level	0.0054	0.0021	0.0044	1.9714	0.7589	1.6215	0.0005	0.0002	0.0004
2nd Floor	0.0216	0.0120	0.0132	7.8835	4.3624	4.8143	0.0018	0.0010	0.0011
3rd Floor	0.0216	0.0120	0.0132	7.8835	4.3624	4.8143	0.0018	0.0010	0.0011
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Site Trips									
Autos/Pickups (last-mile)	0.0590	0.0000	0.1052	21.5210	0.0060	38.4092	0.0049	0.0000	0.0088
Autos/Pickups	0.0844	0.0000	0.1340	30.8148	0.0077	48.9183	0.0070	0.0000	0.0112
Vans (last-mile only)	0.0562	0.0007	0.0867	20.5283	0.2456	31.6408	0.0047	0.0001	0.0072
Vans	0.0009	0.0000	0.0014	0.3351	0.0040	0.5166	0.0001	0.0000	0.0001
Buses (last-mile only)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Buses	0.0165	0.0083	0.1191	6.0287	3.0129	43.4727	0.0014	0.0007	0.0099
Single-Unit Trucks (last-mile only)	0.0059	0.0004	0.0453	2.1494	0.1260	16.5394	0.0005	0.0005	0.0038
Single-Unit Trucks	0.00030644	0.00003162	0.00235801	0.1118	0.1210	0.8607	0.0000	0.0000	0.0002
Tractor Trailer Trucks	0.00031157	0.00022604	0.00117582	0.1137	0.0089	4.0784	0.0000	0.0002	0.0009
TRUs on Single Unit Trucks	0.00000000	0.00013376	0.00513376	0.0000	1.8738	1.8738	0.0000	0.0004	0.0004
TRUs on Tractor Trailer Trucks	0.00000000	0.00043858	0.00043858	0.0000	0.1601	0.1601	0.0000	0.0000	0.0000

****Note that emissions in all tables above represent total emissions for all sources on the project site.**
***** Forklifts are all electric (no diesel) and therefore are not incuded.**

Operational Days/Year	
Manufacturing & Maker Space TACs	0
Stationary Sources[1]	50
Vehicle activity	365
Operational Hrs/Day	
Manufacturing & Maker Space TACs	0
Stationary Sources	1
Vehicle activity	12
Ramp Exhaust Emissions by Floor[2]	Total 40%
Ground Level	0.12
2nd Floor	0.12
3rd Floor	0.08
4th Floor	0.05
Total Fan Exhaust Emissions by Floor[2]	Total 60%
Ground Level	0.2
2nd Floor	0.2
3rd Floor	0.2
4th Floor	0
Idling Exhaust Emissions	Total 100%
Remos	0.1
Fans	0.9

	% Vehicle Activity Per Floor		
Floor	**Single Unit Trucks**	**Tractor Trailer Trucks**	**Buses**
1st/Ground	7%	1%	66%
2nd	46%	49%	17%
3rd	46%	49%	17%
4th/Roof	0%	0%	0%
Total	100%	100%	100%

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 50 hours per year.
2. Percent of emissions modeled to be released through exhaust vents vs openings along the ramps on each floor is detailed in the methodology memo page 18 of 24. No tractor trailer trucks would operate on the 4th floor; these 'ramp exhaust' emissions are redistributed evenly throughout the first three floors to account for 100 % of the tractor trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table IV. Mobile Emissions within HRA Domain

	Vehicle Emissions: Pollutant lb/day			TRU Emissions (DPM in lb/day)
Mobile Emissions Source	ROG[1]	PM2.5 Exhaust[2]	PM2.5 Total[3]	PM2.5 Exhaust[2]
On-Site Mobile Activity[4]				
Autos/Pickups	1.366137238	5.58332E-05	0.098219534	0
Vans	0.174362852	0.000297419	0.018998554	0
Buses - Idling	0.004062158	0.000737474	0.004544927	
Buses	0.008564436	0.000283215	0.035348942	0
Single Unit Trucks - Idling	0.04617164	0.00539107	0.009221952	0.018702651
Single Unit Trucks	0.010416485	0.000341023	0.012164035	0.009923447
Tractor Trailer Trucks - Idling	0.007564562	0.002026657	0.00613808	0.001838003
Tractor Trailer Trucks	0.000781733	0.000412483	0.00444654	0.001908056
Off-Site Worker Vehicle Trips[5]				
Autos/Pickups	0.083843356	2.09447E-05	0.13298378	0
Off-Site Visitor Vehicle Trips[6]				
Autos/Pickups (visiting worker)				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.058961534	1.64364E-05	0.105230787	0
Wholesale and Storage	0.000585054	1.63855E-07	0.001036514	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Vans				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.056241881	0.00067301	0.096687237	0
Wholesale and Storage	0.000918181	1.09873E-05	0.00145122	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Single Unit Trucks				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.005888757	0.000172586	0.04531336	0.005133758
Wholesale and Storage	0.000306436	0.000031615	0.002358007	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
	0	0.000704202		0
Tractor Trailer Trucks				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.000304937	0.002168893	0.010936082	0.000438577
Wholesale and Storage	6.62907E-05	4.71498E-05	0.000237741	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Buses				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0	0	0	0
Wholesale and Storage	0.016516691	0.008254525	0.119108184	0
General Retail / Café/Quick Service Restaurants	0	0	0	0

Notes:
1. ROG emissions are those generated by gasoline-powered vehicles.
2. PM2.5 Exhaust emissions are those generated by diesel-powered vehicles.
3. PM2.5 Total emissions are all PM2.5 Exhaust, Tire Wore, Break Wore, and RE-entrained dust generated by mobile activity.
4. 100% of on-site mobile source emissions accounted for to serve as an input to the HRA modeling.
5. Percent of offsite worker vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average worker trip distance that would occur within the HRA modeling domain.
6. Percent of offsite visitor vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average trip distance for each land use and vehicle category that would occur within the HRA modeling domain.

Table III.a

% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Visitor Trips

Land Use Type	Autos/Pickups	Vans	Single Unit Trucks	Tractor Trailer Truck	Buses
Maker and Manufacturing	3.38%	2.24%	1.68%	1.03%	3.46%
Parcel and Last Mile Delivery	8.08%	5.38%	4.03%	1.03%	8.37%
Wholesale and Storage	3.38%	2.24%	1.68%	1.03%	3.46%
General Retail / Café/QSR	3.38%	2.24%	1.68%	1.03%	3.46%

Table II.a

HRA Modeling Domain Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups	Vans	Single Unit Trucks	Tractor Trailer Truck	Buses
Maker and Manufacturing	0.67	0.67	0.67	0.67	0.67
Parcel and Last Mile Delivery	1.61	1.61	1.61	0.67	1.61
Wholesale and Storage	0.67	0.67	0.67	0.67	0.67
General Retail / Café/QSR	0.67	0.67	0.67	0.67	0.67

Table I.a

Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups	Vans	Single Unit Trucks	Tractor Trailer Truck	Buses
Maker and Manufacturing	20	30	40	65	19.27
Parcel and Last Mile Delivery	20	30	40	65	19.27
Wholesale and Storage	20	30	40	65	19.27
General Retail / Café/QSR	20	30	40	65	19.27

Conversion Factors	
feet	miles
5280	1

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

	Total Emissions (lbs/day)			Gasoline-Powered Vehicle Emissions (lbs/day)			Diesel-Powered Vehicle Emissions (lbs/day)		
Vehicle Category	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups (visitine worker)									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.733638655	0.062289705	1.242776947	0.731237827	0.062085862	1.238709966	0.002400829	0.000203843	0.004066981
Wholesale and Storage	0.011754893	0.00147352	0.029399025	0.011298099	0.00146898	0.029302816	5.67938E-05	4.82209E-06	9.62082E-05
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Vans									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	1.155719494	0.132190912	1.480443687	1.040263243	0.119074954	1.340203819	0.109458251	0.012519958	0.140210068
Wholesale and Storage	0.045322333	0.005184114	0.058036505	0.040209931	0.004693135	0.052558071	0.004292402	0.000490979	0.005498434
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Buses									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0	0	0	0	0	0	0	0	0
Wholesale and Storage	2.92163955	0.282813296	3.135711681	0.474074201	0.045890153	0.508810202	2.447565348	0.236923142	2.626901479
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Single Unit Trucks									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.660435319	0.202950078	0.920997697	0.146064105	0.044885125	0.20369096	0.514371214	0.158064954	0.717306737
Wholesale and Storage	0.082554415	0.02538876	0.115134712	0.018258013	0.005610641	0.025461137	0.064296402	0.019758119	0.089653342
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Tractor Trailer Trucks									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.183678152	0.250209984	0.808631975	0.029523951	0.040218106	0.129975448	0.1541562	0.209991878	0.678644302
Wholesale and Storage	0.003993003	0.005439347	0.01757869	0.000641825	0.000874307	0.002825553	0.003351178	0.004565041	0.014753137
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Total	5.804335814	0.967923716	7.808705895	2.504391196	0.32540098	5.531565209	3.299944619	0.642522735	4.277140686

Conversion Factors		
lb		grams
	1	453.5923
metric ton		grams
	1	1000000
ton		lbs
	1	2000
metric ton		lbs
	1	2204.623
metric ton		ton
	0.907185	1

% Fleet mukeup that is Diesel or Gasoline

Vehicle Category	**% Diesel**	**% Gasoline**
Autos/Pickups	0.33%	99.7%
Vans	9%	91%
Buses	83.77%	16%
Single Unit Trucks	78%	22%
Tractor Trailer Trucks	84%	16%

Reflects % VMT of total Diesel + Gasoline poweded vehicles and does not include electric, as electric do not contribute to total emissions. Gasoline includes hybrid and natural eas vehicles.

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)					Emissions (tons/year)				
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Manufacturing & Maker Space (Bakery)[1]	35000										
TACs		0.00	0.00	0.00	0.00	0.0	0	0	0	0	0
Manufacturing & Maker Space (Apparel)[1]	35000										
TACs		0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Maximum											
TACs		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00000	0.00000
Formaldehyde (124)	0.00000	0.00000
Toluene (293)	0.00000	0.00000

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
0.00000	0.00E+00

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00E+00	0.00E+00
Formaldehyde (124)	0.00E+00	0.00E+00
Glycols (131)	0.00E+00	0.00E+00
Isopropyl alcohol (157)	0.00E+00	0.00E+00
Toluene (293)	0.00E+00	0.00E+00
Ethyl Benzene	0.00E+00	0.00E+00
O-Xylene	0.00E+00	0.00E+00
M-Xylene	0.00E+00	0.00E+00
Chlorobenzene	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	**g/s**
0.00000	0.00E+00

***Conditional formatting indicates worst-case scenario in orange.**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV Is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 ho	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*1.948065*	*79.79209*	*4.90845*	*0.161031*	*11.534*	*0.14822*	*2.93155*	*0.355522*	*14.56206*	*0.895792*	*0.029388*	*2.104955*	*0.02705*	*0.535008*
Visitor	*2.882696*	*98.19026*	*46.17517*	*0.721368*	*17.42072*	*0.68511*	*4.672994*	*0.526092*	*17.91972*	*8.426968*	*0.13165*	*3.179281*	*0.125033*	*0.852821*
Sub-Total	4.830761	177.9824	51.08362	0.882399	28.95472	0.83333	7.604545	0.881614	32.48178	9.32276	0.161038	5.284236	0.152083	1.387829
On-Site Vehicle Activity Within Buildings	1.93	25.25783	7.313228	0.04115	0.521603	0.038523	0.138576	0.351957	4.609554	1.334664	0.00751	0.095193	0.00703	0.02529
Gross Mobile Source Emissions from Proposed Project	**6.759294**	**203.2402**	**58.39684**	**0.923549**	**29.47632**	**0.871853**	**7.743121**	**1.233571**	**37.09133**	**10.65742**	**0.168548**	**5.379428**	**0.159113**	**1.41312**
Existing Land Use Mobile Emissions	1.29593	36.84234	16.09655	0.236917	6.00896	0.225024	1.61766	0.236507	6.723727	2.93762	0.043237	1.096635	0.041067	0.295223
Net Mobile Emissions (Proposed - Existing)	**5.463365**	**166.3978**	**42.30029**	**0.686632**	**23.46736**	**0.646829**	**6.125461**	**0.997064**	**30.36761**	**7.719804**	**0.12531**	**4.282793**	**0.118046**	**1.117897**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1411	43875	1.94806453	79.79209451	4.90844991	0.161031303	11.53400129	0.148219541	2.93155046	0.355521776	14.56205725	0.89579211	0.02938821	2.10495523	0.02705007	0.53500796

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.1176097	0.042561792	0.25445557	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212

Operational Days Per Year:
Autos/Pickups (on-site worker) 365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	0	0	0	9.11	0

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 3 v7 (March 15, 2023)

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 3 v7 (March 15, 2023)

Table III. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	1,636
Wholesale and Storage	1,186
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[3]	**2822**

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 3 v7 (March 15, 2023)
Notes:

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	**Starts/Day[1]**	**VMT/Day[2]**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW**
Autos/Pickups (visiting worker)	476	19040	0.7510	33.6897	2.0536	0.0693	5.0053	0.0638	1.2722	0.1371	6.1484	0.3748	0.0126	0.9135	0.0116	0.2322
Maker and Manufacturing	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parcel and Last Mile Delivery	465	18600	0.7336	32.9111	2.0061	0.0677	4.8896	0.0623	1.2428	0.1339	6.0063	0.3661	0.0124	0.8924	0.0114	0.2268
Fleet Management	11	440	0.0174	0.7785	0.0475	0.0016	0.1157	0.0015	0.0294	0.0032	0.1421	0.0087	0.0003	0.0211	0.0003	0.0054
General Retail / Café/Quick Service Restaurants[1]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Vans	318	19080	1.2010	34.9090	5.7744	0.1459	5.7730	0.1374	1.5385	0.2192	6.3709	1.0538	0.0266	1.0536	0.0251	0.2808
Maker and Manufacturing	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parcel and Last Mile Delivery	306	18360	1.1557	33.5917	5.5565	0.1404	5.5551	0.1322	1.4804	0.2109	6.1305	1.0141	0.0256	1.0138	0.0241	0.2702
Fleet Management	12	720	0.0453	1.3173	0.2179	0.0055	0.2178	0.0052	0.0581	0.0083	0.2404	0.0398	0.0010	0.0398	0.0009	0.0106
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
										0.0000		0.0000				
Buses	520	20040	2.9216	164.1760	15.5453	0.2958	10.7107	0.2828	3.1357	0.5332	29.9621	2.8370	0.0540	1.9547	0.0516	0.5723
Maker and Manufacturing	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parcel and Last Mile Delivery	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fleet Management	520	20,040	2.9216	164.1760	15.5453	0.2958	10.7107	0.2828	3.1357	0.5332	29.9621	2.8370	0.0540	1.9547	0.0516	0.5723
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Single Unit Trucks	126	10080	0.7430	9.3758	19.4043	0.2389	3.7343	0.2283	1.0361	0.1356	1.7111	3.5413	0.0436	0.6815	0.0417	0.1891
Maker and Manufacturing	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parcel and Last Mile Delivery	112	8960	0.6604	8.3340	17.2483	0.2123	3.3194	0.2030	0.9210	0.1205	1.5210	3.1478	0.0388	0.6058	0.0370	0.1681
Fleet Management	14	1120	0.0826	1.0418	2.1560	0.0265	0.4149	0.0254	0.1151	0.0151	0.1901	0.3935	0.0048	0.0757	0.0046	0.0210
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Tractor Trailer Trucks	47	6110	0.1877	20.2159	18.9429	0.2673	2.9081	0.2556	0.8262	0.0342	3.6894	3.4571	0.0488	0.5307	0.0467	0.1508
Maker and Manufacturing	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parcel and Last Mile Delivery	46	5980	0.1837	19.7857	18.5398	0.2616	2.8463	0.2502	0.8086	0.0335	3.6109	3.3835	0.0477	0.5194	0.0457	0.1476
Fleet Management	1	130	0.0040	0.4301	0.4030	0.0057	0.0619	0.0054	0.0176	0.0007	0.0785	0.0736	0.0010	0.0113	0.0010	0.0032
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Total	967	54310	2.8827	98.1903	46.1752	0.7214	17.4207	0.6851	4.6730	0.5261	17.9197	8.4270	0.1316	3.1793	0.1250	0.8528

Notes:

1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
		Vehicle Category	**ROG RunEx**	**ROG StrEx**	**CO RunEx**	**CO StrEx**	**NOx RunEx**	**NOx StrEx**	**PM_{10} RunEx**	**PM10 StrEx**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ RunEx**	**PM2.5 StrEx**	**$PM_{2.5}$ BW, TW, roadway dust**
Operational Days Per Year:		Autos/Pickups												
Autos/Pickups (visiting worker)	365	(visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.254455574	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212
Vans	365	Vans	0.0244306	0.247319397	0.782912077	2.819141908	0.131203427	0.364355418	0.00344953	0.001128128	0.137241828	0.003248649	0.001037278	0.036574983
Buses	365	Buses	0.065799421	0.012717336	3.70166011	0.553279071	0.350904342	0.036720662	0.006694704	1.502E-05	0.24243064	0.006400937	1.38104E-05	0.070974795
Single Unit Trucks	365	Single Unit Trucks	0.032620144	0.065106563	0.404852827	1.36394853	0.855556494	1.409818459	0.010747862	0.000119404	0.168041663	0.010272803	0.000109788	0.046624724
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.013932276	0	1.500778898	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018978819	0	0.061335075

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supllemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

	Net Visitor VMT by Vehicle Type and Land Use[1]					
Vehicle Type and Land Use	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	0	0	0	0	0	-
Parcel and Last Mile Delivery	18600	18360	0	8960	5980	**51,900**
Fleet Management	440	720	20040	1120	130	**22,450**
General Retail / Café/Quick Service Restaurants[2]	0	0	0	0	0	-
Total Visitor VMT by Vehicle Type	**19040**	**19080**	**20040**	**10080**	**6110**	**74,350**
						74,350

Table II.

	Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]					
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	0	0	0	0	0	0
Parcel and Last Mile Delivery	930	612	0	224	92	1858
Fleet Management	22	24	1040	28	2	1116
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0
Total Vehicle Trips[1]	**952**	**636**	**1040**	**252**	**94**	2974

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 3 v7 (March 15, 2023)

Table V.

	Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]			
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:

1. Page A-93, Appendis F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 3 v7 (March 15, 2023)

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.3706	14.9622	1.1708	0.0185	0.3113	0.0171	0.0791	0.2501	2.7306	0.2137	0.0034	0.0568	0.0031	0.0144
Vans	0.1926	2.4921	0.2907	0.0034	0.0595	0.0031	0.0153	0.0352	0.4548	0.0531	0.0006	0.0109	0.0006	0.0029
Buses	0.0778	2.0339	0.4871	0.0066	0.1088	0.0063	0.0318	0.0142	0.3712	0.0889	0.0012	0.0199	0.0011	0.0058
Single Unit Trucks	0.2468	4.8364	4.1589	0.0118	0.0281	0.0113	0.0078	0.0450	0.8826	0.7590	0.0022	0.0051	0.0021	0.0014
Tractor Trailer Trucks	0.0407	0.9333	1.2056	0.0008	0.0139	0.0007	0.0040	0.0074	0.1703	0.2200	0.0001	0.0025	0.0001	0.0007
Total	1.93	25.26	7.31	0.04	0.52	0.04	0.14	0.35	4.61	1.33	0.01	0.10	0.01	0.03

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.3706	14.9622	1.1708	0.0185	0.3113	0.0171	0.0791	0.2501	2.7306	0.2137	0.0034	0.0568	0.0031	0.0144
Vans	0.1926	2.4921	0.2907	0.0034	0.0595	0.0031	0.0153	0.0352	0.4548	0.0531	0.0006	0.0109	0.0006	0.0029
Buses - Idling	0.0250	0.1100	0.1045	0.0048	0.0000	0.0045	0.0000	0.0046	0.0201	0.0191	0.0009	0.0000	0.0008	0.0000
Buses	0.0528	1.9238	0.3827	0.0018	0.1088	0.0017	0.0318	0.0096	0.3511	0.0698	0.0003	0.0199	0.0003	0.0058
Single Unit Trucks - Idling	0.1997	4.2866	3.4614	0.0072	0.0000	0.0069	0.0000	0.0364	0.7823	0.6317	0.0013	0.0000	0.0013	0.0000
Single Unit Trucks	0.0470	0.5498	0.6975	0.0046	0.0281	0.0044	0.0078	0.0086	0.1003	0.1273	0.0008	0.0051	0.0008	0.0014
Tractor Trailer Trucks - Idling	0.0359	0.6589	0.4386	0.0003	0.0000	0.0002	0.0000	0.0065	0.1202	0.0800	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks	0.0049	0.2764	0.7670	0.0005	0.0139	0.0005	0.0040	0.0009	0.0501	0.1400	0.0001	0.0025	0.0001	0.0007
Total	1.93	25.26	7.31	0.04	0.52	0.04	0.14	0.35	4.61	1.33	0.01	0.10	0.01	0.03

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[2]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	1887		118.63	1.3143	13.1465	1.0690	0.0086	0.0312	0.0080	0.0079	0.2399	2.3992	0.1951	0.0016	0.0057	0.0015	0.0014
Autos/Pickups - 10mph		1065.73		0.0563	1.8157	0.1018	0.0369	0.2802	0.0342	0.0712	0.0103	0.3314	0.0186	0.0016	0.0511	0.0015	0.0130
Vans - 5mph	318		49.13	0.1798	2.1107	0.2650	0.0017	0.0149	0.0015	0.0040	0.0328	0.3852	0.0484	0.0003	0.0027	0.0003	0.0007
Vans - 10mph		147.54		0.0128	0.3813	0.0257	0.0017	0.0446	0.0016	0.0119	0.0023	0.0696	0.0047	0.0003	0.0081	0.0003	0.0022
Buses - idling				0.0250	0.1100	0.1045	0.0048	0.0000	0.0045	0.0000	0.0046	0.0201	0.0191	0.0009	0.0000	0.0008	0.0000
Buses - 5mph	520	65.94		0.0166	0.8382	0.0478	0.0004	0.0352	0.0004	0.0103	0.0030	0.1511	0.0087	0.0001	0.0064	0.0001	0.0019
Buses - 10 mph			137.57	0.0362	1.0957	0.1949	0.0014	0.0735	0.0014	0.0215	0.0066	0.2000	0.0611	0.0003	0.0134	0.0003	0.0039
Single Unit Trucks - idling				0.1997	4.2866	3.4614	0.0072	0.0000	0.0069	0.0000	0.0364	0.7823	0.6317	0.0013	0.0000	0.0013	0.0000
Single Unit Trucks - 5mph	126	19.34		0.0263	0.4200	0.4385	0.0014	0.0072	0.0013	0.0020	0.0048	0.0766	0.0891	0.0002	0.0013	0.0002	0.0004
Single Unit Trucks - 10mph			56.40	0.0208	0.1298	0.2090	0.0032	0.0209	0.0031	0.0058	0.0038	0.0237	0.0382	0.0006	0.0038	0.0006	0.0011
Tractor Trailer Trucks - idling				0.0359	0.6589	0.4386	0.0003	0.0000	0.0002	0.0000	0.0065	0.1202	0.0800	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks - 5mph	47	7.34		0.0012	0.0689	0.4470	0.0001	0.0035	0.0001	0.0010	0.0002	0.0126	0.0816	0.0000	0.0006	0.0000	0.0002
Tractor Trailer Trucks - 10mph			21.91	0.0036	0.2055	0.3200	0.0004	0.0104	0.0004	0.0030	0.0007	0.0375	0.0584	0.0001	0.0019	0.0001	0.0005
Total	2898	260.39	1429.14	1.93	25.26	7.31	0.04	0.52	0.04	0.14	0.35	4.61	1.33	0.01	0.10	0.01	0.03

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)										
Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:													
Autos/Pickups 365	Autos/Pickups 5	0.029653049	0.314075231	0.676172538	3.117609703	0.040015802	0.254455574	0.004727251	0.002019879	0.119241823	0.004349256	0.001857204	0.030307212
Vans 365	Autos/Pickups 10	0.023953376	0.314075231	0.772812712	3.117609703	0.04331483	0.254455574	0.003791868	0.002019879	0.119241823	0.003480068	0.001857204	0.030307212
Buses 365	Buses 5	0.013756501	0.012717336	1.333701964	0.553279071	0.039154914	0.036720662	0.002628251	1.502E-05	0.24243064	0.002434272	1.38104E-05	0.070974795
Sinele Unit Trucks 365	Buses 10	0.119368811	0.012717336	3.612729737	0.553279071	1.104151337	0.036720662	0.004763226	1.502E-05	0.24243064	0.004535977	1.38104E-05	0.070974795
Tractor Trailer Trucks 365	Vans 5	0.058679172	0.247319397	1.24033904	2.819141908	0.088567751	0.364355418	0.008384807	0.001128128	0.137241828	0.00747378	0.001037278	0.038574883
	Vans 10	0.039499645	0.247319397	1.172414351	2.819141908	0.079057831	0.364355418	0.005371288	0.001128128	0.137241828	0.004942254	0.001037278	0.038574883
	Sinele Unit Trucks 5	0.192047485	0.065106563	0.963295312	1.36394853	2.271367996	1.409818459	0.030932078	0.000119404	0.168041663	0.029540918	0.000109788	0.046624724
	Sinele Unit Trucks 10	0.16701127	0.065106563	1.044283493	1.36394853	1.681231232	1.409818459	0.026015214	0.000119404	0.168041663	0.02483922	0.000109788	0.046624724
	Tractor Trailer Trucks 5	0.075421922	0	4.255289455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075
	Tractor Trailer Trucks 10	0.075421922	0	4.255289455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Buses	1040	0.1	11.36	49.91	47.40	2.36	2.06
Sinele Unit Trucks	252	0.1	90.59	1944.39	1570.05	3.28	3.14
Tractor Trailer Trucks	84	0.1	16.27	298.87	198.94	0.12	0.11
Total			118.22	2293.13	1816.39	5.55	5.31

Emissions for truck idling usine EMFAC 2011 idling emission rates convoided in e7b-v vehicle fittos: //www.arb.ca.eov/msei/emfac2011 idling emission rates.xlsxl
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
T6TS	Aggregated	GAS	1.017757837	15.17523512	0.087559075	0	0
T6 Instate small	Aeeregated	DSL	0.224762985	7.490448227	10.9135279	0.022884558	0.021894582
T7 Single	Aggregated	DSL	0.437670283	65.39417267	11.60729479	0.037190214	0.034194864
T7 tractor	Aggregated	DSL	3.033945026	55.70316178	37.07914401	0.021442872	0.020212877

*Source: EMFAC 2017

Vehicle Categorv	idle--hour factor
T6TS	0.098
T6 Instate small	0.098
T7 Sinele	0.78
	1
T7 tractor	1.46

	Emission Factors (g/vehicle/idle-hr)				
	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
	10.38528405	154.840338	0.893783161	0	0
	2.203490646	76.43314517	111.3625296	0.233515896	0.223414102
	0.284510383	6.481580034	13.81459228	0.028967795	0.027714661
Weighted Average:	4.31306642	92.58813005	74.76444547	0.15527199	0.14951165
	2.075676675	38.15298752	25.39667398	0.014844498	0.013844498

Sinele Unit Trucks		% Population
T6TS	GAS	26.76%
T6 instate sma	DSL	66.03%
T7 Sinele	DSL	7.21%
		100.00%

*Source: For T6TS and T instate small. Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation:https://www.arb.ca.eov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf: for T7 Sinele and T7 Tractor. Idle-hour factors updated to EMFAC2021 documentation Table 4.4.2-5. as updated data was onvided for EMFAC2021 for these vehicle catevories.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Total Internal Buildine VMT Estimate

Total Daily Vehicle Activity (Distances Travelled in Miles) per Floor at 5mph

Floor	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	0.81	0.88	34.22	1.61	0.07	**41.01**
2nd	36.39	24.08	13.46	9.16	3.63	**87.13**
3rd	36.39	24.08	13.46	9.16	3.63	**87.13**
4th/Roof	45.04	0.13	0.00	0.00	0.00	**45.14**
Total	**118.63**	**49.18**	**61.14**	**19.94**	**7.34**	**260.39**

Total Daily Vehicle Activity (Distances Travelled in Miles) per Floor at 10mph

Floor	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	1.15	1.25	51.34	1.46	0.10	**58.32**
2nd	109.18	72.23	41.59	27.47	10.90	**881.87**
3rd	109.18	72.23	41.59	27.47	10.90	**881.87**
4th/Roof	846.23	1.93	0.00	0.00	0.00	**848.16**
Total	**1066.78**	**147.64**	**187.07**	**86.40**	**31.91**	**1429.14**

Total Daily Internal Building Vehicle Activity

Total Daily Vehicle Activity (Distances Travelled in meters) per Floor at 5 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	30.00	1300.99	1419.36	61701.44	1655.93	118.27	**65995.78**
2nd	126.20	58568.16	38745.95	22212.16	14715.11	5848.11	**140089.48**
3rd	126.20	58568.16	38745.95	22212.16	14715.11	5848.11	**140089.48**
4th/Roof	25.00	72441.29	156.07	0.00	0.00	0.00	**72617.35**
Total	**307.40**	**180918.59**	**79067.78**	**106188.78**	**31186.08**	**11814.48**	**418058.68**

Total Daily Vehicle Activity (Distances Travelled in meters) per Floor at 10 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.39	1851.38	2019.09	87816.88	2356.28	168.36	**93211.40**
2nd	376.89	175704.47	116235.77	66636.48	44145.34	17544.32	**420588.88**
3rd	376.89	175704.47	116235.77	66636.48	44145.34	17544.32	**420588.88**
4th/Roof	481.98	1361853.34	2945.72	0.00	0.00	0.00	**1364799.06**
Total	**1308.70**	**1715113.66**	**237426.35**	**221090.06**	**90647.07**	**35257.00**	**2859534.22**

Total Daily Vehicle Activity (Trips) per Floor

Floor	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	15	16	696	16	1	**737**
2nd	464	307	177	117	46	**1111**
3rd	464	307	177	117	46	**1111**
4th/Roof	2831	9	0	0	1	**2837**
Total	**3774**	**639**	**1040**	**255**	**94**	**5796**

Gatewayy Center Distribution Ramp Lenaths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both buildine A and B have identical layouts (just rotated). so the numbers below are applicable to each buildine.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.8	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.8
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	174.4	178	170.4	171.7	178.7	170.7

[1]Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

Total Daily Vehicle Trips by Land Use and Vehicle Type

Vehicle Type and Land Use	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailers	Total
On-site workers	2822	-	-	-	-	-
Visiting Workers Maker and Manufacturing	0	0	0	0	0	0
Visiting Workers Parcel and Last Mile Delivery	930	610	0	224	92	1856
Visiting Workers Fleet Management	22	24	1040	28	2	1116
Visiting Workers General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0
Total Vehicle Trips[1]	**3774**	**636**	**1040**	**252**	**94**	5796

Source: Advanant LCW 2023, SF Gateway Trip Gen...ALT 3 v7 (March 15, 2023)

% Vehicle Activity Per Floor

Floor	Autos/ Pickups	Vans	Buses	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	0%	2%	68%	7%	1%
2nd	12%	48%	17%	46%	49%
3rd	12%	48%	17%	46%	49%
4th/Roof	75%	1%	0%	0%	0%
Total	100%	100%	100%	100%	100%

Vehicle Type	L1	L2	L3	L4	Total
Total Daily Auto/Pickup Per Level	7	232	232	1416	1887
Total Daily Van Per Level	8	154	154	3	318
Total Daily Bus Per Level	343	88	88	0	520
Total Daily MT Per Level	9	58	58	0	126
Total Daily HT Per Level	1	23	23	0	47
					2898
					5796

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

Step 1 - Consider Source Fact of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total
PDR Uses					
Manufacturing & Maker Space	-	-	-	-	0
Parcel Delivery /Last Mile		280,764	280,764	5,472	567200
Fleet Management	372,434	93,592	93,592	-	564600
Retail	-	-	-	-	0
Logistics Yard	43,400	72,400	73,400	-	189200
Vehicle Circulation	69,700	112,800	93,400	17,600	293500
Parking	35,900	-	-	507,600	543500
Total	521,434	561,946	543,546	530,872	2160000

assiled similar ratios of space by floor for parcel deliviry under Proposed Project to Alt 3 distribution of parcel delivery by floor
applied similar total sq ft of fleet management of L1 as was occupied by warehousing for Proposed Project, and distributed the remaining evenly to L2 and L3.

Step 2 - Estimated % Use per Floor

Sq Ft Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	0.0%	0.0%	0.0%	0.0%	No Manufacturing & Maker Space for this Expanded Parcel Delivery Alternative
Parcel Delivery /Last Mile	0.0%	49.50%	49.50%	1.0%	Utilize Level 2 and 3 Logistics Yard and Parking and small area of L4 parking (assume autos/pickups and vans only)
Fleet Management	66.00%	17.00%	17.00%	0.00%	Utilize Level 1, 2, 3 Logistics Yard and Parking
Retail Onsite Workers	0.0%	0.0%	0.0%	0.0%	All on-site workers park rooftop
Retail Visitors	0.0%	0.0%	0.0%	0.0%	No Retail for this Expanded Parcel Delivery Alternative

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Bus	Van	MT	HT	*Source: Sec 10 2021 Traffic Demand Memo - Table 11 and page A-79 for worker trip data*
PDR	3774	1040	636	252	94	5796
On-site Worker	2822	0	0	0	0	
Visiting Worker	932	1040	636	232	94	
Manufacturing & Maker Space	0	0	0	0	0	
Parcel Deliver vLast Mile	930	0	612	224	92	
Fleet Management	22	1040	24	28	2	
Retail/QSR	0	0	0	0	0	
On-site Worker	0	0	0	0	0	
Visiting Worker/Consumer	0	0	0	0	0	

Step 4 - Usine Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Buildine)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & van)	15	386	386	1419
PDR Auto/Pickup	7	232	232	1416
PDR Van	8	154	154	3
PDR Bus	343	88	88	0
PDR MT	9	58	58	0
PDR HT	1	23	23	0
Retail Auto (incl pickup & van)	0	0	0	0
Retail Auto/Pickup	0	0	0	0
Retail Van	0	0	0	0
Retail MT	0	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	15	386	386	1419
Total Daily Auto/Pickup Per Level	7	232	232	1416
Total Daily Van Per Level	8	154	154	3
Total Daily Bus Per Level	343	88	88	0
Total Daily MT Per Level	9	58	58	0
Total Daily HT/Bus Per Level	1	23	23	0

Existing Land Use - Mobile Source Emissions

Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	Emissions (lbs/day)							Emissions (tons/year)						
				ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.20	6.19	0.40	0.01	0.79	0.01	0.20	0.04	1.13	0.07	0.00	0.14	0.00	0.04
Autos/Pickups (visiting worker)	gasoline	200	4000	0.23	7.76	0.49	0.01	1.05	0.01	0.27	0.04	1.42	0.09	0.00	0.19	0.00	0.05
Vans	gasoline	154	4610	0.33	8.91	1.46	0.04	1.39	0.03	0.37	0.06	1.63	0.27	0.01	0.25	0.01	0.07
Single Unit Trucks	diesel	132	5293	0.40	5.12	10.39	0.13	1.96	0.12	0.54	0.07	0.93	1.90	0.02	0.36	0.02	0.10
Tractor Trailer Trucks	diesel	14	888	0.03	2.94	2.80	0.04	0.42	0.04	0.12	0.00	0.54	0.51	0.01	0.08	0.01	0.02
Buses	diesel	18	720	0.11	5.91	0.56	0.01	0.38	0.01	0.11	0.02	1.08	0.10	0.00	0.07	0.00	0.02
Total		717	18532	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:

Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Autos/Pickups (visiting worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Vans	0.024431	0.247319	0.782912	2.819141908	0.131203427	0.364355418	0.00344953	0.00112813	0.137241828	0.003249	0.001037	0.036575
Single Unit Trucks	0.03262	0.065107	0.404853	1.36394853	0.855556494	1.409818459	0.010747862	0.0001194	0.168041663	0.010273	0.00011	0.046625
Tractor Trailer Trucks	0.013932	0	1.500779	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018979	0	0.061335
Buses	0.065799	0.020052	3.70166	0.872379279	0.350904342	0.057899073	0.006694704	5.9922E-09	0.24243064	0.006401	2.18E-05	0.070975

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
metric ton	grams
1	1000000

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	Emissions (lb/day) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	Emissions (tons/year) ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	5,734	47	122.0	4.159	0.453	4.367	0.138	0.127	0.759	0.083	0.797	0.025	0.023
Fleet Management	17.2	0.56	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	3,827	47	81.4	3.238	0.352	2.894	0.046	0.042	0.591	0.064	0.528	0.008	0.008
Fleet Management	33.8	0.38	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Off-Site Emissions						**7.397**	**0.805**	**7.261**	**0.184**	**0.170**	**1.350**	**0.147**	**1.325**	**0.034**	**0.031**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	19	5	3.9	0.132	0.014	0.138	0.004	0.004	0.024	0.003	0.025	0.001	0.001
10mph	17.2	0.56	56	10	5.6	0.192	0.021	0.202	0.006	0.006	0.035	0.004	0.037	0.001	0.001
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	7	5	1.5	0.058	0.006	0.052	0.001	0.001	0.011	0.001	0.010	0.000	0.000
10mph	33.8	0.38	22	10	2.2	0.087	0.009	0.078	0.001	0.001	0.016	0.002	0.014	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	17.9	0.611	0.066	0.641	0.020	0.019	0.111	0.012	0.117	0.004	0.003
Tractor Trailer Truck	33.8	0.38	NA	NA	7.4	0.293	0.032	0.262	0.004	0.004	0.053	0.006	0.048	0.001	0.001
Total On-Site Emissions						**1.373**	**0.149**	**1.373**	**0.037**	**0.034**	**0.251**	**0.027**	**0.251**	**0.007**	**0.006**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	0	25%	0	0.25	0
Parcel and Last Mile Delivery	112	64%	71.68	0.25	17.92
Fleet Management	14	0%	0	0.25	0
Total	126	-	71.68	0.25	17.92

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	0	25%	0	0.25	0
Parcel and Last Mile Delivery	46	64%	29.44	0.25	7.36
Fleet Management	1	0%	0	0.25	0
Total	47	-	29.44	0.25	7.36

Table III.

		Total TRU VMT	
Land Use	% Refrigeration Ra	TRU VMT on Single-Unit Trucks	TRU VMT on Tractor Trailer Trucks
Maker and Manufacturing	25%	0	0
Parcel and Last Mile Delivery	64%	5734.4	3827.2
Fleet Management	0%	0	0
Total		5734.4	3827.2

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	0	0	0	0	-
Parcel and Last Mile Delivery	18600	18360	8960	5980	**51,900**
Fleet Management	440	720	1120	130	**2,410**
Total Visitor VMT by Vehicle Type	**19040**	**19080**	**10080**	**6110**	**54,310**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity hpr	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

	Emission Rates g/hp-hr ROG Exhaust	g/hp-hr NOX Exhaust	g/hp-hr CO Exhaust	g/hp-hr PM10 Exhaust	g/hp-hr PM2.5 Exhaust	g/hp-hr SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Mobile Trip Data (per Adavant 05/15/2023 SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - ALT3 v7 - VMT TRIPS.pdf)

Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Vans	Buses	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	0	0	0	0	0	0
Parcel & Last-mile Delivery	2566	612	0	224	92	3494
Fleet Management	1208	24	1040	28	2	2302
Laboratory/&RD	-	-	0	-	-	0
General Retail	0	0	0	0	0	0
Quick Service Restaurant	0	0	0	0	0	0
Total	3774	636	1040	252	94	5796
% of Total Trips	65%	11%	18%	4%	2%	100%
% of Commercial/Service Trips	N/A	31%	51%	12%	5%	100%

Fleet Management Public / Private split:	*Autos*	*Vans*	*Buses*	*SU Trucks*	*Tractor Trailers*	*Total*
Public	*990*	*20*	*616*	*24*	*2*	*1652*
Private	*218*	*4*	*424*	*4*	*0*	*650*
Total	*1208*	*24*	*1040*	*28*	*2*	*2302*

Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Fleet Management	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		0	630	380	1010	75	935	15
SD2	6		0	1008	708	1716	126	1590	21
SD3	2		0	780	492	1272	96	1176	48
SD4	7		0	896	700	1596	108	1488	15
East Bay	28		0	6227	4936	11163	755	10408	27
North Bay	28		0	2663	2053	4716	332	4384	12
South Bay	22		0	10107	7904	18011	1239	16772	56
Out of Region	65		0	2454	1937	4391	290	4101	4
Total			0	24765	19110	43875	3021	40854	199

Fleet Management Public / Private split:

Public	*Private*	*Total*
310	*70*	*380*
576	*132*	*708*
404	*88*	*492*
574	*126*	*700*
4095	*841*	*4936*
1720	*333*	*2053*
6479	*1425*	*7904*
1550	*387*	*1937*
15708	*3402*	*19110*

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Fleet Management	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	0	-6975	440	-6535	4000	-10535	200	18600	19040
Vans	30	-7.5	0	-4590	720	-3870	4610	-8480	154	18360	19080
Buses	19	7.5	0	0	20040	20040	720	19320	18	0	20040
SU Trucks	40	-7.5	0	-1680	1120	-560	5293	-5853	132	8960	10080
Tractor Trailers *	65	7.5	0	690	130	820	888	-68	14	5980	6110
Total Non-Commuter VMT	N/A	N/A	0	-12555	22450	9895	16127	-5616	518	51900	74350

Fleet Management Public / Private split:

Public	*Private*	*Total*
320	*120*	*440*
600	*120*	*720*
3080	*16960*	*20040*
960	*160*	*1120*
220	*0*	*220*
5180	*17360*	*22540*

*Travel Demand Memo Tractor Trailer Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Fleet Management	Laboratory/&RD	General Retail	Quick Service	Public feel sta	Private fleet/sta	Total
Work	0	1636	1186	0	0	0	0	0	2822
Non-work	0	1858	1116	0	0	0	0	0	2974
Total	0	3494	2302	0	0	0	0	0	5796

Fleet Management Public / Private split:

	Public	*Private*	*Weighted Averaage*
Bus trips/day	*616*	*424*	-
Average Bus miles/trip:	*5*	*40*	*19.27*

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDA	Plug-in Hybrid	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybrid	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybrid	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03
	Total:		7,865,720	100.00%	1,025,014	100.00%																			
				Weighted Average Emission Factors*:			0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336
Vans																									
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
MDV	Plug-in Hybrid	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03
	Total:		1,436,619	100.00%	251,880	100.00%																			
				Weighted Average Emission Factors*:			0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954
Buses																									
UBUS	Gasoline	136	6618	8.70%	542	13.72%	4.77E-03	0.00E+00	1.46E-01	5.85E-01	0.00E+00	6.36E+00	2.60E-02	0.00E+00	4.22E-01	0.00128	0.00E+00	1.73E-04	8.05E-03	9.13E-02	1.18E-03	0.00E+00	1.59E-04	2.01E-03	3.19E-02
UBUS	Diesel	784	63649	83.70%	3,137	79.38%	7.27E-02	0.00E+00	0.00E+00	8.46E-02	0.00E+00	0.00E+00	4.11E-01	0.00E+00	0.00E+00	0.00783	0.00E+00	0.00E+00	3.51E-02	1.10E-01	7.49E-03	0.00E+00	0.00E+00	8.77E-03	3.85E-02
UBUS	Electricity	1	68	0.09%	3	0.08%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-02	5.50E-02	0.00E+00	0.00E+00	0.00E+00	8.57E-03	1.93E-02
UBUS	Natural Gas	67	5711	7.51%	269	6.81%	6.00E-02	0.00E+00	0.00E+00	4.77E+01	0.00E+00	0.00E+00	5.88E-02	0.00E+00	0.00E+00	0.0004	0.00E+00	0.00E+00	3.19E-02	1.10E-01	3.67E-04	0.00E+00	0.00E+00	7.96E-03	3.85E-02
	Total:		76,045	100%	3,952	100.00%																			
				Weighted Average Emission Factors*:			0.06580		0.01272	3.70166		0.55328	0.35090		0.03672	0.00669		0.00002	0.03249	0.10829	0.00640		0.00001	0.00812	0.03790

Single Unit Trucks

T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02
		Total:	144,107	100.00%	47,006	100.00%																			
				Weighted Average Emission Factors*:			0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777

Tractor Trailer Trucks

T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.0014	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02
		Total:	13,619		2,531	100.00%																			
				Weighted Average Emission Factors*:			0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural G	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural G	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
	Total:		100.00%					
	Weighted Average Emission Factors*:			0.55153	11.18427	8.72778	0.01634	0.01562
Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural G	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
	Total:		100.00%					
	Weighted Average Emission Factors*:			3.03195	55.70336	37.07914	0.02144	0.02021
Buses*								
UBUS	Gasoline	135.5762502	13.72%	0.011446798	1.348605736	0.029154691	0.002190092	0.002013709
UBUS	Diesel	784.3670007	79.38%	0.150179528	0.453407999	0.629819899	0.028508198	0.027274946
UBUS	Electricity	0.786032294	0.08%	0	0	0	0	0
UBUS	Natural G	67.33399511	6.81%	0.150179528	0.453407999	0.629819899	0.028508198	0.027274946
	Total:		100.00%					
	Weighted Average Emission Factors*:			0.13102	0.57588	0.54690	0.02487	0.02379

*Calculated

* Note, UBUS idling emissions reflect emissions factors from EMFAC for the 5mph speed bin for the UBUS vehicle category, consistent with EMFAC2021 Volume II – Handbook for Project-Level Analysis (March 2021), Note that EMFAC does not model extended idle emissions for urban buses, therefore we suggest using running emissions at the lowest speed bin – 5 mph to approximate idle emission rates.

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.64	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38012	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.16	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hyl	1376.44	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hyl	8.223694	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hyl	200.0729	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
				Total:		27,737	100%							
				Weighted Average Emission Factors*:				0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.13442	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hyl	8.223694	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.51	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.193	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hyl	200.0729	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.005	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31339	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0221	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hyl	116.9455	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
				Total:		8,426	100%							
				Weighted Average Emission Factors*:				0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Buses														
San Francisco (SF)	2025	UBUS	Aggregate	5	Gasoline	215.0262	98%	0.011446798	0.01670314	1.348605736	0.029154691	0.014801718	0.002190092	0.002013709
San Francisco (SF)	2025	UBUS	Aggregate	5	Diesel	2.592832	1%	0.150179528	0.170969408	0.453407999	0.629819899	0.011170826	0.028508198	0.027274946
San Francisco (SF)	2025	UBUS	Aggregate	5	Natural Ga	1.047657	0%	0.150179528	0.170969408	0.453407999	0.629819899	0	0.028508198	0.027274946
				Total:		219	100%							
				Weighted Average Emission Factors*:				0.01376	0.01927	1.33370	0.03915	0.01469	0.00263	0.00243
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.607	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Ga	11.29555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1545	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281078	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.356	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Ga	15.69476	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
				Total:		3,645	100%							
				Weighted Average Emission Factors*:				0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
				*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.										
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Ga	17.641	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
				Total:		110	100%							
				Weighted Average Emission Factors*:				0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
				*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.										

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.21	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.47	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hyl	5381.407	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hyl	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hyl	783.6132	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
				Total:		70,774	100%							
				Weighted Average Emission Factors*:				0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.536	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435195	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hyl	32.26332	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4307	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hyl	783.6132	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.761	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.952	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hyl	458.0871	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
				Total:		26,002	100%							
				Weighted Average Emission Factors*:				0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Buses														
San Francisco (SF)	2025	UBUS	Aggregate	10	Gasoline	472.2325	30%	0.009318478	0.013597501	1.070579359	0.027250899	0.012867204	0.001875742	0.001724675
San Francisco (SF)	2025	UBUS	Aggregate	10	Diesel	991.9333	64%	0.176267308	0.20066692	0.274663609	1.672914146	0.022496117	0.00644939	0.006170393
San Francisco (SF)	2025	UBUS	Aggregate	10	Electricity	1.052025	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	UBUS	Aggregate	10	Natural Ga	90.39691	6%	0.071307537	4.850031607	53.56383313	0.501633155	0	0.001400998	0.001340391
				Total:		1,556	100%							
				Weighted Average Emission Factors*:				0.11937	0.41392	3.61273	1.10415	0.01825	0.00476	0.00454
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.607	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.9129	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Ga	11.29555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99993	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.356	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815019	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Ga	15.69476	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
				Total:		4,287	100%							
				Weighted Average Emission Factors*:				0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Ga	17.641	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
				Total:		110	100%							
				Weighted Average Emission Factors*:				0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NHS RUNEX	CO RUNEX	CO IDLEX	CO STREX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco	2025	LDA	Aggregate	Aggregate	Gasoline	126519	4522617	4522617	0	586607		0.039009504	0	0.251814039	0.001504246	0	0.009192971	0.002000001	0.003235916	0.001636005	0	0.002098258	0.008000002	0.009245474	0.00987364	0	0.318920933	0.091494696	0.235610625	1.385036446	0.014407592	0	0.349178278	0.091494696	0.235610625	1.385036446	0.038297666	0.766885618	0	3.198476435	0.002824107	0	0.000679646
San Francisco	2025	LDA	Aeinreads	Aeinreads	Diesel	522.922	13133.8	13133.8	0	2181.78		0.176302046	0	0	0.018752118	0	0	0.002000001	0.003316766	0.019609006	0	0	0.008000002	0.009476475	0.036491746	0	0	0	0	0	0.041543427	0	0	0	0	0	0.0031	0.471041794	0	0	0.002426018	0	0
San Francisco	2025	LDA	Aeinreads	Aeinreads	Electricity	10080.4	464806	0	464806	49586.4		0	0	0	0	0	0	0.002000001	0.002532171	0	0	0	0.008000002	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDA	Aggregate	Aggregate	Plug-in Hy	3902.38	172918	83076.9	89840.7	16116.3		0.003848369	0	0.116967433	0.000731552	0	0.003952217	0.002000001	0.00149273	0.000759329	0	0.002122414	0.008000002	0.004264643	0.001872521	0	0.175544867	0.040881342	0.036860583	0.413516449	0.002732379	0	0.192199534	0.040981342	0.036860583	0.413516449	0.020153856	0.246312279	0	1.369749453	0.001517471	0	0.000632195
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Gasoline	12873.8	389928	389928	0	57785.1		0.085478255	0	0.337317694	0.001894276	0	0.002365931	0.002000001	0.004163487	0.002060197	0	0.002573166	0.008000002	0.011895678	0.021321813	0	0.44477478	0.136491328	0.371983028	2.090419443	0.031112739	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148911458	0	4.361438201	0.00338548	0	0.000824164
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Diesel	7.45932	69.5602	69.5602	0	20.6059		1.514418449	0	0	0.277392351	0	0	0.002000001	0.004787907	0.289934802	0	0	0.008000002	0.013679733	0.349198191	0	0	0	0	0	0.397538924	0	0	0	0	0	0.0031	1.604483182	0	0	0.004377097	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582	1685.29	0	1685.29	189.527		0	0	0	0	0	0	0.002000001	0.001534653	0	0	0	0.008000002	0.00438721	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	21.6866	968.111	420.519	547.591	89.6741		0.00347934	0	0.116967433	0.000468675	0	0.001373883	0.002000001	0.001492477	0.000509727	0	0.001494223	0.008000002	0.00426422	0.00169296	0	0.175544867	0.024130781	0.020405943	0.268650215	0.018243359	0.222774746	0	0.369749453	0.001372106	0	0.000670971
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Gasoline	651466.3	2247694	2247694	0	306112		0.059799627	0	0.298685343	0.003158194	0	0.001958004	0.002000001	0.004010051	0.001728393	0	0.002136595	0.008000002	0.011457289	0.011066457	0	0.345876424	0.073542105	0.188839959	1.157658403	0.016148148	0	0.378691148	0.073542195	0.188839959	1.157658403	0.017420442	0.808624799	0	1.403234452	0.003486018	0	0.000834063
San Francisco	2025	LDT2	Aggregate	Aggregate	Diesel	323.61	10956.2	10956.2	0	1519.06		0.046067349	0	0	0.005705353	0	0	0.002000001	0.004085646	0.005963323	0	0	0.008000002	0.011673273	0.022818559	0	0	0	0	0	0.025977412	0	0	0	0	0	0.0031	0.237163918	0	0	0.003243055	0	0
San Francisco	2025	LDT2	Aggregate	Aggregate	Electricity	471.006	16624.5	0	16624.5	2393.17		0	0	0	0	0	0	0.002000001	0.00152658	0	0	0	0.008000002	0.004361657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Plug-in Hy	573.856	24120.1	11125.6	13194.5	2372.89		0.003664333	0	0.116967433	0.00058843	0	0.001635961	0.002000001	0.001492525	0.000639971	0	0.001779257	0.008000002	0.004264657	0.001782974	0	0.175544867	0.026394882	0.023454188	0.294961451	0.002601711	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187697	0.234581046	0	1.369749453	0.00144499	0	0.000735091
San Francisco	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.79	192265	192265	0	73401.8		0.122685523	0.035806036	0.605579514	0.001349256	0	0.000230311	0.002000001	0.027300008	0.001467439	0	0.000250485	0.008000002	0.078000022	0.030989209	0.41052157	0.147891953	0.038246673	0.199488999	2.044600648	0.045219381	0.599032111	0.161923073	0.038246673	0.199488999	2.044600648	0.044945055	0.999695839	3.763000677	1.246249344	0.00846866	0.001170284	0.000257423
San Francisco	2025	LHD1	Aggregate	Aggregate	Diesel	1645.33	74071.9	74071.9	0	20696.2		0.831542744	1.595461413	0	0.023103594	0.026842141	0	0.002000001	0.027300008	0.024364596	0.028053823	0	0.012000003	0.078000022	0.123540086	0.109759705	0	0	0	0	0.146964728	0.124954127	0	0	0	0	0.197938122	0.29875818	0.939795076	0	0.005958635	0.001193684	0
San Francisco	2025	LHD1	Aeinreads	Aeinreads	Electricity	43.1664	2971.83	0	2971.83	603.671		0	0	0	0	0	0	0.002000001	0.001365004	0	0	0	0.008000002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LHD2	Aggregate	Aggregate	Gasoline	613.122	23102.5	23102.5	0	9134.6		0.136029603	0.035003514	0.602406053	0.001262585	0	0.000187914	0.002000001	0.031850009	0.001371176	0	0.000204373	0.008000002	0.091000026	0.021703682	0.401463704	0.142249981	0.037405291	0.190932946	2.01563418	0.031678717	0.585814678	0.157475824	0.037405291	0.190932946	2.01563418	0.044983621	0.809875891	3.766304422	3.210582123	0.009488786	0.001351859	0.000251199
San Francisco	2025	LHD2	Aggregate	Aggregate	Diesel	997.915	41685.4	41685.4	0	12552.5		0.779228061	1.770292562	0	0.024159339	0.026839604	0	0.002000001	0.031850009	0.025253717	0.028053172	0	0.012000003	0.091000026	0.12517659	0.109759705	0	0	0	0	0.142525225	0.124954127	0	0	0	0	0.200558839	0.299730009	0.939795076	0	0.007192983	0.001956377	0
San Francisco	2025	LHD2	Aeinreads	Aeinreads	Electricity	11.0908	725.571	0	725.571	147.075		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Gasoline	27312.4	1051529	1051529	0	129176		0.063592069	0	0.322583185	0.00145799	0	0.001861306	0.002000001	0.003906839	0.001585692	0	0.002024126	0.008000002	0.011402398	0.013225212	0	0.386403973	0.070424599	0.199741652	1.20773186	0.016936343	0	0.423063332	0.070424599	0.199741652	1.20773186	0.017871122	0.826961861	0	3.411746556	0.004130955	0	0.000987725
San Francisco	2025	MDV	Aggregate	Aggregate	Diesel	499.07	18274.1	18274.1	0	2334.77		0.051159132	0	0	0.005623961	0	0	0.002000001	0.004134729	0.005878252	0	0	0.008000002	0.011813511	0.017898853	0	0	0	0	0	0.020376654	0	0	0	0	0	0.0031	0.341640847	0	0	0.004171945	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Electricity	501.213	17720.3	0	17720.3	2547.37		0	0	0	0	0	0	0.002000001	0.001526394	0	0	0	0.008000002	0.004361126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Plug-in Hy	310.944	14184.1	6466.55	7717.59	1285.75		0.00365179	0	0.116967433	0.000615677	0	0.001720158	0.002000001	0.001490931	0.000669605	0	0.001870828	0.008000002	0.00426574	0.00177687	0	0.175544867	0.028135305	0.024062001	0.301913285	0.002592805	0	0.192199534	0.028135305	0.024062001	0.301913285	0.019147816	0.233774772	0	1.369749453	0.001440238	0	0.000896491
San Francisco	2025	T6 Instate small	Aggregate	Aggregate	Diesel	2377.53	91004.7	91004.7	0	30599.3		0.928923302	10.9135279	1.642590688	0.012273913	0.021894582	0	0.003000001	0.011610138	0.012826795	0.022884558	0	0.012000003	0.046017538	0.028845002	0.224762965	0	0	0	0	0.033837839	0.255875527	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.010863471	0.020109638	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Electricity	18.6087	818.093	0	818.093	239.015		0	0	0	0	0	0	0.003000001	0.000857978	0	0	0	0.012000003	0.023022794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Natural Ga	9.61267	394.858	394.858	0	124.965		0.099141052	5.227383301	0	0.001402962	0.016966693	0	0.003000001	0.011615427	0.001525849	0.018452827	0	0.012000003	0.046161219	0.0107419	0.186572035	0	0	0	0	0.767278563	13.32657393	0	0	0	0	1.06	3.185032455	33.23233081	0	0.031712422	0.042547	0
San Francisco	2025	T6TS	Aggregate	Aggregate	Gasoline	639.839	29859	29859	0	12401.7		0.394172144	0.08759075	0.423939506	0.00120628	0	0.000148125	0.003000001	0.011576104	0.001203181	0	0.000453574	0.012000003	0.04501744	0.005953055	1.017757837	0.246773062	0.03335227	0.255006237	2.505971323	0.038483358	1.485209847	0.270183251	0.03335227	0.255006237	2.505971323	0.044993097	1.143147968	15.17523512	5.169725024	0.017921799	0.005355928	0.000453328	0
San Francisco	2025	T6TS	Aeinreads	Aeinreads	Electricity	3.0393	268.351	0	268.351	60.8304		0	0	0	0	0	0	0.003000001	0.000787652	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Diesel	354.873	20200	20200	0	3342.91		1.31371039	21.58285364	3.215788223	0.016219794	0.016482284	0	0.009000003	0.028142936	0.016953181	0.017228121	0	0.03600001	0.080408388	0.012914103	1.888098178	0	0	0	0	0.014724492	2.149456051	0	0	0	0	0.219870805	0.676952119	27.07430131	0	0.015712422	0.0425474	0
San Francisco	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503	237.568	0	237.568	30.0972		0	0	0	0	0	0	0.009000003	0.01413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Natural Ga	21.9816	1324.53	1324.53	0	207.067		0.310765714	11.69729479	0	0.001778665	0.034194864	0	0.009000003	0.028135888	0.00193446	0.037190934	0	0.03600001	0.080388252	0.015186001	0.437076083	0	0	0	0	1.084714323	31.21972024	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0
San Francisco	2025	T7 Tractor	Aeinreads	Aeinreads	Diesel	145.207	11375.8	11375.8	0	2109.86		1.555107005	40.11897128	3.925802711	0.023481872	0.015302123	0	0.009000003	0.027446676	0.023498402	0.015994017	0	0.03600001	0.078427645	0.013946176	3.454591977	0	0	0	0	0.01587666	3.932789098	0	0	0	0	0.219683645	0.678284829	50.6647472	0	0.014680828	0.078480774	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.74296	64.4874	0	64.4874	10.7952		0	0	0	0	0	0	0.009000003	0.01188109	0	0	0	0.03600001	0.039660257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Natural Ga	28.2625	2178.71	2178.71	0	410.655		0.513115096	22.43584367	0	0.00124999	0.045974698	0	0.009000003	0.027439035	0.001359478	0.050001679	0	0.03600001	0.078397243	0.014272078	0.94017224	0	0	0	0	1.019434108	67.15515999	0	0	0	0	1.06	8.972506791	83.05506955	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Gasoline	135.576	6617.69	6617.69	0	542.305		0.026038119	0	0.421961422	0.00117838	0	0.000158696	0.00201319	0.01919871	0.001281583	0	0.000127597	0.008053156	0.001253458	0.004785929	0	0.146136388	0.033534589	0.09110026	0.37451506	0.008954433	0	0.160000955	0.033534589	0.09110026	0.37451506	0.045	0.585073312	0	6.357994444	0.00881305	0	0.000384158
San Francisco	2025	UBUS	Aggregate	Aggregate	Diesel	784.367	63648.6	63648.6	0	3137.47		0.411261165	0	0	0.007492158	0	0	0.008769949	0.038491785	0.00783092	0	0	0.035079796	0.109976529	0.07273827	0	0	0	0	0	0.082806984	0	0	0	0	0	0.22	0.084642061	0	0	0.012518461	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603	67.8091	0	67.8091	3.14413		0	0	0	0	0	0	0.008569131	0.033250006	0	0	0	0.034276524	0.050000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Natural Ga	67.334	5710.54	5710.54	0	269.336		0.058820057	0	0	0.000366603	0	0	0.007963942	0.038462965	0.00038318	0	0	0.031855766	0.109894184	0.05997064	0	0	0	0	0	4.244494266	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUN	ROG_RUNI	TOG_RUNE	CO_RUNEX	SOx_RUNE	NH3_RUNE	PM10_PME	PM2.5_PM
San Francis	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06644666	0.008217386	0.008937	0.053253	0.077706	1.243654	0.006408	0.036298	0.005934	0.002077
San Francis	2025	LDA	Aggregate	5	Diesel	25.38012	25.38012	0	0.242947064	0.060487048	0.063222	0.28037	0.319182	4.577891	0.005664	0.0031	0.006083	0.002129
San Francis	2025	LDA	Aggregate	5	Electricity	11804.16	0	11804.16	0	0	0	0	0	0	0	0	0.001328	0.000465
San Francis	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.5402	1215.899	0.002995733	0.000975218	0.001061	0.003083	0.004499	0.227122	0.000943	0.00465	0.001328	0.000465
San Francis	2025	LDT1	Aggregate	5	Gasoline	753.5079	753.5079	0	0.150908984	0.010142381	0.011031	0.109044	0.159117	1.972378	0.007638	0.035112	0.008466	0.002963
San Francis	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.129429317	1.006979635	1.052511	1.271041	1.446995	4.646631	0.010033	0.0031	0.009735	0.003407
San Francis	2025	LDT1	Aggregate	5	Electricity	42.79927	0	42.79927	0	0	0	0	0	0	0	0	0.001331	0.000466
San Francis	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0.812624	7.41107	0.002538045	0.00058547	0.000637	0.002612	0.003812	0.192422	0.000799	0.00415	0.001323	0.000463
San Francis	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.092343235	0.008688678	0.00945	0.059179	0.086353	1.350612	0.007952	0.03742	0.008154	0.002854
San Francis	2025	LDT2	Aggregate	5	Diesel	21.17206	21.17206	0	0.160039934	0.012660791	0.013233	0.271792	0.309417	2.861571	0.007534	0.0031	0.008307	0.002908
San Francis	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.001324	0.000463
San Francis	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0729	21.49951	178.5734	0.002760048	0.000759009	0.000825	0.002841	0.004145	0.209253	0.000869	0.004507	0.001325	0.000464
San Francis	2025	LHD1	Aggregate	5	Gasoline	5987.576	5987.576	0	0.163885328	0.003111213	0.003384	0.091197	0.133074	2.182538	0.014892	0.044945	0.078	0.0273
San Francis	2025	LHD1	Aggregate	5	Diesel	1550.529	1550.529	0	1.202058493	0.050687102	0.052979	0.249378	0.2839	0.746203	0.010879	0.197938	0.078	0.0273
San Francis	2025	LHD1	Aggregate	5	Electricity	80.58261	0	80.58261	0	0	0	0	0	0	0	0	0.039	0.01365
San Francis	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.183254222	0.002930739	0.003187	0.068388	0.099792	1.679266	0.016812	0.044984	0.091	0.03185
San Francis	2025	LHD2	Aggregate	5	Diesel	872.5904	872.5904	0	1.299445569	0.050815815	0.053113	0.240396	0.273674	0.745223	0.01308	0.200559	0.091	0.03185
San Francis	2025	LHD2	Aggregate	5	Electricity	17.36091	0	17.36091	0	0	0	0	0	0	0	0	0.0455	0.015925
San Francis	2025	MDV	Aggregate	5	Gasoline	2032.005	2032.005	0	0.109334957	0.007947495	0.008644	0.070021	0.102165	1.390117	0.009479	0.037871	0.008115	0.00284
San Francis	2025	MDV	Aggregate	5	Diesel	35.31339	35.31339	0	0.137473529	0.013771799	0.014394	0.199241	0.226823	4.061952	0.009211	0.0031	0.008407	0.002943
San Francis	2025	MDV	Aggregate	5	Electricity	450.0221	0	450.0221	0	0	0	0	0	0	0	0	0.001323	0.000463
San Francis	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455	12.49616	104.4494	0.00274454	0.000792405	0.000862	0.002825	0.004122	0.208077	0.000864	0.004488	0.001325	0.000464
San Francis	2025	T6TS	Aggregate	5	Gasoline	810.1545	810.1545	0	0.673849856	0.005698018	0.006197	0.302121	0.440855	2.4025	0.038793	0.044991	0.061496	0.021524
San Francis	2025	T6TS	Aggregate	5	Electricity	7.281078	0	7.281078	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	UBUS	Aggregate	5	Gasoline	215.0262	215.0262	0	0.029154691	0.002013709	0.00219	0.011447	0.016703	1.348606	0.014802	0.045	0.091	0.03185
San Francis	2025	UBUS	Aggregate	5	Diesel	2.592832	2.592832	0	0.629819899	0.027274946	0.028508	0.15018	0.170969	0.453408	0.011171	0.22	0.091	0.03185
San Francis	2025	UBUS	Aggregate	5	Natural Gas	1.047657	1.047657	0	0.629819899	0.027274946	0.028508	0.15018	0.170969	0.453408	0	0.97	0.091	0.03185
San Francis	2025	LDA	Aggregate	10	Gasoline	28295.21	28295.21	0	0.056936086	0.005178359	0.005632	0.033778	0.049288	1.130736	0.005205	0.036298	0.007339	0.002569
San Francis	2025	LDA	Aggregate	10	Diesel	82.16994	82.16994	0	0.225477885	0.044214919	0.046214	0.20612	0.234654	3.412074	0.004719	0.0031	0.007523	0.002633
San Francis	2025	LDA	Aggregate	10	Electricity	18884.47	0	18884.47	0	0	0	0	0	0	0	0	0.002351	0.000823
San Francis	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407	519.7604	4861.647	0.001571889	0.000508124	0.000553	0.001224	0.001786	0.113581	0.000549	0.003851	0.002349	0.000822
San Francis	2025	LDT1	Aggregate	10	Gasoline	2439.536	2439.536	0	0.127105592	0.006429829	0.006993	0.070281	0.102554	1.772754	0.006205	0.035112	0.010533	0.003686
San Francis	2025	LDT1	Aggregate	10	Diesel	0.435195	0.435195	0	1.186607791	0.701031401	0.732729	0.885063	1.007585	3.301696	0.008445	0.0031	0.012112	0.004239
San Francis	2025	LDT1	Aggregate	10	Electricity	68.47091	0	68.47091	0	0	0	0	0	0	0	0	0.002354	0.000824
San Francis	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26332	2.630929	29.63239	0.001327133	0.000303997	0.000331	0.001034	0.001508	0.095895	0.000464	0.003425	0.002341	0.000819
San Francis	2025	LDT2	Aggregate	10	Gasoline	14062.42	14062.42	0	0.07879064	0.005473985	0.005953	0.037634	0.054916	1.226758	0.006459	0.03742	0.010145	0.003551
San Francis	2025	LDT2	Aggregate	10	Diesel	68.54606	68.54606	0	0.134436438	0.011048481	0.011548	0.203187	0.231315	2.141055	0.006342	0.0031	0.010336	0.003618
San Francis	2025	LDT2	Aggregate	10	Electricity	675.4307	0	675.4307	0	0	0	0	0	0	0	0	0.002342	0.00082
San Francis	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	69.60618	714.007	0.001445642	0.000394766	0.000429	0.001126	0.001643	0.104458	0.000505	0.003726	0.002345	0.000821
San Francis	2025	LHD1	Aggregate	10	Gasoline	13095.76	13095.76	0	0.146244745	0.002310545	0.002513	0.062233	0.09081	1.701207	0.012706	0.044945	0.078	0.0273
San Francis	2025	LHD1	Aggregate	10	Diesel	3968.831	3968.831	0	1.086348373	0.042054042	0.043956	0.211476	0.240752	0.604839	0.009464	0.197938	0.078	0.0273
San Francis	2025	LHD1	Aggregate	10	Electricity	185.3866	0	185.3866	0	0	0	0	0	0	0	0	0.039	0.01365
San Francis	2025	LHD2	Aggregate	10	Gasoline	1579.713	1579.713	0	0.160656361	0.002170053	0.00236	0.045739	0.066742	1.357863	0.014338	0.044984	0.091	0.03185
San Francis	2025	LHD2	Aggregate	10	Diesel	2233.537	2233.537	0	1.141968008	0.042692187	0.044623	0.208023	0.23682	0.612235	0.011405	0.200559	0.091	0.03185
San Francis	2025	LHD2	Aggregate	10	Electricity	41.96931	0	41.96931	0	0	0	0	0	0	0	0	0.0455	0.015925
San Francis	2025	MDV	Aggregate	10	Gasoline	6578.761	6578.761	0	0.0931103	0.005011149	0.00545	0.044636	0.065126	1.258739	0.007698	0.037871	0.010096	0.003534
San Francis	2025	MDV	Aggregate	10	Diesel	114.3296	114.3296	0	0.11779779	0.011431576	0.011948	0.148635	0.169211	3.038475	0.007822	0.0031	0.01046	0.003661
San Francis	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.002342	0.00082
San Francis	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0871	40.45722	417.6299	0.00143735	0.000412087	0.000448	0.001119	0.001633	0.103859	0.000502	0.003709	0.002345	0.000821
San Francis	2025	T6 instate small	Aggregate	10	Diesel	2535.607	2535.607	0	2.497668002	0.039888068	0.041692	0.172548	0.196433	0.387596	0.018832	0.215369	0.061496	0.021524
San Francis	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555	11.29555	0	0.309957451	0.003696949	0.004021	0.03629	2.592153	7.617797	0	1.06	0.061496	0.021524
San Francis	2025	T6TS	Aggregate	10	Gasoline	1446.482	1446.482	0	0.586535243	0.003591998	0.003907	0.191399	0.279288	2.120298	0.031491	0.044991	0.061496	0.021524
San Francis	2025	T6TS	Aggregate	10	Electricity	12.99993	0	12.99993	0	0	0	0	0	0	0	0	0.030748	0.010762
San Francis	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.741149077	0.007393932	0.007728	0.06735	0.076673	0.647097	0.026898	0.219871	0.137176	0.048011
San Francis	2025	T7 Single	Aggregate	10	Electricity	2.815019	0	2.815019	0	0	0	0	0	0	0	0	0.068896	0.024114
San Francis	2025	T7 Single	Aggregate	10	Natural Gas	15.69476	15.69476	0	1.446023995	0.007124619	0.007749	0.078098	5.578397	21.73996	0	1.06	0.137141	0.047999
San Francis	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.332150843	0.008126013	0.008493	0.073039	0.083149	0.745966	0.025663	0.219984	0.137175	0.048011
San Francis	2025	T7 Tractor	Aggregate	10	Electricity	0.522154	0	0.522154	0	0	0	0	0	0	0	0	0.069355	0.024274
San Francis	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107158	0.005215433	0.005672	0.090097	6.435517	22.70463	0	1.06	0.137123	0.047993
San Francis	2025	UBUS	Aggregate	10	Gasoline	472.2325	472.2325	0	0.027250899	0.001724675	0.001876	0.009318	0.013598	1.070579	0.012867	0.045	0.091055	0.031869
San Francis	2025	UBUS	Aggregate	10	Diesel	991.9333	991.9333	0	1.672914146	0.006170393	0.006449	0.176267	0.200667	0.274664	0.022496	0.22	0.109891	0.038462
San Francis	2025	UBUS	Aggregate	10	Electricity	1.052025	0	1.052025	0	0	0	0	0	0	0	0	0.055	0.01925
San Francis	2025	UBUS	Aggregate	10	Natural Gas	90.39691	90.39691	0	0.501633155	0.001340391	0.001401	0.071308	4.850032	53.56383	0	0.97	0.109518	0.038331

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35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
0	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
0.00E+00	Benzene (41)	0.00E+00	0.00E+00	Carcinogen		
0.00E+00	Carbon Dioxide, non-biogenic CO2 (6960)	0.00E+00	0.00E+00		CO2	
0.00E+00	Carbon Monoxide (CO) pollutant (4990)	0.00E+00	0.00E+00		CO	
0.00E+00	Ethyl alcohol (105)	0.00E+00	0.00E+00			
0.00E+00	Formaldehyde (124)	0.00E+00	0.00E+00	Carcinogen		
0.00E+00	Methane (CH4) (6970)	0.00E+00	0.00E+00		CH4	
0.00E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	0.00E+00	0.00E+00		NOx	
0.00E+00	Nitrous Oxide (N2O) (2030)	0.00E+00	0.00E+00		N2O	
0.00E+00	Organics (other, including CH4) (990)	0.00E+00	0.00E+00		TOG	Use ratio below for ROG
0.00E+00	Particulates (part not spec elsewhere) (1990)	0.00E+00	0.00E+00		TPM	Use ratios below for PM2.5 and PM10
0.00E+00	Sulfur Dioxide (SO2) (3990)	0.00E+00	0.00E+00		SO2	
0.00E+00	Toluene (293)	0.00E+00	0.00E+00	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	0.00E+00	0.00E+00

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
0	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
0.00E+00	Benzene (41)	0.00E+00	0.00E+00	Carcinogen	
0.00E+00	Carbon Dioxide, non-biogenic CO2 (6960)	0.00E+00	0.00E+00		CO2
0.00E+00	Carbon Monoxide (CO) pollutant (4990)	0.00E+00	0.00E+00		CO
0.00E+00	Formaldehyde (124)	0.00E+00	0.00E+00	Carcinogen	
0.00E+00	Glycols (131)	0.00E+00	0.00E+00		
0.00E+00	Isopropyl alcohol (157)	0.00E+00	0.00E+00	Acute, Chronic HI	
0.00E+00	Methane (CH4) (6970)	0.00E+00	0.00E+00		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
0.00E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	0.00E+00	0.00E+00		NOx
0.00E+00	Nitrous Oxide (N2O) (2030)	0.00E+00	0.00E+00		N2O
0.00E+00	Organic liquid evap - other/not spec (201)	0.00E+00	0.00E+00		
0.00E+00	Organics (other, including CH4) (990)	0.00E+00	0.00E+00		TOG
0.00E+00	Particulates (part not spec elsewhere) (1990)	0.00E+00	0.00E+00		TPM
0.00E+00	Sulfur Dioxide (SO2) (3990)	0.00E+00	0.00E+00		SO2
0.00E+00	Toluene (293)	0.00E+00	0.00E+00	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

	PM PROFILE			OG PROFILE				
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45202	0.003	Toluene	0.00E+00	0.00E+00	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	0.00E+00	0.00E+00	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	0.00E+00	0.00E+00	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	0.00E+00	0.00E+00	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	0.00E+00	0.00E+00	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	0.00E+00	0.00E+00	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	0.00E+00	0.00E+00	

SF Gateway - Expanded Parcel Delivery
Operational Emissions Summary

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	0.00	0.00	0.000	0.000
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	10.41	103.96	48.372	13.865
TRUs	17.32	17.04	0.436	0.401
Total Proposed Daily Operational Emissions	***50.79***	***125.01***	***49.019***	***14.479***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	1.30	16.10	6.25	1.84
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**41.46**	**107.53**	**42.67**	**12.53**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space	0.00	0.00	0.000	0.000
Stationary Sources	0.04	0.10	0.005	0.005
Mobile	1.90	18.97	8.828	2.530
TRUs	3.16	3.11	0.080	0.073
Total Proposed Annual Operational Emissions	***9.04***	***22.18***	***8.91***	***2.61***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.24	2.94	1.14	0.34
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**7.33**	**18.99**	**7.75**	**2.25**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.100	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	7.6840	279.7301	92.3514	1.5476	46.2196	1.4643	12.2100	1.40	51.05	16.85	0.28	8.44	0.27	2.23
Mobile (activity within buildings)	2.7266	34.9797	11.6058	0.0510	0.5535	0.0477	0.1435	0.50	6.38	2.12	0.01	0.10	0.01	0.03
TRUs in-transit	14.7897	1.6091	14.5076	0.3673	0.0000	0.3382	0.0000	2.70	0.29	2.65	0.07	0.00	0.06	0.00
TRUs on-site	2.5345	0.2758	2.5314	0.0685	1.0000	0.0630	1.0000	0.46	0.05	0.46	0.01	1.00	0.01	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

Land Use Emissions Source	Pollutant (lb/day) ROG	Pollutant (lb/day) PM2.5 Exhaust	Pollutant (lb/day) PM2.5 Total	Pollutant (lb/year) ROG	Pollutant (lb/year) PM2.5 Exhaust	Pollutant (lb/year) PM2.5 Total	Pollutant (lb/hr) ROG	Pollutant (lb/hr) PM2.5 Exhaust	Pollutant (lb/hr) PM2.5 Total
Manufacturing & Maker Space TACs	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	#DIV/0!	#DIV/0!	#DIV/0!
Stationary Sources									
220 Horsepower Backup Generators (4	NA	0.0000	0.0000	NA	0.0000	0.0000	NA	0.0000	0.0000
440 Horsepower Backup Generators (2	NA	0.2112	0.2112	NA	10.5592	10.5592	NA	0.2112	0.2112

Mobile Emissions Source	Pollutant (lb/day) ROG	Pollutant (lb/day) PM2.5 Exhaust	Pollutant (lb/day) PM2.5 Total	Pollutant (lb/year) ROG	Pollutant (lb/year) PM2.5 Exhaust	Pollutant (lb/year) PM2.5 Total	Pollutant (lb/hr) ROG	Pollutant (lb/hr) PM2.5 Exhaust	Pollutant (lb/hr) PM2.5 Total
On-site Vehicle and TRU Activity (Ramp Exhaust) - Transit									
Ground Level	0.3297	0.0037	0.0297	120.3436	1.3675	10.8326	0.0275	0.0003	0.0025
2nd Floor	0.2638	0.0030	0.0238	96.2749	1.0987	8.6786	0.0220	0.0003	0.0020
3rd Floor	0.1758	0.0020	0.0159	64.1832	0.7402	5.8067	0.0147	0.0002	0.0013
4th Floor	0.1099	0.0010	0.0093	40.1145	0.3784	3.4013	0.0092	0.0001	0.0008
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Transit									
Ground Level	0.4396	0.0049	0.0393	160.4581	1.7924	14.3596	0.0366	0.0004	0.0033
2nd Floor	0.4396	0.0049	0.0393	160.4581	1.7924	14.3596	0.0366	0.0004	0.0033
3rd Floor	0.4396	0.0049	0.0393	160.4581	1.7924	14.3596	0.0366	0.0004	0.0033
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Ramp Exhaust) - Idling									
Ground Level	0.0030	0.0018	0.0019	1.0857	0.6658	0.6996	0.0002	0.0002	0.0002
2nd Floor	0.0030	0.0018	0.0019	1.0857	0.6658	0.6996	0.0002	0.0002	0.0002
3rd Floor	0.0030	0.0018	0.0019	1.0857	0.6658	0.6996	0.0002	0.0002	0.0002
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
On-site Vehicle and TRU Activity (Fan Exhaust Total) - Idling									
Ground Level	0.0268	0.0164	0.0172	9.7710	5.9925	6.2962	0.0022	0.0014	0.0014
2nd Floor	0.0268	0.0164	0.0172	9.7710	5.9925	6.2962	0.0022	0.0014	0.0014
3rd Floor	0.0268	0.0164	0.0172	9.7710	5.9925	6.2962	0.0022	0.0014	0.0014
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Site Trips									
Autos/Pickups (last-mile)	0.1177	0.0000	0.2100	42.9494	0.0120	76.6533	0.0098	0.0000	0.0175
Autos/Pickups	0.0985	0.0000	0.1541	35.9364	0.0089	56.2487	0.0082	0.0000	0.0128
Vans (last-mile only)	0.1125	0.0013	0.1734	41.0566	0.4913	63.2817	0.0094	0.0001	0.0144
Vans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single-Unit Trucks (last-mile only)	0.0117	0.0126	0.0898	4.2604	4.6105	32.7834	0.0010	0.0011	0.0075
Single-Unit Trucks	0.00000000	0.00000000	0.00000000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tractor Trailer Trucks	0.00061650	0.00438494	0.02210991	0.2250	1.6005	8.0701	0.0001	0.0004	0.0018
TRUs on Single Unit Trucks	0.00000000	0.01017584	0.01017584	0.0000	3.7142	3.7142	0.0000	0.0008	0.0008
TRUs on Tractor Trailer Trucks	0.00000000	0.00088669	0.00088669	0.0000	0.3236	0.3236	0.0000	0.0001	0.0001

Transit Test: 2.1981 0.0246 0.1967

**Note that emissions in all tables above represent total emissions for all sources on the project site.
*** Forklifts are all electric (no diesel) and therefore are not included

Operational Days/Year	
Manufacturing & Maker Space TACs	0
Stationary Sources[1]	50
Vehicle activity	365
Operational Hrs/Day	
Manufacturing & Maker Space TACs	0
Stationary Sources	1
Vehicle activity	12
Ramp Exhaust Emissions by Floor[2]	
Ground Level	0.15
2nd Floor	0.12
3rd Floor	0.08
4th Floor	0.05
Total Fan Exhaust Emissions by Floor[2]	
Ground Level	0.2
2nd Floor	0.2
3rd Floor	0.2
4th Floor	0
Idling Exhaust Emissions	
Ramps	0.1
Fans	0.9

Total 40%
Total 60%
Total 100%

% Vehicle Activity Per Floor		
Floor	Single Unit Trucks	Tractor Trailer Trucks[2]
1st/Ground	33%	33%
2nd	33%	33%
3rd	33%	33%
4th/Roof	0%	0%
Total	100%	100%

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 50 hours per year.
2. Percent of emissions modeled to be released through exhaust vents vs openings along the ramps on each floor is detailed in the methodology memo page 18 of 24. No tractor trailer trucks would operate on the 4th floor; these 'ramp exhaust' emissions are redistributed evenly throughout the first three floors to account for 100 % of the tractor trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table IV. Mobile Emissions within HRA Domain

Mobile Emissions Source	Vehicle Emissions: Pollutant (lb/day) ROG[1]	PM2.5 Exhaust[2]	PM2.5 Total[3]	TRU Emissions (DPM in lb/day) PM2.5 Exhaust[2]
On-Site Mobile Activity[4]				
Autos/Pickups	1.850200452	7.32842E-05	0.122755085	0
Vans	0.329975291	0.000499062	0.030406009	0
Single Unit Trucks - Idling	0.077826223	0.009498552	0.01219582	0.037071326
Single Unit Trucks	0.016617677	0.00510715	0.018153264	0.015056325
Tractor Trailer Trucks - Idling	0.011406474	0.000397044	0.000473087	0.007759438
Tractor Trailer Trucks	0.001263081	0.000666466	0.007184471	0.003151455
Off-Site Worker Vehicle Trips[5]				
Autos/Pickups	0.098455817	2.4295E-05	0.154106044	0
Off-Site Visitor Vehicle Trips[6]				
Autos/Pickups (visiting worker)				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.11766947	3.2802E-05	0.210008968	0
Wholesale and Storage	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Vans				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.112483761	0.001346021	0.173374475	0
Wholesale and Storage	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
Single Unit Trucks				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.011672358	0.012631376	0.089817552	0.010175842
Wholesale and Storage	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0
		0.012631376		
Tractor Trailer Trucks				
Maker and Manufacturing	0	0	0	0
Parcel and Last Mile Delivery	0.000616503	0.004384936	0.022109905	0.000886689
Wholesale and Storage	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0

Notes:
1. ROG emissions are those generated by gasoline-powered vehicles.
2. PM2.5 Exhaust emissions are those generated by diesel-powered vehicles.
3. PM2.5 Total emissions are all PM2.5 Exhaust, Tire Wear, Break Wear, and RE-entrained dust generated by mobile activity.
4. 100% of on-site mobile source emissions accounted for to serve as an input to the HRA modeling.
5. Percent of off-site worker vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average worker trip distance that would occur within the HRA modeling domain.
6. Percent of off-site visitor vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average trip distance for each land use and vehicle category that would occur within the HRA modeling domain.

Table III.a
% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Visitor Trips

Land Use Type	Autos/Pickups		Sin	Tractor Trailer Trucks
Maker and Manufacturing	3.36%	2.24%	1.68%	1.03%
Parcel and Last Mile Delivery	8.06%	5.38%	4.03%	1.03%
Wholesale and Storage	3.36%	2.24%	1.68%	1.03%
General Retail / Café/QSR	3.36%	2.24%	1.68%	1.03%

Table II.a
HRA Modeling Domain Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups		Sin	Tractor Trailer Trucks
Maker and Manufacturing	0.67	0.67	0.67	0.67
Parcel and Last Mile Delivery	1.61	1.61	1.61	0.67
Wholesale and Storage	0.67	0.67	0.67	0.67
General Retail / Café/QSR	0.67	0.67	0.67	0.67

Table I.a
Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups		Sin	Tractor Trailer Trucks
Maker and Manufacturing	20	30	40	65
Parcel and Last Mile Delivery	20	30	40	65
Wholesale and Storage	20	30	40	65
General Retail / Café/QSR	20	30	40	65

Conversion Factors

feet	miles
5280	1

Table III.b
% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Worker Trips

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	4.43%
Parcel and Last Mile Delivery	4.43%
Wholesale and Storage	4.43%
General Retail / Café/QSR	7.37%

Table III c..

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1] Autos/Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	3270
Wholesale and Storage	0
General Retail/QSR	0
Total Vehicle Trips[1]	3270

Table III d.

Weighted Average % one-way trip within HRA Modeling Domain
4.43%

Table II.b
Modeling Domain One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	0.67
Parcel and Last Mile Delivery	0.67
Wholesale and Storage	0.67
General Retail / Café/QSR	0.67

Table I.b
One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	15.14
Parcel and Last Mile Delivery	15.14
Wholesale and Storage	15.14
General Retail / Café/QSR	9.11

1. Except for Retail/QSR, miles per trip distance estimated based on total PDR worker VMT from the SF Travel Demand Memo Page A-92 Table 4 and the total PDR trips on Page A-91 in Table 2.

Table I c.

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1] Autos/Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	3270
Wholesale and Storage	0
General Retail/QSR	0
Total Vehicle Trips[1]	3270

Table I d.

Weighted Average one-way trip distance for worker trips
15.14

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Totals Emissions (lbs/day) ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Gasoline-Powered Vehicle Emissions (lbs/day) ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Diesel-Powered Vehicle Emissions (lbs/day) ROG	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	1.464121876	0.124311497	2.480208617	1.459330544	0.123904689	2.472092147	0.004791331	0.000406809	0.00811647
Wholesale and Storage	0	0	0	0	0	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Vans									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	2.311438989	0.264389823	2.960881774	2.092526487	0.239349907	2.680461638	0.218912502	0.025039916	0.280420137
Wholesale and Storage	0	0	0	0	0	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Single Unit Trucks									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	1.309077151	0.402276048	1.825549007	0.289519922	0.088968729	0.403744582	1.019557228	0.313307319	1.421804425
Wholesale and Storage	0	0	0	0	0	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Tractor Trailer Trucks									
Maker and Manufacturing	0	0	0	0	0	0	0	0	0
Parcel and Last Mile Delivery	0.371349306	0.505859315	1.63481819	0.059689728	0.081310519	0.26277645	0.311659579	0.424548797	1.37204174
Wholesale and Storage	0	0	0	0	0	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Total	5.455987321	1.296836684	8.901457589	3.901066681	0.533533844	5.819074816	1.554920641	0.76330284	3.082382772

Conversion Factors

lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

% Fleet makeup that is Diesel or Gasoline

Vehicle Category	% Diesel	% Gasoline
Autos/Pickups	0.33%	99.7%
Vans	9%	91%
Single Unit Trucks	78%	22%
Tractor Trailer Trucks	84%	16%

Reflects % VMT of total Diesel + Gasoline poweded vehicles and does not include electric, as electric do not contriubte to total emissions. Gasoline includes hybrid and natural gas vehicles.

Manufacturing and Maker Space Maximum Emissions Calculations

Land Use Type	Square Footage	Emissions (lbs/day) ROG	CO	NO_X	PM_{10}	$PM_{2.5}$	Emissions (tons/year) ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
Manufacturing & Maker Space (Bakery)[1]	0										
TACs		0.00	0.00	0.00	0.00	0.0	0	0	0	0	0
Manufacturing & Maker Space (Apparel)[1]	0										
TACs		0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Maximum TACs		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	lb/hr	lb/yr
Benzene (41)	0.00000	0.00000
Formaldehyde (124)	0.00000	0.00000
Toluene (293)	0.00000	0.00000

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	g/s
0.00000	0.00E+00

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	lb/hr	lb/yr
Benzene (41)	0.00E+00	0.00E+00
Formaldehyde (124)	0.00E+00	0.00E+00
Glycols (131)	0.00E+00	0.00E+00
Isopropyl alcohol (157)	0.00E+00	0.00E+00
Toluene (293)	0.00E+00	0.00E+00
Ethyl Benzene	0.00E+00	0.00E+00
O-Xylene	0.00E+00	0.00E+00
M-Xylene	0.00E+00	0.00E+00
Chlorobenzene	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	g/s
0.00000	0.00E+00

***Conditional formatting indicates worst-case scenario in orange.**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	4.012492068	0.211183793	0	0.21118	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV Is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.35962162	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
200 kV (220 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*2.228038*	*90.34526*	*5.563513*	*0.181928*	*13.01719*	*0.167454*	*3.308526*	*0.406617*	*16.48801*	*1.015341*	*0.033202*	*2.375637*	*0.03056*	*0.603806*
Visitor	*5.455987*	*189.3848*	*86.78787*	*1.365669*	*33.20237*	*1.296837*	*8.901458*	*0.995718*	*34.56272*	*15.83879*	*0.249235*	*6.059432*	*0.236673*	*1.624516*
Sub-Total	7.684025	279.7301	92.35139	1.547597	46.21956	1.46429	12.20998	1.402335	51.05073	16.85413	0.282437	8.435069	0.267233	2.228322
On-Site Vehicle Activity Within Buildings	2.73	34.9797	11.60581	0.051027	0.553472	0.047684	0.143484	0.497609	6.383795	2.118061	0.009312	0.101009	0.008702	0.026186
Gross Mobile Source Emissions from Proposed Project	**10.41065**	**314.7097**	**103.9572**	**1.598624**	**46.77303**	**1.511974**	**12.35347**	**1.899944**	**57.43453**	**18.97219**	**0.291749**	**8.536078**	**0.275935**	**2.254508**
Existing Land Use Mobile Emissions	1.29593	36.84234	16.09655	0.236917	6.00896	0.225024	1.61766	0.236507	6.723727	2.93762	0.043237	1.096635	0.041067	0.295223
Net Mobile Emissions (Proposed - Existing)	**9.11472**	**277.8674**	**87.86065**	**1.361707**	**40.76407**	**1.28695**	**10.73581**	**1.663436**	**50.7108**	**16.03457**	**0.248511**	**7.439442**	**0.234868**	**1.959285**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1635	49517	2.22803761	90.34525969	5.56351313	0.18192824	13.01718842	0.167453718	3.308526134	0.406616863	16.48800989	1.01534115	0.0332019	2.37563689	0.0305603	0.60380602

1. Starts per day reflect 1/2 of total trips. Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.
2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.1176097	0.042561792	0.25445557	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212

Operational Days Per Year:
Autos/Pickups (on-site worker) 365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	0	0	0	9.11	0

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	26	106	132	100%	
			Weighted Average Retail Worker Trip Distance:		9.11

Notes:
Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)

Table III. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	0
Parcel and Last Mile Delivery	3,270
Wholesale and Storage	0
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[1]	**3270**

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)
Notes:

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	928	37120	1.46412	65.68067	4.00366	0.13506	9.75823	0.12431	2.48021	0.26720	11.98672	0.73067	0.02465	1.78088	0.02269	0.45264
Maker and Manufacturing	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parcel and Last Mile Delivery	928	37120	1.46412	65.68067	4.00366	0.13506	9.75823	0.12431	2.48021	0.26720	11.98672	0.73067	0.02465	1.78088	0.02269	0.45264
Wholesale and Storage	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Vans	612	36720	2.31144	67.18333	11.11301	0.28077	11.11024	0.26439	2.96088	0.42184	12.26096	2.02812	0.05124	2.02762	0.04825	0.54036
Maker and Manufacturing	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parcel and Last Mile Delivery	612	36720	2.31144	67.18333	11.11301	0.28077	11.11024	0.26439	2.96088	0.42184	12.26096	2.02812	0.05124	2.02762	0.04825	0.54036
Wholesale and Storage	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
										0.00000	0.00000					
Single Unit Trucks	222	17760	1.30908	16.51920	34.18854	0.42088	6.57952	0.40228	1.82555	0.23891	3.01475	6.23941	0.07681	1.20076	0.07342	0.33316
Maker and Manufacturing	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parcel and Last Mile Delivery	222	17760	1.30908	16.51920	34.18854	0.42088	6.57952	0.40228	1.82555	0.23891	3.01475	6.23941	0.07681	1.20076	0.07342	0.33316
Wholesale and Storage	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Tractor Trailer Trucks	93	12090	0.37135	40.00159	37.48266	0.52896	5.75438	0.50586	1.63482	0.06777	7.30029	6.84059	0.09653	1.05018	0.09232	0.29835
Maker and Manufacturing	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Parcel and Last Mile Delivery	93	12090	0.37135	40.00159	37.48266	0.52896	5.75438	0.50586	1.63482	0.06777	7.30029	6.84059	0.09653	1.05018	0.09232	0.29835
Wholesale and Storage	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Retail / Café/Quick Service Restaurants[3]	0	0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
												0.00000				
Total	1855	103690	5.45599	189.38479	86.78787	1.36567	33.20237	1.29684	8.90146	0.99572	34.56272	15.83879	0.24923	6.05943	0.23667	1.62452

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)											
Operational Days Per Year:		Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
		Autos/Pickups												
Autos/Pickups (visiting worker)	365	(visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.254455574	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212
Vans	365	Vans	0.0244306	0.247319397	0.782912077	2.819141908	0.131203427	0.364355418	0.00344953	0.001128128	0.137241828	0.003248649	0.001037278	0.036574983
Single Unit Trucks	365	Single Unit Trucks	0.032620144	0.065106563	0.404852827	1.36394853	0.855556494	1.409818459	0.010747862	0.000119404	0.168041663	0.010272803	0.000109788	0.046624724
Tractor Trailer Trucks	365	Tractor Trailer Trucks	0.013932276	0	1.500778898	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018978819	0	0.061335075

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supplemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

	Net Visitor VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	0	0	0	0	-
Parcel and Last Mile Delivery	37120	36720	17760	12090	**103,690**
Wholesale and Storage	0	0	0	0	-
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	-
Total Visitor VMT by Vehicle Type	**37120**	**36720**	**17760**	**12090**	**103,690**

Table II.

	Total Daily Visitor Vehicle Trips by Land Use and Vehicle Type[1]				
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	0	0	0	0	0
Parcel and Last Mile Delivery	1,856	1,224	444	186	3710
Wholesale and Storage	0	0	0	0	0
General Retail / Café/Quick Service Restaurants	0	0	0	0	0
Total Vehicle Trips[1]	**1856**	**1224**	**444**	**186**	3710

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III.

Total Daily Auto/Pickup Vehicle	
Vehicle Type and Land Use	Autos/ Pickups
Maker and Manufacturing	0
Parcel and Last Mile Delivery	5126
Wholesale and Storage	0
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[1]	**5126**

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV.

Total Daily Work Vehicle Trips by Land	
Vehicle Type and Land Use	Autos/ Pickups
Maker and Manufacturing	0
Parcel and Last Mile Delivery	3,270
Wholesale and Storage	0
General Retail	0
Quick Service Restaurant	0
Total Vehicle Trips[1]	**3270**

Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)

Notes:
1. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these

Table V.

Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]				
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:
1. Page A-93, Appendix F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2023, SF Gateway Trip Gen...ALT 5 v4 (March 15, 2023)

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.8563	20.1362	1.5800	0.0243	0.3949	0.0224	0.1004	0.3388	3.6748	0.2883	0.0044	0.0721	0.0041	0.0183
Vans	0.3645	4.6223	0.5477	0.0057	0.0943	0.0053	0.0251	0.0665	0.8436	0.1000	0.0010	0.0172	0.0010	0.0046
Single Unit Trucks	0.4270	8.4762	7.2477	0.0196	0.0418	0.0188	0.0116	0.0779	1.5465	1.3227	0.0036	0.0076	0.0034	0.0021
Tractor Trailer Trucks	0.0788	1.7471	2.2305	0.0013	0.0225	0.0013	0.0064	0.0144	0.3188	0.4071	0.0002	0.0041	0.0002	0.0012
Total	2.73	34.98	11.61	0.05	0.55	0.05	0.14	0.50	6.38	2.12	0.01	0.10	0.01	0.03

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.8563	20.1362	1.5800	0.0243	0.3949	0.0224	0.1004	0.3388	3.6748	0.2883	0.0044	0.0721	0.0041	0.0183
Vans	0.3645	4.6223	0.5477	0.0057	0.0943	0.0053	0.0251	0.0665	0.8436	0.1000	0.0010	0.0172	0.0010	0.0046
Single Unit Trucks - Idling	0.3519	7.5525	6.0986	0.0127	0.0000	0.0122	0.0000	0.0642	1.3783	1.1130	0.0023	0.0000	0.0022	0.0000
Single Unit Trucks	0.0751	0.9217	1.1491	0.0069	0.0418	0.0066	0.0116	0.0137	0.1682	0.2097	0.0013	0.0076	0.0012	0.0021
Tractor Trailer Trucks - Idling	0.0710	1.3038	0.8678	0.0005	0.0000	0.0005	0.0000	0.0130	0.2379	0.1584	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks	0.0079	0.4433	1.3626	0.0008	0.0225	0.0008	0.0064	0.0014	0.0809	0.2487	0.0002	0.0041	0.0001	0.0012
Total	2.73	34.98	11.61	0.05	0.55	0.0477	0.14	0.50	6.38	2.12	0.01	0.10	0.01	0.03

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2563	182.47		1.7866	17.8879	1.4539	0.0133	0.0480	0.0122	0.0122	0.3261	3.2645	0.2653	0.0024	0.0088	0.0022	0.0022
Autos/Pickups - 10mph			1319.58	0.0697	2.2483	0.1261	0.0110	0.1469	0.0102	0.0882	0.0127	0.4103	0.0230	0.0020	0.0033	0.0019	0.0161
Vans - 5mph	612	86.03		0.3448	4.0389	0.5084	0.0031	0.0260	0.0028	0.0069	0.0629	0.7371	0.0928	0.0006	0.0048	0.0005	0.0013
Vans - 10mph			225.70	0.0197	0.5834	0.0393	0.0027	0.0683	0.0025	0.0182	0.0036	0.1065	0.0072	0.0005	0.0125	0.0004	0.0018
Single Unit Trucks - Idling				0.3519	7.5525	6.0986	0.0127	0.0000	0.0122	0.0000	0.0642	1.3783	1.1130	0.0023	0.0000	0.0022	0.0000
Single Unit Trucks - 5mph	222	31.45		0.0452	0.7343	0.8475	0.0022	0.0117	0.0021	0.0032	0.0082	0.1340	0.1547	0.0004	0.0021	0.0004	0.0006
Single Unit Trucks - 10mph			81.36	0.0300	0.1873	0.3016	0.0047	0.0301	0.0045	0.0084	0.0055	0.0342	0.0550	0.0009	0.0055	0.0008	0.0015
Tractor Trailer Trucks - Idling				0.0710	1.3038	0.8678	0.0005	0.0000	0.0005	0.0000	0.0130	0.2379	0.1584	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	93	13.18		0.0022	0.1236	0.8668	0.0002	0.0063	0.0002	0.0018	0.0004	0.0226	0.1578	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			34.08	0.0057	0.3197	0.4978	0.0006	0.0162	0.0006	0.0046	0.0010	0.0584	0.0909	0.0001	0.0030	0.0001	0.0008
Total	3490	313.13	1660.73	2.73	34.98	11.61	0.05	0.55	0.05	0.14	0.50	6.38	2.12	0.01	0.10	0.01	0.03

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

			Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)										
Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Operational Days Per Year:													
Autos/Pickups 365	Autos/Pickups	5	0.029653049	0.314075231	0.676172538	3.117609703	0.040015802	0.254455574	0.004727251	0.002019879	0.119241823	0.004349256	0.001857204	0.030307212
Vans 365	Autos/Pickups	10	0.029951976	0.314075231	0.772812712	3.117609703	0.04333483	0.254455574	0.003791868	0.002019879	0.119241823	0.003489068	0.001857204	0.030307212
Single Unit Trucks 365	Vans	5	0.058791572	0.247319307	1.24035904	2.819141908	0.088567751	0.364355418	0.008084407	0.001128128	0.137241828	0.00747	0.001037278	0.036574983
Tractor Trailer Trucks 365	Vans	10	0.039499645	0.247319307	1.172414351	2.819141908	0.079057831	0.364355418	0.005371288	0.001128128	0.137241828	0.004842256	0.001037278	0.036574983
	Single Unit Trucks	5	0.192047485	0.065106563	0.963295312	1.3639453	2.271367996	1.409818459	0.030932078	0.000119404	0.168041663	0.029540918	0.000109788	0.046624724
	Single Unit Trucks	10	0.16765127	0.065106563	1.044283493	1.3639453	1.681231232	1.409818459	0.026015214	0.000119404	0.168041663	0.02483922	0.000109788	0.046624724
	Tractor Trailer Trucks	5	0.075421922	0	4.255299455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075
	Tractor Trailer Trucks	10	0.075421922	0	4.255299455	0	6.625359092	3.279178154	0.008001897	0	0.215892863	0.007621912	0	0.061335075

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	444	0.1	159.62	3425.76	2766.28	5.78	5.53
Tractor Trailer Trucks	186	0.1	32.19	591.37	393.65	0.23	0.21
Total			191.81	4017.13	3159.93	6.01	5.75

Emissions for truck idling usine EMFAC 2011 idline emission rates onovided in e?hr-vehicle (https://www.arb.ca.eov/msei/emfac2011 idline emission rates.xlsx)
Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
T6TS	Aeereeated	GAS	1.017757837	15.17523512	0.08759075	0	0
T6 instate small	Aeereeated	DSL	0.224702985	7.490448227	10.9193279	0.022884558	0.021894582
T7 Single	Aggregated	DSL	0.437076083	65.99417267	11.69729478	0.037190014	0.034194864
T7 tractor	Aeereeated	DSL	3.033045026	55.70336178	37.07014401	0.021442872	0.020212877

*Source: EMFAC 2017

			Emission Factors (g/vehicle/idle-hr)				
Vehicle Categorv	Idle--hour factor		ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
T6TS	0.098		10.38528405	154.840338	0.893783161	0	0
T6 instate small	0.098		2.293490646	76.43314517	111.3625298	0.233553896	0.223414102
T7 Sinele	0.79		0.284520083	5.481580034	11.81459228	0.028987705	0.027714661
		Weighted Average:	4.31396542	92.58811000	76.76445457	0.15627100	0.14951365
T7 tractor	1.48		2.076876675	38.15298752	25.39667398	0.014868898	0.013844408

*Source: For T6TS and T instate small. Table 4.4-9 EMFAC2017 Idle Hours for Selected Cateeories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.eov/msei/downloads/emfac2017-volume-iii-technical-documentation.odf): for T7 Sinele and T7 Tractor. idle-hour factors updated to EMFAC2021 documentation Table 4.4-2.5. as updated data was orovided for EMFAC2021 for these vehicle cateeories.

Sinele Unit Trucks		% Proeulation
T6TS	GAS	26.76%
T6 instate small	DSL	66.03%
T7 Sinele	DSL	7.21%
		100.00%

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Mobile

Total Internal Buildine VMT Estimate

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	34.10	22.49	8.23	3.43	**68.25**
2nd	48.03	31.67	11.41	4.96	**96.17**
3rd	48.03	31.67	11.41	4.96	**96.17**
4th/Roof	32.31	21.33	8.05	3.38	**65.01**
Total	**162.47**	**86.08**	**31.46**	**16.18**	**325.19**

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	68.52	32.09	11.73	4.93	**288.51**
2nd	144.69	95.02	34.92	14.59	**288.81**
3rd	144.69	95.02	34.92	14.59	**888.64**
4th/Roof	982.69	3.68	9.08	0.00	**1680.78**
Total	**1818.68**	**998.79**	**91.86**	**84.08**	**0.00**

Total Daily Internal Building Vehicle Activity

	Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph					
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	80.60	54878.21	36191.20	13260.80	5555.20	**109885.44**
2nd	196.20	77294.98	50974.78	18677.60	7824.40	**154771.68**
3rd	196.20	77294.98	50974.78	18677.60	7824.40	**154771.68**
4th/Roof	85.65	84187.14	313.34	0.00	0.00	**84500.48**
Total	**847.80**	**293656.80**	**138453.98**	**50616.00**	**21204.00**	**503930.38**

	Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph					
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.30	79090.20	51699.80	18870.00	7965.00	**156360.00**
2nd	278.60	231884.30	152924.11	56002.80	23473.20	**464218.04**
3rd	278.60	231884.30	152924.11	56002.80	23473.20	**464218.04**
4th/Roof	691.00	1516797.36	5987.44	0.00	0.00	**1607984.80**
Total	**1866.70**	**2139968.48**	**363535.46**	**130875.60**	**54961.40**	**2672680.88**

	Total Daily Vehicle Activity (Trips) per Floor					
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	612	404	148	62	**1226**
2nd	612	404	148	62	**1226**
3rd	612	404	148	62	**1226**
4th/Roof	1290	12	0	0	**1302**
Total	**3126**	**1224**	**444**	**186**	**4980**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.8	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	87.5	87.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	176.4	178	170.4	173.7	178.7	170.7

*Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

	Total Daily Vehicle Trips by Land Use and Vehicle Type				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3270	-	-	-	3270
Visiting Workers Maker and Manufacturing	0	0	0	0	0
Visitine Workers Parcel and Last Mile Delivery	1,856	1,224	444	186	3710
Visiting Workers Wholesale and Storage	0	0	0	0	0
Visiting Workers General Retail / Café/Quick Service Restaurants	0	0	0	0	0
Total Vehicle Trips[2]	**5126**	**1224**	**444**	**186**	6980

Source: Adavant ICW 2023, SF Gateway Trip Gen., ALT 5 v4 (March 15, 2023)

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

	% Vehicle Activity Per Floor			
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	12%	33%	33%	33%
2nd	12%	33%	33%	33%
3rd	12%	33%	33%	33%
4th/Roof	64%	1%	0%	0%
Total	100%	100%	100%	100%

Vehicle Type	L1	L2	L3	L4	
Total Daily Auto/Pickup	306	306	306	1644	
Total Daily Van Per Leve	202	202	202	6	
Total Daily MT Per Level	74	74	74	0	
Total Daily HT Per Level	31	31	31	0	
	613	613	613	1650	3490

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	tons
0.907185	1

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total	Source: July 2019 Project Description - Table 3
PDR Uses						
Manufacturing & Maker Space	-	-	-	-	0	
Parcel Delivery/Last Mile	373,494	373,494	373,494	11,318	1131800	*Split evenly among L1, L2, L3, and a small amount of space on L4
Wholesale and Storage	-	-	-	-	0	
Retail	-	-	-	-	0	
Logistics Yard	43,400	72,400	73,400	-	189200	
Vehicle Circulation	69,700	112,800	93,400	17,600	293500	
Parking	35,900	-	-	507,600	543500	
Total	522,494	558,694	542,294	536,518	2160000	

*Added Logistics Yar. Veh Circ. and Parkine to L1. the level from which M&M and Retail/QSR space was removed for this alt.

Step 2 - Estimated % Use per Floor

Sq Ft Per Use Per Floor	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufacturing & Maker Space	0.0%	0.0%	0.0%	0.0%	No Manufacturing & Maker Space for this Expanded Parcel Delivery Alternative
Parcel Delivery/Last Mile	33.0%	33.00%	33.00%	1.0%	Utilize Level 2 and 3 Logistics Yard and Parking and small area of L4 parking (assume autos/pickups and vans only)
Wholesale and Storage	0.00%	0.00%	0.00%	0.0%	
Retail Onsite Workers	0.0%	0.0%	0.0%	0.0%	All on-site workers park rooftop
Retail Visitors	0.0%	0.0%	0.0%	0.0%	No Retail for this Expanded Parcel Delivery Alternative

Step 3 - Total Project Daily Traffic Per Use

Land Use Type	Auto/Pickup	Van	MT	HT
PDR	5126	1224	444	186
Onsite Worker	3270	0	0	0
Visiting Worker	1856	1224	444	186
Manufacturing & Maker Space	0	0	0	0
Parcel Delivery/Last Mile	1856	1224	444	186
Wholesale and Storage	0	0	0	0
Retail/QSR	0	0	0	0
Onsite Worker	0	0	0	0
Visiting Worker/Consumer	0	0	0	0

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl escous & vans)	308	308	308	1650
PDR Auto/Pickup	306	306	306	1644
PDR Van	202	202	202	6
PDR MT	74	74	74	0
PDR HT	31	31	31	0
Retail Auto (incl pickup & vans)	0	0	0	0
Retail Auto/Pickup	0	0	0	0
Retail Van	0	0	0	0
Retail MT	0	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	308	308	308	1650
Total Daily Auto/Pickup Per Level	306	306	306	1644
Total Daily Van Per Level	202	202	202	6
Total Daily MT Per Level	74	74	74	0
Total Daily HT Per Level	31	31	31	0

Existing Land Use - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.20	6.19	0.40	0.01	0.79	0.01	0.20	0.04	1.13	0.07	0.00	0.14	0.00	0.04
Autos/Pickups (visiting worker)	gasoline	200	4000	0.23	7.76	0.49	0.01	1.05	0.01	0.27	0.04	1.42	0.09	0.00	0.19	0.00	0.05
Vans	gasoline	154	4610	0.33	8.91	1.46	0.04	1.39	0.03	0.37	0.06	1.63	0.27	0.01	0.25	0.01	0.07
Single Unit Trucks	diesel	132	5293	0.40	5.12	10.39	0.13	1.96	0.12	0.54	0.07	0.93	1.90	0.02	0.36	0.02	0.10
Tractor Trailer Trucks	diesel	14	888	0.03	2.94	2.80	0.04	0.42	0.04	0.12	0.00	0.54	0.51	0.01	0.08	0.01	0.02
Buses	diesel	18	720	0.11	5.91	0.56	0.01	0.38	0.01	0.11	0.02	1.08	0.10	0.00	0.07	0.00	0.02
Total		717	18532	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:

Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Autos/Pickups (visiting worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Vans	0.024431	0.247319	0.782912	2.819141908	0.131203427	0.364355418	0.00344953	0.00112813	0.137241828	0.003249	0.001037	0.036575
Single Unit Trucks	0.03262	0.065107	0.404853	1.36394853	0.855556494	1.409818459	0.010747862	0.0001194	0.168041663	0.010273	0.00011	0.046625
Tractor Trailer Trucks	0.013932	0	1.500779	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018979	0	0.061335
Buses	0.065799	0.020052	3.70166	0.872379279	0.350904342	0.057899073	0.006694704	5.9922E-09	0.24243064	0.006401	2.18E-05	0.070975

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
metric ton	grams
1	1000000

TRU Emissions Associated with Refrigerated Trucks

Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	Emissions (lb/day)					Emissions (tons/year)				
						ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	ROG	CO	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	17.2	0.56	11,366	47	241.8	8.244	0.897	8.656	0.274	0.252	1.504	0.164	1.580	0.050	0.046
Wholesale and Storage	17.2	0.56	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	7,738	47	164.6	6.546	0.712	5.851	0.093	0.086	1.195	0.130	1.068	0.017	0.016
Wholesale and Storage	33.8	0.38	-	47	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Off-Site Emissions						**14.790**	**1.609**	**14.508**	**0.367**	**0.338**	**2.699**	**0.294**	**2.648**	**0.067**	**0.062**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	31	5	6.3	0.214	0.023	0.225	0.007	0.007	0.039	0.004	0.041	0.001	0.001
10mph	17.2	0.56	81	10	8.1	0.277	0.030	0.291	0.009	0.008	0.051	0.006	0.053	0.002	0.002
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	2.6	0.105	0.011	0.094	0.001	0.001	0.019	0.002	0.017	0.000	0.000
10mph	33.8	0.38	34	10	3.4	0.136	0.015	0.121	0.002	0.002	0.025	0.003	0.022	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	35.5	1.211	0.132	1.271	0.040	0.037	0.221	0.024	0.232	0.007	0.007
Tractor Trailer Truck	33.8	0.38	NA	NA	14.9	0.592	0.064	0.529	0.008	0.008	0.108	0.012	0.097	0.002	0.001
Total On-Site Emissions						**2.534**	**0.276**	**2.531**	**0.068**	**0.063**	**0.463**	**0.050**	**0.462**	**0.012**	**0.012**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Dav	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Dav	Idling Duration Per TRU per Dav (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	0	25%	0	0.25	0
Parcel and Last Mile Delivery	222	64%	142.08	0.25	35.52
Wholesale and Storage	0	45%	0	0.25	0
Total	222	-	142.08	0.25	35.52

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Dav	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Dav	Idling Duration Per TRU per Dav (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	0	25%	0	0.25	0
Parcel and Last Mile Delivery	93	64%	59.52	0.25	14.88
Wholesale and Storage	0	45%	0	0.25	0
Total	93	-	59.52	0.25	14.88

Table III.

	Total TRU VMT		
Land Use	**% Refrigeration B**	**TRU VMT on Single-Unit Trucks**	**TRU VMT on Tractor Trailer Trucks**
Maker and Manufacturing	25%	0	0
Parcel and Last Mile Delivery	64%	11366.4	7737.6
Wholesale and Storage	45%	0	0
Total		11366.4	7737.6

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	0	0	0	0	-
Parcel and Last Mile Delivery	37120	36720	17760	12090	**103,690**
Wholesale and Storage	0	0	0	0	-
Total Visitor VMT by Vehicle Type	**37120**	**36720**	**17760**	**12090**	**103,690**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total Activity_hpv	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

Emission Rates						
g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	

	ROG Exhaust	NOX Exhaust	CO Exhaust	PM10 Exhaust	PM2.5 Exhaust	SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Mobile Trip Data (per Adavant 05/15/2023 SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - ALT5 v4 - VMT TRIPS.pdf)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	0	0	0	0	0	0
Parcel & Last-mile Delivery	5126	0	1224	444	186	6980
Wholesale and Storage	0	0	0	0	0	0
Laboratory/&RD	-	0	-	-	-	0
General Retail	0	0	0	0	0	0
Quick Service Restaurant	0	0	0	0	0	0
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	5126	0	1224	444	186	6980
% of Total Trips	73%	0%	18%	6%	3%	100%
% of Commercial/Service Trips	N/A	N/A	66%	24%	10%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)			Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles		Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5		0	1260	0	1260	75	1185	15
SD2	6		0	2004	0	2004	126	1878	21
SD3	2		0	1560	0	1560	96	1464	48
SD4	7		0	1792	0	1792	108	1684	15
East Bay	28		0	12397	0	12397	755	11642	27
North Bay	28		0	5382	0	5382	332	5050	12
South Bay	22		0	20214	0	20214	1239	18975	56
Out of Region	65		0	4908	0	4908	290	4618	4
			0	49517	0	49517	3021	46496	199

(Non-Commuter VMT)									AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	0	-13920	0	-13920	4000	-17920	200	37120	37120
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	0	-9180	0	-9180	4610	-13790	154	36720	36720
SU Trucks	40	-7.5	0	-3330	0	-3330	5293	-8623	132	17760	17760
Tractor Trailers *	65	7.5	0	1395	0	1395	888	507	14	12090	12090
Total Non-Commuter VMT	N/A	N/A	0	-25035	0	-25035	16127	-40546		103690	103690

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

	Daily Vehilce Trips								
Trip Type	Maker & Man	Parcel & Las	Wholesale and Stor	Laboratory/&RD	General Retail	Quick Serv	Public feel	Private fleet/sta	Total
Work	0	3270	0	0	0	0	0	0	3270
Non-work	0	3710	0	0	0	0	0	0	3710
Total	0	6980	0	0	0	0	0	0	6980

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	
Autos / Pickups																										
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03	%VMT
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03	%Populatic
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	Delta
LDA	Plug-in Hybric	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03	
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03	
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03	
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	
LDT1	Plug-in Hybric	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03	
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03	
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03	
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	
LDT2	Plug-in Hybric	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03	
		Total:	7,865,720	100.00%	1,025,014	100.00%																				
				Weighted Average Emission Factors*:			0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336	
Vans																										
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02	
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02	%VMT
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02	%Populatic
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02	Delta
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02	
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02	
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03	
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03	
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03	
MDV	Plug-in Hybric	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03	
		Total:	1,436,619	100.00%	251,880	100.00%																				
				Weighted Average Emission Factors*:			0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954	
Single Unit Trucks																										
T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02	
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03	%VMT
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02	%Populatic
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03	Delta
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02	
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02	
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02	
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02	
		Total:	144,107	100.00%	47,006	100.00%																				
				Weighted Average Emission Factors*:			0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777	
Tractor Trailer Trucks																										
T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02	%VMT
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02	%Populatic
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.0014	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02	Delta
		Total:	13,619		2,531	100.00%																				
				Weighted Average Emission Factors*:			0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738	

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural Gas	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural Gas	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
		Total:	100.00%					
			Weighted Average Emission Factors*:	0.55153	11.18427	8.72778	0.01634	0.01562
Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural Gas	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
		Total:	100.00%					
			Weighted Average Emission Factors*:	3.03195	55.70336	37.07914	0.02144	0.02021

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760448	0.000868777	0.000825491	0.000759009
				Total:		27,737	100%							
					Weighted Average Emission Factors*:			0.02965	0.04312	0.67617	0.04002	0.00354	0.00473	0.00435
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760448	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
				Total:		8,426	100%							
					Weighted Average Emission Factors*:			0.05879	0.08529	1.24020	0.08857	0.00716	0.00808	0.00744
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1544878	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281077917	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
				Total:		3,645	100%							
					Weighted Average Emission Factors*:			0.19205	0.27171	0.96330	2.27137	0.02349	0.03093	0.02954
							*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.							
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
				Total:		110	100%							
					Weighted Average Emission Factors*:			0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
							*Note: Where there was no data for emissions factors at the 5mph speed bin, emissions for 10 mph were used.							

Region	Calendar Y	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
				Total:		70,774	100%							
					Weighted Average Emission Factors*:			0.02395	0.03481	0.77281	0.04333	0.00364	0.00379	0.00349
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
				Total:		26,002	100%							
					Weighted Average Emission Factors*:			0.03950	0.05725	1.17241	0.07906	0.00610	0.00537	0.00494
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482354	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99992888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
				Total:		4,287	100%							
					Weighted Average Emission Factors*:			0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
				Total:		110	100%							
					Weighted Average Emission Factors*:			0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	PM2.5 STREX	PM2.5 PMTW	PM2.5 PMBW	PM10 RUNEX	PM10 IDLEX	PM10 STREX	PM10 PMTW	PM10 PMBW	ROG RUNEX	ROG IDLEX	ROG STREX	ROG HOTSOAK	ROG RUNLOSS	ROG DIURN	TOG RUNEX	TOG IDLEX	TOG STREX	TOG HOTSOAK	TOG RUNLOSS	TOG DIURN	NHS RUNEX	CO RUNEX	CO IDLEX	CO STREX	SOx RUNEX	SOx IDLEX	SOx STREX
San Francisco	2025	LDA	Aggregate	Aggregate	Gasoline	126519	4522617	4522617	0	586607		0.039009504	0	0.251814039	0.001504246	0	0.009192971	0.002000001	0.003235916	0.001636005	0	0.002098258	0.008000002	0.009245474	0.00987364	0	0.318920933	0.091494696	0.235610625	1.385036446	0.014407592	0	0.349178278	0.091494696	0.235610625	1.385036446	0.038297666	0.766885618	0	3.198476435	0.002824107	0	0.000679646
San Francisco	2025	LDA	Aeinreads	Aeinreads	Diesel	522.922	13133.8	13133.8	0	2181.78		0.176302046	0	0	0.018752118	0	0	0.002000001	0.003316766	0.019609006	0	0	0.008000002	0.009476475	0.036491746	0	0	0	0	0	0.041543427	0	0	0	0	0	0.0031	0.471041794	0	0	0.002426018	0	0
San Francisco	2025	LDA	Aeinreads	Aeinreads	Electricity	10080.4	464806	0	464806	49586.4		0	0	0	0	0	0	0.002000001	0.002532171	0	0	0	0.008000002	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDA	Aggregate	Aggregate	Plug-in Hy	3902.38	172918	83076.9	89840.7	16116.3		0.003848369	0	0.116967433	0.000731552	0	0.003952217	0.002000001	0.00149273	0.000759329	0	0.002122414	0.008000002	0.004264643	0.001872521	0	0.175544867	0.040881342	0.036860583	0.413516449	0.002732379	0	0.192199534	0.040981342	0.036860583	0.413516449	0.020153856	0.246312279	0	1.369749453	0.001517471	0	0.000632195
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Gasoline	12873.8	389928	389928	0	57785.1		0.085478255	0	0.337317694	0.001894276	0	0.002365931	0.002000001	0.004163487	0.002060197	0	0.002573166	0.008000002	0.011895678	0.021321813	0	0.44477478	0.136491328	0.371983028	2.090419443	0.031112739	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148911458	0	4.361438201	0.00338548	0	0.000824164
San Francisco	2025	LDT1	Aeinreads	Aeinreads	Diesel	7.45932	69.5602	69.5602	0	20.6059		1.514418449	0	0	0.277392351	0	0	0.002000001	0.004787907	0.289934802	0	0	0.008000002	0.013679733	0.349198191	0	0	0	0	0	0.397538924	0	0	0	0	0	0.0031	1.604483182	0	0	0.004377097	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582	1685.29	0	1685.29	189.527		0	0	0	0	0	0	0.002000001	0.001534653	0	0	0	0.008000002	0.00438721	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	21.6866	968.111	420.519	547.591	89.6741		0.00347934	0	0.116967433	0.000468675	0	0.001373883	0.002000001	0.001492477	0.000509727	0	0.001494223	0.008000002	0.00426422	0.00169296	0	0.175544867	0.024130781	0.020405943	0.268650215	0.018243359	0.222774746	0	0.369749453	0.001372106	0	0.000670971
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Gasoline	651466.3	2247694	2247694	0	306112		0.059799627	0	0.298685343	0.003158194	0	0.001958004	0.002000001	0.004010051	0.001728393	0	0.002136595	0.008000002	0.011457289	0.011066457	0	0.345876424	0.073542105	0.188839959	1.157658403	0.016148148	0	0.378691148	0.073542195	0.188839959	1.157658403	0.017420442	0.808624799	0	1.403234452	0.003486018	0	0.000834063
San Francisco	2025	LDT2	Aggregate	Aggregate	Diesel	323.61	10956.2	10956.2	0	1519.06		0.046067349	0	0	0.005705353	0	0	0.002000001	0.004085646	0.005963323	0	0	0.008000002	0.011673273	0.022818559	0	0	0	0	0	0.025977412	0	0	0	0	0	0.0031	0.237163918	0	0	0.003243055	0	0
San Francisco	2025	LDT2	Aggregate	Aggregate	Electricity	471.006	16624.5	0	16624.5	2393.17		0	0	0	0	0	0	0.002000001	0.00152658	0	0	0	0.008000002	0.004361657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LDT2	Aeinreads	Aeinreads	Plug-in Hy	573.856	24120.1	11125.6	13194.5	2372.89		0.003664333	0	0.116967433	0.00058843	0	0.001635961	0.002000001	0.001492525	0.000639971	0	0.001779257	0.008000002	0.004264657	0.001782974	0	0.175544867	0.026394882	0.023454188	0.294961451	0.002601711	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187697	0.234581046	0	1.369749453	0.00144499	0	0.000735091
San Francisco	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.79	192265	192265	0	73401.8		0.122685523	0.035806036	0.605579514	0.001349256	0	0.000230311	0.002000001	0.027300008	0.001467439	0	0.000250485	0.008000002	0.078000022	0.030989209	0.41052157	0.147891953	0.038246673	0.199488999	2.044600648	0.045219381	0.599032111	0.161923073	0.038246673	0.199488999	2.044600648	0.044945055	0.999695839	3.763000677	1.246249344	0.00846866	0.001170284	0.000257423
San Francisco	2025	LHD1	Aggregate	Aggregate	Diesel	1645.33	74071.9	74071.9	0	20696.2		0.831542744	1.595461413	0	0.023103594	0.026842141	0	0.002000001	0.027300008	0.024364596	0.028053823	0	0.012000003	0.078000022	0.123540086	0.109759705	0	0	0	0	0.146964728	0.124954127	0	0	0	0	0.197938122	0.29875818	0.939795076	0	0.005958635	0.001193684	0
San Francisco	2025	LHD1	Aeinreads	Aeinreads	Electricity	43.1664	2971.83	0	2971.83	603.671		0	0	0	0	0	0	0.002000001	0.001365004	0	0	0	0.008000002	0.039000011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	LHD2	Aggregate	Aggregate	Gasoline	613.122	23102.5	23102.5	0	9134.6		0.136029603	0.035003514	0.602406053	0.001262585	0	0.000187914	0.002000001	0.031850009	0.001371176	0	0.000204373	0.008000002	0.091000026	0.021703682	0.401463704	0.142249981	0.037405291	0.190932946	2.01563418	0.031678717	0.585814678	0.157475824	0.037405291	0.190932946	2.01563418	0.044983621	0.809875891	3.766304422	3.210582123	0.009488786	0.001351859	0.000251199
San Francisco	2025	LHD2	Aggregate	Aggregate	Diesel	997.915	41685.4	41685.4	0	12552.5		0.779228061	1.770292562	0	0.024159339	0.026839604	0	0.002000001	0.031850009	0.025253717	0.028053172	0	0.012000003	0.091000026	0.12517659	0.109759705	0	0	0	0	0.142525225	0.124954127	0	0	0	0	0.200558839	0.299730009	0.939795076	0	0.007192983	0.001956377	0
San Francisco	2025	LHD2	Aeinreads	Aeinreads	Electricity	11.0908	725.571	0	725.571	147.075		0	0	0	0	0	0	0.002000001	0.015925005	0	0	0	0.008000002	0.045500013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Gasoline	27312.4	1051529	1051529	0	129176		0.063592069	0	0.322583185	0.00145799	0	0.001861306	0.002000001	0.003906839	0.001585692	0	0.002024126	0.008000002	0.011402398	0.013225212	0	0.386403973	0.070424599	0.199741652	1.20773186	0.016936343	0	0.423063332	0.070424599	0.199741652	1.20773186	0.017871122	0.826961861	0	3.411746556	0.004130955	0	0.000987725
San Francisco	2025	MDV	Aggregate	Aggregate	Diesel	499.07	18274.1	18274.1	0	2334.77		0.051159132	0	0	0.005623961	0	0	0.002000001	0.004134729	0.005878252	0	0	0.008000002	0.011813511	0.017898853	0	0	0	0	0	0.020376654	0	0	0	0	0	0.0031	0.341640847	0	0	0.004171945	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Electricity	501.213	17720.3	0	17720.3	2547.37		0	0	0	0	0	0	0.002000001	0.001526394	0	0	0	0.008000002	0.004361126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	MDV	Aeinreads	Aeinreads	Plug-in Hy	310.944	14184.1	6466.55	7717.59	1285.75		0.00365179	0	0.116967433	0.000615677	0	0.001720158	0.002000001	0.001490931	0.000669605	0	0.001870828	0.008000002	0.00426574	0.00177687	0	0.175544867	0.028135305	0.024062001	0.301913285	0.002592805	0	0.192199534	0.028135305	0.024062001	0.301913285	0.019147816	0.233774772	0	1.369749453	0.001440238	0	0.000896491
San Francisco	2025	T6 Instate small	Aggregate	Aggregate	Diesel	2377.53	91004.7	91004.7	0	30599.3		0.928923302	10.9135279	1.642590688	0.012273913	0.021894582	0	0.003000001	0.011610138	0.012826795	0.022884558	0	0.012000003	0.046017538	0.028845002	0.224762965	0	0	0	0	0.033837839	0.255875527	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.010863471	0.020109638	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Electricity	18.6087	818.093	0	818.093	239.015		0	0	0	0	0	0	0.003000001	0.000857978	0	0	0	0.012000003	0.023022794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T6 Instate small	Aeinreads	Aeinreads	Natural Ga	9.61267	394.858	394.858	0	124.965		0.099141052	5.227383301	0	0.001402962	0.016966693	0	0.003000001	0.011615427	0.001525849	0.018452827	0	0.012000003	0.046161219	0.0107419	0.186572035	0	0	0	0	0.767278563	13.32657393	0	0	0	0	1.06	3.185032455	33.23233081	0	0.031712422	0.042547	0
San Francisco	2025	T6TS	Aggregate	Aggregate	Gasoline	639.839	29859	29859	0	12401.7		0.394172144	0.08759075	0.423939506	0.00120628	0	0.000148125	0.003000001	0.011576104	0.001203181	0	0.000453574	0.012000003	0.04501744	0.005953055	1.017757837	0.246773062	0.03335227	0.255006237	2.505971323	0.038483358	1.485209847	0.270183251	0.03335227	0.255006237	2.505971323	0.044993097	1.143147968	15.17523512	5.169725024	0.017921799	0.005355928	0.000453328	0
San Francisco	2025	T6TS	Aeinreads	Aeinreads	Electricity	3.0393	268.351	0	268.351	60.8304		0	0	0	0	0	0	0.003000001	0.000787652	0	0	0	0.012000003	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Diesel	354.873	20200	20200	0	3342.91		1.31371039	21.58285364	3.215788223	0.016219794	0.016482284	0	0.009000003	0.028142936	0.016953181	0.017228121	0	0.03600001	0.080408388	0.012914103	1.888098178	0	0	0	0	0.014724492	2.149456051	0	0	0	0	0.219870805	0.676952119	27.07430131	0	0.015712422	0.0425474	0
San Francisco	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503	237.568	0	237.568	30.0972		0	0	0	0	0	0	0.009000003	0.01413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Single	Aeinreads	Aeinreads	Natural Ga	21.9816	1324.53	1324.53	0	207.067		0.310765714	11.69729479	0	0.001778665	0.034194864	0	0.009000003	0.028135888	0.00193446	0.037190934	0	0.03600001	0.080388252	0.015186001	0.437076083	0	0	0	0	1.084714323	31.21972024	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0
San Francisco	2025	T7 Tractor	Aeinreads	Aeinreads	Diesel	145.207	11375.8	11375.8	0	2109.86		1.555107005	40.11897128	3.925802711	0.023481872	0.015302123	0	0.009000003	0.027446676	0.023498402	0.015994017	0	0.03600001	0.078427645	0.013946176	3.454591977	0	0	0	0	0.01587666	3.932789098	0	0	0	0	0.219683645	0.678284829	50.6647472	0	0.014680828	0.078480774	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.74296	64.4874	0	64.4874	10.7952		0	0	0	0	0	0	0.009000003	0.01188109	0	0	0	0.03600001	0.039660257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	T7 Tractor	Aggregate	Aggregate	Natural Ga	28.2625	2178.71	2178.71	0	410.655		0.513115096	22.43584367	0	0.00124999	0.045974698	0	0.009000003	0.027439035	0.001359478	0.050001679	0	0.03600001	0.078397243	0.014272078	0.94017224	0	0	0	0	1.019434108	67.15515999	0	0	0	0	1.06	8.972506791	83.05506955	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Gasoline	135.576	6617.69	6617.69	0	542.305		0.026038119	0	0.421961422	0.00117838	0	0.000158696	0.00201319	0.01919871	0.001281583	0	0.000127597	0.008053156	0.001253458	0.004785929	0	0.146136388	0.033534589	0.09110026	0.37451506	0.008954433	0	0.160000955	0.033534589	0.09110026	0.37451506	0.045	0.585073312	0	6.357994444	0.00881305	0	0.000384158
San Francisco	2025	UBUS	Aggregate	Aggregate	Diesel	784.367	63648.6	63648.6	0	3137.47		0.411261165	0	0	0.007492158	0	0	0.008769949	0.038491785	0.00783092	0	0	0.035079796	0.109976529	0.07273827	0	0	0	0	0	0.082806984	0	0	0	0	0	0.22	0.084642061	0	0	0.012518461	0	0
San Francisco	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603	67.8091	0	67.8091	3.14413		0	0	0	0	0	0	0.008569131	0.033250006	0	0	0	0.034276524	0.050000016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	2025	UBUS	Aeinreads	Aeinreads	Natural Ga	67.334	5710.54	5710.54	0	269.336		0.058820057	0	0	0.000366603	0	0	0.007963942	0.038462965	0.00038318	0	0	0.031855766	0.109894184	0.05997064	0	0	0	0	0	4.244494266	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06644666	0.008217386	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.242947064	0.060487048	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.002995733	0.000975218	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.150908984	0.010142381	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.129429317	1.006979635	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.002538045	0.00058547	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.092343235	0.008688678	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.160039934	0.012660791	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.002760048	0.000759009	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.163885328	0.003111213	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.202058493	0.050687102	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.183254222	0.002930739	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.299445569	0.050815815	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.109334957	0.007947495	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.137473529	0.013771799	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274454	0.000792405	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.673849856	0.005698018	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.056936086	0.005178359	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.225477885	0.044214919	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.001571889	0.000508124	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.127105592	0.006429829	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.186607791	0.701031401	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.001327133	0.000303997	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879064	0.005473985	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.134436438	0.011048481	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.001445642	0.000394766	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.146244745	0.002310545	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.086348373	0.042054042	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.160656361	0.002170053	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.141968008	0.042692187	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.0931103	0.005011149	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.11779779	0.011431576	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00143735	0.000412087	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.497668002	0.039888068	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.309957451	0.003696949	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.586535243	0.003591998	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.741149077	0.007393932	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.446023995	0.007124619	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.332150843	0.008126013	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107158	0.005215433	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
0	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
0.00E+00	Benzene (41)	0.00E+00	0.00E+00	Carcinogen		
0.00E+00	Carbon Dioxide, non-biogenic CO2 (6960)	0.00E+00	0.00E+00		CO2	
0.00E+00	Carbon Monoxide (CO) pollutant (4990)	0.00E+00	0.00E+00		CO	
0.00E+00	Ethyl alcohol (105)	0.00E+00	0.00E+00			
0.00E+00	Formaldehyde (124)	0.00E+00	0.00E+00	Carcinogen		
0.00E+00	Methane (CH4) (6970)	0.00E+00	0.00E+00		CH4	
0.00E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	0.00E+00	0.00E+00		NOx	
0.00E+00	Nitrous Oxide (N2O) (2030)	0.00E+00	0.00E+00		N2O	
0.00E+00	Organics (other, including CH4) (990)	0.00E+00	0.00E+00		TOG	Use ratio below for ROG
0.00E+00	Particulates (part not spec elsewhere) (1990)	0.00E+00	0.00E+00		TPM	Use ratios below for PM2.5 and PM10
0.00E+00	Sulfur Dioxide (SO2) (3990)	0.00E+00	0.00E+00		SO2	
0.00E+00	Toluene (293)	0.00E+00	0.00E+00	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	0.00E+00	0.00E+00

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
0	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
0.00E+00	Benzene (41)	0.00E+00	0.00E+00	Carcinogen	
0.00E+00	Carbon Dioxide, non-biogenic CO2 (6960)	0.00E+00	0.00E+00		CO2
0.00E+00	Carbon Monoxide (CO) pollutant (4990)	0.00E+00	0.00E+00		CO
0.00E+00	Formaldehyde (124)	0.00E+00	0.00E+00	Carcinogen	
0.00E+00	Glycols (131)	0.00E+00	0.00E+00		
0.00E+00	Isopropyl alcohol (157)	0.00E+00	0.00E+00	Acute, Chronic HI	
0.00E+00	Methane (CH4) (6970)	0.00E+00	0.00E+00		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
0.00E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	0.00E+00	0.00E+00		NOx
0.00E+00	Nitrous Oxide (N2O) (2030)	0.00E+00	0.00E+00		N2O
0.00E+00	Organic liquid evap - other/not spec (201)	0.00E+00	0.00E+00		
0.00E+00	Organics (other, including CH4) (990)	0.00E+00	0.00E+00		TOG
0.00E+00	Particulates (part not spec elsewhere) (1990)	0.00E+00	0.00E+00		TPM
0.00E+00	Sulfur Dioxide (SO2) (3990)	0.00E+00	0.00E+00		SO2
0.00E+00	Toluene (293)	0.00E+00	0.00E+00	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

		PM PROFILE			OG PROFILE			
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43566	0.0009	Trimethylcyclopentanon	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45105	0.02242	Isomers Of Butylbenzen	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45202	0.003	Toluene	0.00E+00	0.00E+00	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	0.00E+00	0.00E+00	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	0.00E+00	0.00E+00	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	0.00E+00	0.00E+00	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	0.00E+00	0.00E+00	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	46753	0.0036	T-Decahydronaphthalen	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90069	0.0057	Dimethylethylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90072	0.03592999	Diethyl Propylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90083	0.02561998	Ethylmethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90090	0.003	Ethyl Propylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90098	0.0033	Tetramethylcyclopentan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90110	0.0033	Diethylmethylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90111	0.0026	Dipropylmethylcyclohexa	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90113	0.001	Pentylindenecyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90114	0.0003	Dimethylbutylcyclohexan	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	0.00E+00	0.00E+00	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98059	0.0028	cis-1,3-Dimethylcyclohex	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	0.00E+00	0.00E+00	
517	Printing evaporation loss- general	99915	0.0023	1-Methyl-2-Ethylbenzen	0.00E+00	0.00E+00	

SF Gateway - Expanded Wholesale Storage Use - 32/64 split
Operational Emissions Summary

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	34.78	1.812	1.087
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	8.88	115.23	40.256	11.791
TRUs	17.14	17.09	0.459	0.422
Total Proposed Daily Operational Emissions	***52.04***	***171.11***	***42.738***	***13.513***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	1.30	16.10	6.25	1.84
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**42.71**	**153.64**	**36.39**	**11.57**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	0.39	4.59	0.239	0.144
Stationary Sources	0.04	0.10	0.005	0.005
Mobile	1.62	21.03	7.347	2.152
TRUs	3.12	3.11	0.083	0.077
Total Proposed Annual Operational Emissions	***9.11***	***28.83***	***7.67***	***2.38***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.24	2.94	1.14	0.34
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**7.40**	**25.64**	**6.52**	**2.02**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.
1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	8.7398	34.7837	1.8123	0.0000	1.0874	0.0000	0.39	1.15	4.59	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.100312	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	6.3953	217.3919	100.6347	1.5248	38.2140	1.4472	10.1734	1.17	39.67	18.37	0.28	6.97	0.26	1.86
Mobile (activity within buildings)	2.4895	33.9226	14.5929	0.0537	0.4631	0.0505	0.1203	0.45	6.19	2.66	0.01	0.08	0.01	0.02
TRUs in-transit	14.3881	1.5654	14.3027	0.3804	0.0000	0.3502	0.0000	2.62	0.28	2.60	0.07	0.00	0.06	0.00
TRUs on-site	2.7555	0.2998	2.7837	0.0783	1.0000	0.0721	1.0000	0.50	0.05	0.51	0.01	1.00	0.01	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

	Pollutant (lb/day)			Pollutant (lb/year)			Pollutant (lb/hr)		
Landside Emissions Source	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**
Manufacturing & Maker Space TAGs	7.7619	1.0674	1.0674	782.3192	297.2617	297.2617	0.1570	0.0906	0.0906
Stationary Sources									
350 Horsepower Backup Generators (4 total)	NA	.89077	.89077	NA	.89077	.89077	NA	.89077	.89077
680 Horsepower Backup Generators (2 total)	NA	0.2112	0.2112	NA	10.5592	10.5592	NA	0.2112	0.2112

	POLICE/AF (lb/day)			POLICE/AF (lb/year)			POLICE/AF (lb/hr)		
Mobile Emissions Source	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**
Elevator Vehicle and TRU Activity (Basic Exhaust) - Elevator									
Ground Level	0.1674	0.0050	0.0297	47.6005	1.4081	6.7455	0.0219	0.0006	0.0010
2nd Floor	0.1169	0.0040	0.0214	78.5850	1.4163	7.7956	0.0178	0.0003	0.0018
3rd Floor	0.1426	0.0057	0.0249	52.0535	0.9754	5.2372	0.0135	0.0002	0.0010
4th Floor	0.0981	0.0053	0.0260	32.5330	0.1267	1.0370	0.0070	0.0001	0.0007
Elevator Vehicle and TRU Activity (Gas Exhaust Total) - Tower									
Ground Level	0.3565	0.0065	0.0332	130.1337	2.1808	12.8896	0.0297	0.0005	0.0028
2nd Floor	0.3565	0.0065	0.0332	130.1337	2.1808	12.8896	0.0297	0.0005	0.0028
3rd Floor	0.3565	0.0065	0.0332	130.1337	2.1808	12.8896	0.0297	0.0005	0.0028
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elevator Vehicle and TRU Activity (Basic Exhaust Total) - Idling									
Ground Level	0.0352	0.0025	0.0107	12.8676	0.9193	0.9407	0.0044	0.0002	0.0002
2nd Floor	0.0246	0.0019	0.0078	21.2466	0.7251	0.7251	0.0036	0.0002	0.0002
3rd Floor	0.0300	0.0024	0.0090	14.0766	0.0065	0.0065	0.0027	0.0002	0.0002
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elevator Vehicle and TRU Activity (Gas Exhaust Total) - Idling									
Ground Level	0.0465	0.0027	0.0142	16.9987	0.2723	0.8266	0.0039	0.0003	0.0010
2nd Floor	0.0320	0.0026	0.0107	12.9130	0.0768	0.4720	0.0028	0.0003	0.0031
3rd Floor	0.0390	0.0031	0.0117	12.9130	0.0768	0.4720	0.0028	0.0003	0.0031
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offsite Trips									
Autos/Pickups (bot-inbd)	0.0379	0.0000	0.0676	13.7918	0.0033	24.5150	0.0031	0.0000	0.0056
Autos/Pickups	0.1096	0.0000	0.1676	40.0150	0.0087	61.1519	0.0091	0.0000	0.0140
Vans (bot-inbd; otbd)	0.0262	0.0004	0.0158	17.1116	0.1181	29.3241	0.0035	0.0000	0.0067
Vans	0.0060	0.0001	0.0036	2.2563	0.0264	3.4307	0.0005	0.0000	0.0008
Single Unit Trucks (bot-inbd only)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Unit Trucks	0.0044459	0.0001438	0.0016233	1.2830	0.1092	0.9203	0.0005	0.0000	0.0006
Tractor Trailer Trucks	0.0000000	0.0000000	0.0000000	0.3731	0.1053	0.6833	0.0000	0.0000	0.0000
TRUs on Single Unit Trucks	0.0000000	0.0000000	0.0000000	0.0000	0.1181	0.1181	0.0000	0.0000	0.0000
TRUs on Tractor Trailer Trucks	0.0000000	0.0000000	0.0000000	0.0000	0.2503	0.2503	0.0000	0.0001	0.0001

**Note that emissions in all tables above represent total emissions for all sources on the project site.
*** Backfilline runs All electric Fan shaeff and Meadows are not included

Operational Days/Year	
Manufacturing & Maker Space TAGs	260
Stationary Sources[1]	NA
Vehicle Activity	365
Operational Hrs/Day	
Manufacturing & Maker Space TAGs	12
Stationary Sources	1
Vehicle Activity	24
Ramp Exhaust Emission by Floor[2]	Total 40%
Ground Level	0.33
2nd Floor	0.22
3rd Floor	0.45
4th Floor	0
Total Fan Exhaust Emissions by Floor[2]	Total 60%
Ground Level	0.2
2nd Floor	0.2
3rd Floor	0.2
4th Floor	0
Idling Exhaust Emissions	Total 100%
Ramps	0.1
Fans	0.9

	% Vehicle Activity Per Floor	
Floor	**Single Unit Trucks**	**Tractor Trailer Trucks[3]**
Subterranean	25%	50%
1st	25%	25%
2nd	25%	25%
3rd/Roof	25%	0%
Total	100%	100%

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 50 hours per year.
2. Percent of emissions modeled to be released through exhaust vents vs openings along the ramps on each floor is detailed in the methodology memo page 18 of 26. No tractor trailer trucks would operate on the 4th floor; these "ramp exhaust" emissions are redistributed evenly throughout the first three floors to account for 100 % of the tractor trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table IV. Mobile Emissions within HRA Domain

	Vehicle Emissions: Pollutant (lb/day)			TAC Emissions (DPM in lb/day)
Mobile Emissions Source	**ROG**[1]	**PM2.5 Exhaust**[2]	**PM2.5 Total**[3]	**PM2.5 Exhaust**[4]
On-Site Mobile Activity[5]				
Autos/Pickups	1.48759E-02	6.28761E-05	0.001660868	0
Vans	0.116697617	0.000529557	0.014319484	0
Single Unit Trucks - Idling	0.114859288	0.014166255	0.014181858	0.012108956
Single Unit Trucks	0.014650438	0.007306991	0.015380337	0.013168511
Tractor Trailer Trucks - Idling	0.011283823	0.000392771	0.000868	0.000114208
Tractor Trailer Trucks	0.001171591	0.000661998	0.007361923	0.006318855
Off-Site Worker Vehicle Trips[6]				
Autos/Pickups	0.009383756	2.13389E-05	0.118414505	0
Off-Site Visitor Vehicle Trips[6]				
Autos/Pickups (visitor worker)				
Maker and Manufacturing	0.002275402	6.62177E-07	0.002439867	0
Parcel and Last Mile Delivery	0.037796301	1.05.949E-05	0.067490229	0
Wholesale and Storage	0.013937367	3.69519E-06	0.013941421	0
General Retail / Café/Quick Service Restaurants	0.040833618	9.43E-07	0.081383951	0
Vans				
Maker and Manufacturing	0.000765151	9.15607E-06	0.00117885	0
Parcel and Last Mile Delivery	0.019239899	0.000431378	0.031589845	0
Wholesale and Storage	0.002374988	5.67679E-05	0.003713968	0
General Retail / Café/Quick Service Restaurants	0.009570406	6.49973E-06	0.006925425	0
Single Unit Trucks				
Maker and Manufacturing	0.000369777	0.000628561	0.003185277	0.001648145
Parcel and Last Mile Delivery	0.002784629	0.005098863	0.025338857	0.013169217
Wholesale and Storage	0.000436364	0.000497264	0.004185128	0.002187251
General Retail / Café/Quick Service Restaurants	4.56E-05 05	7.19366E-05	0.000595287	0
		0.014155165		
Tractor Trailer Trucks				
Maker and Manufacturing	4.67877E-06	4.71488E-05	0.000437743	0.734168.06
Parcel and Last Mile Delivery	0.000198872	0.001414495	0.007332228	0.000284529
Wholesale and Storage	0.000062372	0.000382141	0.002077966	0.000080654
General Retail / Café/Quick Service Restaurants	0	0	0	0

Notes:
1. ROG emissions from gasoline powered vehicles.
2. PM2.5 Exhaust emissions from diesel powered vehicles.
3. PM2.5 Total emissions and PM2.5 Exhaust, Tire Wear, Brake Wear, and RE entrained dust generated by mobile activity.
4. 100% of on-site mobile source emissions are counted for to serve as a proxy for the TAC modeling.
5. Percent of off-site worker vehicle trip mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average worker trip distance that would occur within the HRA modeling domain.
6. Percent of off-site visitor vehicle trip mobile emissions counted for to serve as an input to the HRA modeling is calculated based on the percentage of the average trip distance for each landuse and vehicle category that would occur within the HRA modeling domain.

Table III.a

% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Visitor Trips

Land Use Type				Tractor Trailer Trucks
Maker and Manufacturing	2.34%	2.34%	1.49%	1.63%
Parcel and Last Mile Delivery	4.05%	4.24%	2.50%	2.63%
Wholesale and Storage	2.39%	2.43%	1.49%	1.63%
General Retail / Café/QSR	3.28%	3.43%	1.68%	1.63%

Table III.b

% of Total One-way Trip Within HRA Modeline Domain per Vehicle Category for Worker Trips

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	1.48%
Parcel and Last Mile Delivery	2.38%
Wholesale and Storage	1.48%
General Retail / Café/QSR	3.27%

Table III.c.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/Pickups[1]
Maker and Manufacturing	20
Parcel and Last Mile Delivery	1503
Wholesale and Storage	1503
General Retail/QSR	573
Total Vehicle Trips	**2984**

Table III.d.

Weighted Average % one-way trip within HRA Modeline Domain.	
	1.96%

Table III.e

HRA Modeline Domain off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type				Tractor Trailer Trucks
Maker and Manufacturing	1.41	1.41	1.41	1.41
Parcel and Last Mile Delivery	1.41	1.41	1.41	0.45
Wholesale and Storage	1.41	1.41	1.41	0.45
General Retail / Café/QSR	0.45	0.45	0.45	0.45

Table III.f

Modeline Domain One-way off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	0.45
Parcel and Last Mile Delivery	0.45
Wholesale and Storage	0.45
General Retail / Café/QSR	0.45

To Confirmed with Jose Farran (Hubcarti via email (May2021 that the trip distribution on pages 21 and 22 (Figures 1 & 2) of the Jan 2020 Travel Demand Memo

Table III.g

Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type				Tractor Trailer Trucks
Maker and Manufacturing	20	20	20	20
Parcel and Last Mile Delivery	20	20	20	20
Wholesale and Storage	20	20	20	20
General Retail / Café/QSR	20	20	20	20

Table III.h

One-way off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	15.19
Parcel and Last Mile Delivery	15.19
Wholesale and Storage	15.19
General Retail / Café/QSR	9.13

1. Except for Retail/QSR, miles per trip distance estimated based on total PDR worker VMT from the SF Travel Demand Memo Page A-92 Table 4 and the total PDR trips on Page A-91 in Table 2.

Table III.i

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/Pickups[1]
Maker and Manufacturing	20
Parcel and Last Mile Delivery	1503
Wholesale and Storage	1503
General Retail/QSR	573
Total Vehicle Trips	**2984**

Table III.j

Weighted Average one-way trip distance for worker trips	
	14.84

Conversion Factors	
Grid	Notes
1190	1

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

	Total Emissions (lbs/day)			Emissions Powered Vehicle Emissions (lbs/day)			Diesel Powered Vehicle Emissions (lbs/day)		
Vehicle Category	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ RW, TW**	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ RW, TW**	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ RW, TW**
Autos/Pickups (visitor worker)									
Maker and Manufacturing	0.070997289	0.006028936	0.125268737	0.070754951	0.005608309	0.119870146	0.000221338	1.97267E-05	0.000390579
Parcel and Last Mile Delivery	0.470134826	0.039918994	0.796636307	0.468621231	0.037882659	0.759239831	0.001138196	0.000100635	0.002426266
Wholesale and Storage	0.166614787	0.013913697	0.281478642	0.166178164	0.013177496	0.267973494	0.000436622	0.000037684	0.000713759
General Retail / Café/Quick Service Restaurants	0.167649854	0.010228238	0.350912869	0.167116837	0.009267674	0.336284766	0.000480017	1.09644E-05	0.000561003
Vans									
Maker and Manufacturing	0.037756811	0.004320095	0.066380421	0.034193609	0.003902966	0.043798093	0.003577002	0.000409149	0.004582028
Parcel and Last Mile Delivery	0.254161388	0.029078459	0.457453979	0.230178553	0.026361938	0.295966554	0.023982835	0.002744521	0.030813425
Wholesale and Storage	0.216161388	0.024738459	0.299858421	0.211987977	0.024247866	0.273163826	0.02217741	0.002536723	0.026680576
General Retail / Café/Quick Service Restaurants	0.026438028	0.003018367	0.051866295	0.023935126	0.002737452	0.026363878	0.002503856	0.000286404	0.003207702
Single Unit Trucks									
Maker and Manufacturing	0.762462493	0.014337037	0.196542155	0.014143201	0.00449056	0.059599263	0.748319291	0.009847477	0.136942892
Parcel and Last Mile Delivery	0.424561562	0.130967907	0.992069968	0.093898553	0.028954723	0.219394189	0.330662709	0.101613185	0.772675779
Wholesale and Storage	0.146372261	0.419352396	0.356681463	0.13091323	0.04036621	0.343174875	0.125187031	0.345767886	1.569189487
General Retail / Café/Quick Service Restaurants	0.017693232	0.005459163	0.024669581	0.003912631	0.00120228	0.005458088	0.013779	0.004253883	0.019215173
Tractor Trailer Trucks									
Maker and Manufacturing	0.003993003	0.005459167	0.017517869	0.000641825	0.000874307	0.002825013	0.003351178	0.004584081	0.014752137
Parcel and Last Mile Delivery	0.119790099	0.163180424	0.527360707	0.019254751	0.0262292	0.084766597	0.100535148	0.136952225	0.44259411
Wholesale and Storage	0.216171201	0.311803596	1.071805503	0.034731327	0.050107706	0.172183707	0.181439787	0.261682878	0.899661356
General Retail / Café/Quick Service Restaurants	0	0	0	0	0	0	0	0	0
Total	4.436899717	1.301439113	7.296460611	2.506218377	0.692756199	3.687433343	1.930702192	0.899882984	3.608958149

Conversion Factors		
lb		Existing
1		454.59237
metric ton		Existing
1		1000000
ton		lbs
1		2000
metric ton		lbs
1		2204.623
metric ton		tons
0.907185		1

% Fleet makeup that is Diesel or Gasoline

Vehicle Category	% Diesel
Autos/Pickups	0.39%
Vans	5%
Single Unit Trucks	78%
Tractor Trailer Trucks	86%

Reflects % VMT of total Diesel + Gasoline powered vehicles and does not include electric as electric vehicles include hybrid and natural gas vehicles

% Gasoline
99.7%
95%
22%
94%

EMFAC Fleet Data:

Vehicle Category	Fuel
Aggregate	
LDA	Gasoline

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)							Emissions (tons/year)						
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_X**	**PM_{10}**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$**	**$PM_{2.5}$ BW, TW, roadway dust**
Manufacturing & Maker Space (Bakery)[1]	35000														
TACs		2.96	2.41	9.68	1.81	0	1.1	0	0.391172	0.318732	1.278338	0.23922	0	0.143532	0
Manufacturing & Maker Space (Apparel)[1]	35000														
TACs		1.43	8.74	34.78	0.72	0.00	0.69	0.00	0.188288	1.15365	4.591448	0.094823	0	0.091366	0
Maximum TACs		**2.96**	**8.74**	**34.78**	**1.81**	**0.00**	**1.09**	**0.00**	**0.39**	**1.15**	**4.59**	**0.24**	**0.00**	**0.14**	**0**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	**g/s**
287.06366	4.13E-03

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	**lb/hr**	**lb/yr**
Benzene (41)	1.33E-04	4.20E-01
Formaldehyde (124)	1.56E-03	4.94E+00
Glycols (131)	2.33E-02	7.39E+01
Isopropyl alcohol (157)	9.33E-03	2.96E+01
Toluene (293)	1.13E-04	3.57E-01
Ethyl Benzene	2.94E-05	9.32E-02
O-Xylene	1.32E-04	4.18E-01
M-Xylene	1.91E-04	6.04E-01
Chlorobenzene	2.24E-05	7.10E-02
Naphthalene	2.94E-05	9.32E-02

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	**g/s**
182.73192	3.63E-03

***Conditional formatting indicates worst-case scenario in orange.**

Operational Days Per Year: 264

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.012492068	0.21118379	0	0.211184	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	4.012492068	0.21118379	0	0.211184	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440
200KV	none	220

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
Horsepower	Kilowatt
1.359621617	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g 1.35g
kwhr 1kwh

Pollutant	Emissions Factor Source	Notes
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf
Nox	NOx CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/offrdcie/frooal.pdf Note that Tier 4 Final would be 0.4 g/kWh compared to 4.0 for Tier 3.
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*1.958371*	*78.76867*	*4.854789*	*0.158332*	*11.31923*	*0.145735*	*2.876962*	*0.357403*	*14.37528*	*0.885999*	*0.028896*	*2.065759*	*0.026597*	*0.525046*
Visitor	*4.436889*	*138.6232*	*95.77995*	*1.366506*	*26.89477*	*1.301439*	*7.296441*	*0.809732*	*25.29874*	*17.47984*	*0.249387*	*4.908295*	*0.237513*	*1.3316*
Sub-Total	6.395261	217.3919	100.6347	1.524838	38.21399	1.447174	10.1734	1.167135	39.67402	18.36584	0.278283	6.974054	0.264109	1.856646
On-Site Vehicle Activity Within Buildings	2.49	33.92256	14.59289	0.053682	0.4631	0.050455	0.120319	0.454335	6.190868	2.663202	0.009797	0.084516	0.009208	0.021958
Gross Mobile Source Emissions from Proposed Project	**8.884768**	**251.3145**	**115.2276**	**1.578521**	**38.67709**	**1.497629**	**10.29372**	**1.62147**	**45.86489**	**21.02904**	**0.28808**	**7.058569**	**0.273317**	**1.878604**
Existing Land Use Mobile Emissions	1.29593	36.84234	16.09655	0.236917	6.00896	0.225024	1.61766	0.236507	6.723727	2.93762	0.043237	1.096635	0.041067	0.295223
Net Mobile Emissions (Proposed - Existing)	**7.588838**	**214.4721**	**99.13107**	**1.341603**	**32.66813**	**1.272605**	**8.676062**	**1.384963**	**39.14116**	**18.09142**	**0.244843**	**5.961934**	**0.23225**	**1.583381**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1452	43058	1.95837138	78.7686662	4.85478873	0.158332303	11.3192257	0.145734983	2.876961817	0.357402778	14.37528158	0.88599894	0.02889565	2.06575869	0.02659663	0.52504553

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.72465272	3.1176097	0.042561792	0.25445557	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212

Operational Days Per Year:

Autos/Pickups (on-site worker)	365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	grams
1	1000000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. **Retail Worker VMT Estimate**

	Trips/Day Retail[1]
Autos/ Pickups[2]	26

Notes:
1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.
2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
106	132	9.11	1202

Table II. **Retail Trip Distance Estimate**

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips	Distance to Site (miles)[2]
SF Superdistrict 1	6				
SF Superdistrict 2	4				
SF Superdistrict 3	8				
SF Superdistrict 4	0	26	32	24%	5
East Bay	0	12	16	12%	6
North Bay	2	38	46	35%	2
South Bay	6	2	2	2%	7
Out of Region	0	2	2	2%	28
Total	26	4	6	5%	28
		22	28	21%	22
		0	0	0%	65
		106	132	100%	
		Weighted Average Retail Worker Trip Distance:			9.11

Notes:
1. Based on page A-92 Table 1 of Travel Demand Memo for Retail and QSR Land Uses
2. Based on Page A-93 Table 3.2 of Appendix F of Travel Demand Memo (page A-92).

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adava

Table III. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	1,052
Wholesale and Storage	1,632
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**2904**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10
Notes:

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Starts/Day[1]	VMT/Day[2]	Emissions (lbs/day) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Emissions (tons/year) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	777	24276	1.075296967	44.12343202	2.713762664	0.089081983	6.381753054	0.081994575	1.622024364	0.196241696	8.052526343	0.495261686	0.016257462	1.164669932	0.01496401	0.296019446
Maker and Manufacturing	45	1800	0.070997289	3.184946271	0.194142873	0.006549025	0.473189796	0.006028036	0.120268737	0.012957005	0.581252694	0.035431074	0.001195197	0.086357138	0.001100117	0.021949044
Parcel and Last Mile Delivery	298	11920	0.470159826	21.09142197	1.28565725	0.043369098	3.133567985	0.039918994	0.796446302	0.085804168	3.84918451	0.234632448	0.00791486	0.571876157	0.007285216	0.14535145
Wholesale and Storage	245	9800	0.386540797	17.34026303	1.057000088	0.035655802	2.576255558	0.032819307	0.654796456	0.070543695	3.164598003	0.192902516	0.006507184	0.470166639	0.005989524	0.119500353
General Retail / Café/Quick Service Restaurants[3]	189	756	0.147599054	2.506800738	0.176962452	0.003508058	0.198739714	0.003228238	0.050512869	0.026936827	0.457491135	0.032295648	0.000640221	0.036269998	0.000589154	0.009218599
Vans	276	16560	1.042413662	30.29836493	5.011748421	0.126623785	5.010500221	0.119234626	1.335299624	0.190240493	5.5294516	0.914644087	0.023108841	0.91441629	0.021760319	0.243692181
Maker and Manufacturing	10	600	0.037768611	1.097766845	0.181585088	0.004587818	0.181539863	0.004320095	0.048380421	0.006892771	0.200342449	0.033139279	0.000837277	0.033131025	0.000788417	0.008829427
Parcel and Last Mile Delivery	197	11820	0.744041635	21.62600685	3.577226228	0.090380021	3.576335303	0.085105874	0.953094297	0.135787598	3.946746251	0.652843787	0.016494354	0.652681193	0.015531822	0.173939709
Wholesale and Storage	62	3720	0.234165388	6.806154441	1.125827544	0.028444474	1.125547151	0.02678459	0.299958611	0.042735183	1.242123185	0.205463527	0.005191116	0.205412355	0.004888188	0.054742447
General Retail / Café/Quick Service Restaurants[3]	7	420	0.026438028	0.768436792	0.127109561	0.003211473	0.127077904	0.003024067	0.033866295	0.00482494	0.140239714	0.023197495	0.000586094	0.023191718	0.000551892	0.00618059
Single Unit Trucks	331	26480	1.951822238	24.62997742	50.97481219	0.627530205	9.810004609	0.599789964	2.721877123	0.356207558	4.494970879	9.302903225	0.114524262	1.790325841	0.109461668	0.496742575
Maker and Manufacturing	11	880	0.064864183	0.818518887	1.694026991	0.020854478	0.326012238	0.019932597	0.090455131	0.011837713	0.149379697	0.309159926	0.003805942	0.059497233	0.003637699	0.016508061
Parcel and Last Mile Delivery	72	5760	0.424565562	5.357578169	11.08817667	0.136502039	2.133898284	0.130467907	0.592069948	0.077483215	0.977758016	2.023592242	0.024911622	0.389436437	0.023810393	0.108052766
Wholesale and Storage	245	19600	1.444702261	18.23064794	37.73060117	0.464486103	7.261181659	0.443953296	2.014682463	0.263658163	3.327093249	6.885834713	0.084768714	1.325165653	0.081021477	0.367679549
General Retail / Café/Quick Service Restaurants[3]	3	240	0.017690232	0.223232424	0.462007361	0.005687585	0.088912428	0.005436163	0.024669581	0.003228467	0.040739917	0.084316343	0.001037984	0.016226518	0.0009921	0.004502199
Tractor Trailer Trucks	92	11960	0.367356303	39.57146726	37.07962476	0.52327017	5.69250898	0.500419968	1.6172395	0.067042525	7.221792775	6.767031518	0.095496806	1.038882889	0.091326644	0.295146209
Maker and Manufacturing	1	130	0.003993003	0.430124644	0.4030394	0.005687719	0.061875098	0.005439347	0.01757869	0.000728723	0.078497748	0.07355469	0.001038009	0.011292205	0.000992681	0.003208111
Parcel and Last Mile Delivery	30	3900	0.119790099	12.90373932	12.09118199	0.170631577	1.856252928	0.163180424	0.527360707	0.021861693	2.354932427	2.206640712	0.031140263	0.338766159	0.029780427	0.096243329
Wholesale and Storage	61	7930	0.243573201	26.23760329	24.58540337	0.346950873	3.774380954	0.331800196	1.072300103	0.044452109	4.788362601	4.486836115	0.063318534	0.688824524	0.060553536	0.195694769
General Retail / Café/Quick Service Restaurants[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**1476**	**79276**	**4.43688917**	**138.6232416**	**95.77994803**	**1.366506143**	**26.89476686**	**1.301439133**	**7.296440611**	**0.809732273**	**25.2987416**	**17.47984052**	**0.249387371**	**4.908294953**	**0.237512642**	**1.331600411**

Notes:
1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

Operational Days Per Year:	
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365

Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)

Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.254455574	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212
Vans	0.0244306	0.247319397	0.782912077	2.819141908	0.131203427	0.364355418	0.00344953	0.001128128	0.137241828	0.003248649	0.001037278	0.036574983
Single Unit Trucks	0.032620144	0.065106563	0.404852827	1.36394853	0.855556494	1.409818459	0.010747862	0.000119404	0.168041663	0.010272803	0.000109788	0.046624724
Tractor Trailer Trucks	0.013932276	0	1.500778898	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018978819	0	0.061335075

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1

VMT Estimates for Proposed Visitor Trips - Supllemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I. **Net Visitor VMT by Vehicle Type and Land Use[1]**

Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	11920	11820	5760	3900	**33,400**
Wholesale and Storage	9800	3720	19600	7930	**41,050**
General Retail / Café/Quick Service Restaurants[2]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**24276**	**16560**	**26480**	**11960**	**79,276**

Table II. **Total Daily Visitior Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	90	20	22	2	134
Parcel and Last Mile Delivery	596	394	144	60	1194
Wholesale and Storage	490	124	490	122	1226
General Retail / Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[1]	**1554**	**552**	**662**	**184**	2952

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10
Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use

Table III. **Total Daily Auto/Pickup Vehicle Trips by Land Use[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	178
Parcel and Last Mile Delivery	1648
Wholesale and Storage	2,122
General Retail	156
Quick Service Restaurant	354
Total Vehicle Trips[1]	**4458**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV. **Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]**

Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	1,052
Wholesale and Storage	1,632
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**2904**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter)

Table V. **Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]**

	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:
1. Page A-93, Appendis F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.6126	17.4588	1.3710	0.0209	0.3349	0.0192	0.0853	0.2943	3.1862	0.2502	0.0038	0.0611	0.0035	0.0155
Vans	0.1658	2.1247	0.2497	0.0028	0.0472	0.0026	0.0126	0.0303	0.3878	0.0456	0.0005	0.0086	0.0005	0.0023
Single Unit Trucks	0.6332	12.6136	10.7700	0.0287	0.0588	0.0274	0.0163	0.1156	2.3020	1.9655	0.0052	0.0107	0.0050	0.0030
Tractor Trailer Trucks	0.0779	1.7255	2.2021	0.0013	0.0221	0.0012	0.0063	0.0142	0.3149	0.4019	0.0002	0.0040	0.0002	0.0011
Total	2.49	33.92	14.59	0.05	0.46	0.05	0.12	0.45	6.19	2.66	0.01	0.08	0.01	0.02

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.6126	17.4588	1.3710	0.0209	0.2249	0.0192	0.0853	0.2943	3.1862	0.2502	0.0038	0.0611	0.0035	0.0155
Vans	0.1658	2.1247	0.2497	0.0028	0.0472	0.0026	0.0126	0.0303	0.3878	0.0456	0.0005	0.0086	0.0005	0.0023
Single Unit Trucks - Idling	0.5247	11.2607	9.0930	0.0190	0.0000	0.0182	0.0000	0.0958	2.0551	1.6595	0.0035	0.0000	0.0033	0.0000
Single Unit Trucks	0.1085	1.3529	1.6770	0.0097	0.0588	0.0093	0.0163	0.0198	0.2469	0.3061	0.0018	0.0107	0.0017	0.0030
Tractor Trailer Trucks - Idling	0.0702	1.2897	0.8585	0.0005	0.0000	0.0005	0.0000	0.0128	0.2354	0.1567	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks	0.0077	0.4358	1.3436	0.0008	0.0221	0.0008	0.0063	0.0014	0.0795	0.2452	0.0001	0.0040	0.0001	0.0011
Total	2.49	33.92	14.59	0.05	0.46	0.0505	0.12	0.45	6.19	2.66	0.01	0.08	0.01	0.02

Proposed Project Mobile Source Emissions

			Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5-pmh VMT/Day[2]	10-pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2229	153.47		1.5533	15.5461	1.2638	0.0115	0.0198	0.0106	0.0101	0.2835	2.8372	0.2306	0.0021	0.0073	0.0019	0.0018
Autos/Pickups - 10mph			1122.66	0.0593	1.9127	0.1073	0.0094	0.2951	0.0086	0.0795	0.0108	0.3491	0.0196	0.0017	0.0539	0.0016	0.0137
Vans - 5mph	276	40.86		0.1558	1.8271	0.2297	0.0014	0.0124	0.0013	0.0033	0.0284	0.3334	0.0419	0.0003	0.0023	0.0002	0.0006
Vans - 10mph			115.13	0.0100	0.2976	0.0201	0.0014	0.0348	0.0013	0.0093	0.0018	0.0543	0.0037	0.0002	0.0064	0.0002	0.0017
Single Unit Trucks - Idling				0.5247	11.2607	9.0930	0.0190	0.0000	0.0182	0.0000	0.0958	2.0551	1.6595	0.0035	0.0000	0.0033	0.0000
Single Unit Trucks - 5mph	331	45.70		0.0669	1.0824	1.2576	0.0032	0.0169	0.0031	0.0047	0.0122	0.1984	0.2295	0.0006	0.0031	0.0006	0.0009
Single Unit Trucks - 10mph			113.14	0.0417	0.2605	0.4194	0.0065	0.0419	0.0062	0.0116	0.0076	0.0475	0.0765	0.0012	0.0076	0.0011	0.0021
Tractor Trailer Trucks - Idling				0.0702	1.2897	0.8585	0.0005	0.0000	0.0005	0.0000	0.0128	0.2354	0.1567	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	92	13.00		0.0022	0.1219	0.8549	0.0002	0.0062	0.0002	0.0018	0.0004	0.0223	0.1560	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.46	0.0016	0.3139	0.4887	0.0006	0.0119	0.0006	0.0034	0.0010	0.0572	0.0892	0.0001	0.0029	0.0001	0.0006
Total	2928	253.03	1384.59	2.49	33.92	14.59	0.05	0.46	0.05	0.12	0.45	6.19	2.66	0.01	0.08	0.01	0.02

Notes:

1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

Operational Days Per Year:	
Autos/Pickups	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365

		Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)										
Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NO_x RunEx	NO_x StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups	5	0.020651049	0.214075231	0.676172538	3.117609703	0.0400158	0.254465557	0.004727251	0.002019879	0.119241823	0.004349256	0.0018572	0.030303721
Autos/Pickups	10	0.023951976	0.214075231	0.772812712	3.117609703	0.044333483	0.254465557	0.003791868	0.002019879	0.119241823	0.003489068	0.0018572	0.030303721
Vans	5	0.018791572	0.247319397	1.24019504	2.819141908	0.038581775	0.364355542	0.008084807	0.001128128	0.137241828	0.0074378	0.00103728	0.036574698
Vans	10	0.030499645	0.247319397	1.172414351	2.819141908	0.037065783	0.364355542	0.005371288	0.001128128	0.137241828	0.004942254	0.00103728	0.036574698
Single Unit Trucks	5	0.192047485	0.065106563	0.963295312	1.363948853	2.271368	1.409818466	0.026912078	0.000119404	0.168041663	0.029548918	0.00010979	0.046624272
Single Unit Trucks	10	0.16701127	0.065106563	1.044283493	1.363948853	1.681231123	1.409818466	0.026015214	0.000119404	0.168041663	0.02683922	0.00010979	0.046624272
Tractor Trailer Trucks	5	0.075421922	0	4.251298455	0	6.623155909	3.279178315	0.008001897	0	0.215892863	0.007621912	0	0.061131004
Tractor Trailer Trucks	10	0.075421922	0	4.251298455	0	6.623155909	3.279178315	0.008001897	0	0.215892863	0.007621912	0	0.061131004

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Year	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	662	0.1	237.99	5107.78	4124.51	8.62	8.25
Tractor Trailer Trucks	184	0.1	31.84	585.01	389.42	0.23	0.21
Total			269.83	5692.79	4513.92	8.85	8.46

Emissions for truck idling using EMFAC 2011 idling emission rates provided in g/hr-vehicle (https://www.arb.ca.gov/msei/emfac2011_idling_emission_rates.xlsx)

Emissions for TRU emissions using OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG_IDLEX	CO_IDLEX	NO_x_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	Aggregated	GAS	1.917737837	15.47225512	0.08258075	0	0
T6 Instate small	Aggregated	DSL	0.224762965	7.490448227	10.9135279	0.022884558	0.021184582
T7 Single	Aggregated	DSL	0.437076583	61.99417267	11.69728473	0.037190036	0.034434864
T7 Tractor	Aggregated	DSL	3.031955206	55.79235573	17.07914401	0.021442872	0.020721877

*Source: EMFAC 2017

			Emission Factors (g/vehicle/day-1st				
Vehicle Category	Idle--hour factor		ROG_IDLEX	CO_IDLEX	NO_x_IDLEX	PM10_IDLEX	PM2_5_IDLEX
T6TS	0.036		10.38528405	154.849216	0.892726161	0	0
T6 Instate small	0.698		2.202499646	76.43316517	111.3625386	0.233515806	0.223414162
T7 Single	0.79		0.244120983	3.481580934	13.61459228	0.028947795	0.027714681
T7 Tractor	1.46	Weighted Average	4.31396642	92.58811099	74.76464567	0.156271436	0.149511663
			2.676674675	58.15298752	25.39667398	0.053638508	0.051346447

Single Unit Trucks	% Population
T6TS GAS	24.76%
T6 Instate DSL	66.03%
T7 Set DSL	7.21%
	100.00%

*Source For T6TS and T6 Instate small, Table 4.4-9 EMFAC2017 Idle Hours for Selected Categories from CARB EMFAC2017 volume III technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf); for T7 Single and T7 Tractor, idle-hour factors updated to EMFAC2021 documentation Table 4.4.2-5, as updated data was provided for EMFAC2021 for these vehicle categories.

Conversion Factors			
lb		grams	
1		453.59237	
metric ton		grams	
	1	1000000	
ton		lbs	
	1	2000	
metric ton		lbs	
	1	2204.621	
metric ton		ton	
	0.907185	1	

On-Site Mobile
Total Internal Building VMT Estimate

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.50	5.14	15.18	0.51	**60.34**
2nd	39.75	17.75	15.18	4.75	**77.43**
3rd	39.75	17.75	15.18	4.75	**77.43**
4th/Roof	40.19	0.00	0.00	0.00	**40.19**
Total	**159.19**	**40.65**	**45.53**	**10.01**	**255.39**

Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	96.43	7.61	21.63	4.99	**211.33**
2nd	96.25	53.77	65.76	14.25	**311.39**
3rd	96.25	53.77	65.76	14.25	**370.01**
4th/Roof	969.77	1.14	0.00	0.00	**1264.19**
Total	**1158.88**	**116.18**	**113.14**	**33.48**	**0.00**

Total Daily Internal Building Vehicle Activity

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	99.00	63864.90	8603.40	25468.80	7664.90	**102202.00**
2nd	198.00	76801.02	34521.00	25468.80	7605.30	**113397.01**
3rd	198.00	76801.02	34521.00	25468.80	7605.30	**113397.01**
4th/Roof	99.00	79201.56	1914.00	0.00	0.00	**24956.64**
Total	**597.00**	**296791.50**	**69788.40**	**76806.00**	**30516.00**	**453901.65**

Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph

Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	99.00	95467.50	11369.00	32467.20	9593.70	**1469387.00**
2nd	198.00	136470.07	68571.94	73437.70	22345.31	**840181.02**
3rd	198.00	136470.07	68571.94	73437.70	22345.31	**840181.02**
4th/Roof	99.00	1150496.70	2845.14	0.00	0.00	**1491288.09**
Total	**1056.70**	**1802744.40**	**180108.08**	**180108.00**	**89043.10**	**5027708.65**

Total Daily Vehicle Activity (Trips) per Floor

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
1st/Ground	711	90	273	63	**1140**
2nd	119	255	189	63	**626**
3rd	119	255	189	63	**626**
4th/Roof	1019	0	0	0	**1914**
Total	**4488**	**855**	**885**	**184**	**8853**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.6
Curve B (m)	46.5	58.7	58.7	0

Level 4 Parking aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	178.4	170.4	173.7	173.7	178.7	170.7

*Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

Total Daily Vehicle Trips by Land Use and Vehicle Type

Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3993	-	-	-	-
Car Workers Maker and Manufacturing	95	28	22	7	152
E Workers Parcel and Last Mile Delivery	354	354	141	354	1184
Outline Workers Wholesale and Storage	496	165	496	165	1322
Retail / Café/Quick Service Restaurants	154	13	5	13	185
Total Vehicle Trips[2]	**4458**	**552**	**663**	**184**	**3686**

Source: Advant LCW 2021, SF Gateway Final Travel Demand Memo - Advant LCW 2021 12 10

% Vehicle Activity Per Floor

Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]
1st/Ground	16%	17%	41%	34%
2nd	9%	41%	23%	23%
3rd	9%	41%	29%	33%
4th/Roof	65%	1%	0%	0%
Total	100%	100%	100%	100%

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

Vehicle Type	L1	L2	L3	L4	
Total Daily Auto+Pickup	357	209	209	1455	
Total Daily Van Per Le	48	113	113	2	
Total Daily MT Per Lev	137	97	97	0	
Total Daily HT Per Lev	32	30	30	0	
	573	449	449	1457	2928

Conversion Factors		
Miles	Meters	
1	1609.34	
lb	grams	
1	453.59237	
ton	lbs	
1	2000	
metric ton	grams	
1	1000000	
metric ton	lbs	
1	2204.623	
metric ton	ton	
0.9071847	1	

Step 1 - Consider Square Feet of Uses Per Floor

Square Footage (1)	L1	L2	L3	L4	Passed Total
FOR Uses					
Manufacturing	30000			-	30000
Parcel Delivery/Last Mile		194,700	194,700	9,750	379,450
W holesale and Storage	329,700	189,850	189,850	-	709400
Retail	8,400			-	8400
Vehicle Yard		91,600	91,600	-	183200
Vehicle Circulation	15,000	112,800	95,400	17,400	239600
Parking	111,800		-	487,400	599200
Total					2168200

Source: Lic 1998 Square Footage - Table 3

*Assumed similar split as 80 with most on 1 and 13 and 5% on L4

* assumed half on around floor and split the additional 50% that is new to this Alt between L2 and L3 which now has less Parcel/Last Mile

Step 2 - Estimate # Use per Floor

Est # Per Use Per Floor	L1	L2	L3	L4	
FOR On-site W orkers	0.05	0.05	0.05	100.05	All on-site workers park rooftop
FOR Visiting W orkers					
Manufacturing	100.05	0.05	0.05	0.05	Utilize Level 1 Loaistics Yard and Parkina
Parcel Delivery/Last Mile	0.05	49.30%	49.30%	1.05	Utilize Level 2 and 3 Loaistics Yard and Parkina and small area of L4 parkina (assume autos/pickups and vans only)
W holesale and Storage	50.00%	25.00%	25.00%	0.05	Utilize Level 1, 2, and 3 Loaistics Yard and Parkina
Retail					
Retail On-site W orkers	0.05	0.05	0.05	100.05	All on-site workers park rooftop
Retail Visitors	100.05	0.05	0.05	0.05	Retail Visitors (delivery and consumer) Utilitize Ground Level Loaistics and Parkina

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickups	Van	MT	HT	Source: Dec 16 2021 Traffic Demand Memo - Table 11 and page A-79 for worker trip data
FOR	3981	538	454	184	
On-site W orkers	3993	0	0	0	
Visiting W orkers	1176	538	454	184	
Manufacturing	96	20	22	2	
Parcel Delivery/Last Mile	490	354	164	161	
Wholesale/St	590	154	490	122	
Retail/CQSR	315	14	6	0	
On-site W orkers	193	0	0	0	
Visiting W orkers/Cons	378	14	6	0	

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
FOR Auto (Incl eBuses & vans)	209	322	322	1391
FOR Auto/Pickups	168	209	209	1389
FOR Van	41	113	113	2
FOR MT	154	97	97	0
FOR HT	32	30	30	0
Retail (Incl eBuses & vans)	76	0	0	66
Retail Auto/Pickups	186	0	0	66
Retail Van	7	0	0	0
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	405	322	322	1457
Total Daily Auto/Picku	357	209	209	1455
Total Daily Van Per Lev	48	113	113	2
Total Daily MT Per Level	137	97	97	0
Total Daily HT Per Level	32	30	30	0

Existing Land Use - Mobile Source Emissions

Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	Emissions (lbs/day)							Emissions (tons/year)						
				ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.20	6.19	0.40	0.01	0.79	0.01	0.20	0.04	1.13	0.07	0.00	0.14	0.00	0.04
Autos/Pickups (visiting worker)	gasoline	200	4000	0.23	7.76	0.49	0.01	1.05	0.01	0.27	0.04	1.42	0.09	0.00	0.19	0.00	0.05
Vans	gasoline	154	4610	0.33	8.91	1.46	0.04	1.39	0.03	0.37	0.06	1.63	0.27	0.01	0.25	0.01	0.07
Single Unit Trucks	diesel	132	5293	0.40	5.12	10.39	0.13	1.96	0.12	0.54	0.07	0.93	1.90	0.02	0.36	0.02	0.10
Tractor Trailer Trucks	diesel	14	888	0.03	2.94	2.80	0.04	0.42	0.04	0.12	0.00	0.54	0.51	0.01	0.08	0.01	0.02
Buses	diesel	18	720	0.11	5.91	0.56	0.01	0.38	0.01	0.11	0.02	1.08	0.10	0.00	0.07	0.00	0.02
Total		717	18532	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:	
Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.010039	0.314075	0.724653	3.1176097	0.0425618	0.25445557	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Autos/Pickups (visiting worker)	0.010039	0.314075	0.724653	3.1176097	0.0425618	0.25445557	0.00159983	0.00201988	0.119241823	0.001473	0.001857	0.030307
Vans	0.024431	0.247319	0.782912	2.8191419	0.1312034	0.36435542	0.00344953	0.00112813	0.137241828	0.003249	0.001037	0.036575
Single Unit Trucks	0.03262	0.065107	0.404853	1.3639485	0.8555565	1.40981846	0.01074786	0.0001194	0.168041663	0.010273	0.00011	0.046625
Tractor Trailer Trucks	0.013932	0	1.500779	0	1.3810494	3.27917815	0.01984543	0	0.215892863	0.018979	0	0.061335
Buses	0.065799	0.020052	3.70166	0.8723793	0.3509043	0.05789907	0.0066947	5.9922E-09	0.24243064	0.006401	2.18E-05	0.070975

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000
metric ton	lbs
1	2204.623
metric ton	ton
0.907185	1
metric ton	grams
1	1000000

TRU Emissions Associated with Refrigerated Trucks

						Emissions (lb/day)					Emissions (tons/year)				
Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$	ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	4.7	0.160	0.017	0.168	0.005	0.005	0.021	0.002	0.022	0.001	0.001
Parcel and Last Mile Delivery	17.2	0.56	3,686	47	78.4	2.674	0.291	2.808	0.089	0.082	0.488	0.053	0.512	0.016	0.015
Wholesale and Storage	17.2	0.56	8,820	47	187.7	6.397	0.696	6.717	0.213	0.196	1.167	0.127	1.226	0.039	0.036
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	0.7	0.027	0.003	0.025	0.000	0.000	0.004	0.000	0.003	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	2,496	47	53.1	2.112	0.230	1.887	0.030	0.028	0.385	0.042	0.344	0.005	0.005
Wholesale and Storage	33.8	0.38	3,569	47	75.9	3.019	0.328	2.698	0.043	0.040	0.551	0.060	0.492	0.008	0.007
Total Off-Site Emissions						**14.388**	**1.565**	**14.303**	**0.380**	**0.350**	**2.616**	**0.285**	**2.601**	**0.069**	**0.064**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	46	5	9.1	0.312	0.034	0.327	0.010	0.010	0.057	0.006	0.060	0.002	0.002
10mph	17.2	0.56	113	10	11.3	0.386	0.042	0.405	0.013	0.012	0.070	0.008	0.074	0.002	0.002
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	2.6	0.103	0.011	0.092	0.001	0.001	0.019	0.002	0.017	0.000	0.000
10mph	33.8	0.38	33	10	3.3	0.133	0.014	0.119	0.002	0.002	0.024	0.003	0.022	0.000	0.000
TRU on-site idling															
Single-Unit Truck	17.2	0.56	NA	NA	39.8	1.356	0.148	1.424	0.045	0.042	0.247	0.027	0.260	0.008	0.008
Tractor Trailer Truck	33.8	0.38	NA	NA	11.7	0.466	0.051	0.417	0.007	0.006	0.085	0.009	0.076	0.001	0.001
Total On-Site Emissions						**2.755**	**0.300**	**2.784**	**0.078**	**0.072**	**0.503**	**0.055**	**0.508**	**0.014**	**0.013**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units
under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1.
https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:

CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
pounds per metric ton	2204.623
grams per ton:	907185
metric tons per ton:	0.907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Make	365

Single Unit Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	11	25%	2.75	0.25	0.6875
Parcel and Last Mile Delivery	72	64%	46.08	0.25	11.52
Wholesale and Storage	245	45%	110.25	0.25	27.5625
Total	328	-	159.08	0.25	39.77

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
Maker and Manufacturing	1	25%	0.25	0.25	0.0625
Parcel and Last Mile Delivery	30	64%	19.2	0.25	4.8
Wholesale and Storage	61	45%	27.45	0.25	6.8625
Total	92	-	46.9	0.25	11.725

Table III.

	Total TRU VMT		
Land Use	% Refrigeration I	TRU VMT on Single-Un	TRU VMT on Tractor Trailer Trucks
Maker and Manufacturing	25%	220	32.5
Parcel and Last Mile Delivery	64%	3686.4	2496
Wholesale and Storage	45%	8820	3568.5
Total		12726.4	6097

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total Visitor VMT by Land Use
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	11920	11820	5760	3900	**33,400**
Wholesale and Storage	9800	3720	19600	7930	**41,050**
Total Visitor VMT by Vehicle Type	**23520**	**16140**	**26240**	**11960**	**77,860**

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

TRU Emission Factors

Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total_Activity_hpy	%Activity	Total_Population	Horsepower_Hours_hhpy
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
San Francisco (SF)	2025	TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

Mobile Trip Data (per Adavant 11/28/2022 SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - ALT 1 2 3 4.pdf)

Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	1648	0	394	144	60	2246
Wholesale and Storage	2122	0	124	490	122	2858
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	4458	0	552	662	184	5856
% of Total Trips	76%	0%	9%	11%	3%	100%
% of Commercial/Service Trips	N/A	N/A	39%	47%	13%	100%

Daily VMT for PDR Use

(Worker [commuter] VMT)		**Proposed Project Land Use**						**AECOM Calculation:**
Place of Origin:	Daily Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5	40	400	630	1070	75	995	15
SD2	6	48	648	1008	1704	126	1578	21
SD3	2	44	504	775	1323	96	1227	48
SD4	7	42	574	896	1512	108	1404	15
East Bay	28	337	3983	6227	10547	755	9792	27
North Bay	28	166	1720	2663	4549	332	4217	12
South Bay	22	518	6522	10107	17147	1239	15908	56
Out of Region	65	129	1550	2325	4004	290	3714	4
		1324	15901	24631	41856	3021	38835	199

(Non-Commuter VMT)			**Proposed Project Land Use**						**AECOM Calculations:**		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-4470	9800	7130	4000	3130	200	11920	23520
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-2955	3720	1365	4610	-3245	154	11820	16140
SU Trucks	40	-7.5	880	-1080	19600	19400	5293	14107	132	5760	26240
Tractor Trailers *	65	7.5	130	450	7930	8510	888	7622	14	3900	11960
Total Non-Commuter VMT	N/A	N/A	3410	-8055	41050	36405	16127	20894		33400	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

	Daily Vehicle Trips								
Trip Type	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Laboratory/&RD	General Retail	Quick Service Restaurant	Public feel staging/ maintenance	Private fleet/staging maintenance	Total
Work	88	1052	1632	0	26	106	0	0	2904
Non-work	134	1194	1226	0	132	266	0	0	2952
Total	222	2246	2858	0	158	372	0	0	5856

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDA	Plug-in Hybric	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybric	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybric	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03
	Total:		7,865,720	100.00%	1,025,014	100.00%																			
			Weighted Average Emission Factors*:				0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336
Vans																									
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
MDV	Plug-in Hybric	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03
	Total:		1,436,619	100.00%	251,880	100.00%																			
			Weighted Average Emission Factors*:				0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954

Single Unit Trucks																							
T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02
		Total:	144,107	100.00%	47,006	100.00%																			
			Weighted Average Emission Factors*:				0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777
Tractor Trailer Trucks																									
T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00000	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.00136	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02
		Total:	13,619		2,531	100.00%																			
			Weighted Average Emission Factors*:				0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural Gas	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural Gas	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
		Total:	100.00%					
		Weighted Average Emission Factors*:		**0.55153**	**11.18427**	**8.72778**	**0.01634**	**0.01562**

Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural Gas	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
		Total:	100.00%					
		Weighted Average Emission Factors*:		**3.03195**	**55.70336**	**37.07914**	**0.02144**	**0.02021**

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBV and PMTV, mph for Speed

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
					Total:	**27,737**	100%							
					Veighted Average Emission Factors*:			**0.02965**	**0.04312**	**0.67617**	**0.04002**	**0.00354**	**0.00473**	**0.00435**
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
					Total:	**8,426**	100%							
					Veighted Average Emission Factors*:			**0.05879**	**0.08529**	**1.24020**	**0.08857**	**0.00716**	**0.00808**	**0.00744**
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1544878	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281077917	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
					Total:	**3,645**	100%							
					Veighted Average Emission Factors*:			**0.19205**	**0.27171**	**0.96330**	**2.27137**	**0.02349**	**0.03093**	**0.02954**
					**Note: Vhere there Vas no data for emissions factors at the 5mph speed bin, emissions for 10 mph Vere used.*									
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
					Veighted Average Emission Factors*:			0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762
					**Note: Vhere there Vas no data for emissions factors at the 5mph speed bin, emissions for 10 mph Vere used.*									

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
					Total:	**70,774**	100%							
					Veighted Average Emission Factors*:			**0.02395**	**0.03481**	**0.77281**	**0.04333**	**0.00364**	**0.00379**	**0.00349**
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
				Total:		**26,002**	**100%**							
					Veighted Average Emission Factors*:			**0.03950**	**0.05725**	**1.17241**	**0.07906**	**0.00610**	**0.00537**	**0.00494**
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482354	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99922888	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
			Total:			4,287	100%							
					Veighted Average Emission Factors*:			0.16701	0.23766	1.04428	1.68123	0.02176	0.02602	0.02484
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
			Total:			110	100%							
					Veighted Average Emission Factors*:			0.07542	1.09898	4.25530	6.62536	0.02144	0.00800	0.00762

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Energy Consumption	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Gasoline	126519.333	4522617.42	4522617.42	0	586607.091		0.0390995	0	0.25181404	0.00150425	0	0.00192927	0.002	0.00323592	0.001636	0	0.00209826	0.008	0.00924547	0.00987364	0	0.31892093	0.091494696	0.235610625	1.38503645	0.23561063	1.38503645	0.03629767	0.74668562	0	3.19847643	0.00282411	0	0.00067965
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Diesel	522.922379	13133.7865	13133.7865	0	2181.77523		0.17692005	0	0	0.01875212	0	0	0.002	0.00331677	0.01960001	0	0	0.008	0.00947648	0.03649175	0	0	0	0	0	0.04154343	0	0	0	0	0	0.0031	0.47104179	0	0.00242602	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Electricity	10080.3795	464806.476	0	464806.476	49586.3861		0	0	0	0	0	0	0.002	0.00153217	0	0	0	0.008	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Plug-in Hybrid	3902.37647	172917.61	83076.8757	89840.7342	16136.3267		0.00384837	0	0.11696743	0.00073155	0	0.00195222	0.002	0.00149273	0.00079563	0	0.00212321	0.008	0.00426494	0.00187252	0	0.17554487	0.040981342	0.036860583	0.41351645	0.00273238	0	0.19219953	0.040981342	0.03686058	0.41351645	0.01915386	0.24631228	0	1.36979495	0.00151747	0	0.00063233
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Gasoline	12873.7807	389927.752	389927.752	0	57785.0501		0.08547825	0	0.33731769	0.00189428	0	0.00236593	0.002	0.00416349	0.0020602	0	0.00257317	0.008	0.01189568	0.02132181	0	0.44477472	0.136491328	0.371983028	2.09041944	0.03111274	0	0.48697233	0.136491328	0.37198303	2.09041944	0.03511181	1.14891146	0	4.3614382	0.00338548	0	0.00082416
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Diesel	7.45932398	69.5601672	69.5601672	0	20.6959483		1.51441845	0	0	0.27739235	0	0	0.002	0.00478791	0.2893948	0	0	0.008	0.01136793	0.34919819	0	0	0	0	0	0.39753892	0	0	0	0	0	0.0031	1.60448318	0	0.0043771	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582389	1685.28592	0	1685.28592	189.527262		0	0	0	0	0	0	0.002	0.00153465	0	0	0	0.008	0.00438472	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Plug-in Hybrid	21.6865936	968.110693	420.519394	547.591299	89.6740645		0.00347934	0	0.11696743	0.00046867	0	0.00137388	0.002	0.00149248	0.00050973	0	0.00149422	0.008	0.00426422	0.00169296	0	0.17554487	0.024130781	0.020405943	0.26865021	0.00247036	0	0.19219953	0.024130781	0.02040594	0.26865021	0.01824359	0.22277475	0	1.36979495	0.00137211	0	0.00067097
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Gasoline	65146.2824	2247693.66	2247693.66	0	306132.183		0.05379963	0	0.29868534	0.00158919	0	0.001959	0.002	0.00401005	0.0017839	0	0.0021306	0.008	0.01145729	0.01106646	0	0.34587642	0.073542195	0.189839959	1.1576584	0.01614815	0	0.37869115	0.073542195	0.18983996	1.1576584	0.03742044	0.8036248	0	3.40324345	0.00348662	0	0.00083406
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Diesel	323.609745	10956.1882	10956.1882	0	1519.05768		0.04606735	0	0	0.00570535	0	0	0.002	0.00408565	0.00596332	0	0	0.008	0.01167327	0.02281856	0	0	0	0	0	0.02597741	0	0	0	0	0	0.0031	0.23716392	0	0	0.00324306	0	0
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Electricity	471.005854	16624.4878	0	16624.4878	2393.16628		0	0	0	0	0	0	0.002	0.00152658	0	0	0	0.008	0.00436166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Plug-in Hybrid	573.855998	24320.117	11125.6343	13194.4826	2372.89455		0.00366433	0	0.11696743	0.00058843	0	0.00163596	0.002	0.00149253	0.00063997	0	0.00177926	0.008	0.00426436	0.00178297	0	0.17554487	0.026394882	0.023454188	0.29496145	0.00260171	0	0.19219953	0.026394882	0.02345419	0.29496145	0.0191877	0.23458105	0	1.36979495	0.00144499	0	0.00073509
San Francisco (SF)	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.78621	192264.822	192264.822	0	73401.7736		0.12268552	0.03580604	0.60557951	0.00134926	0	0.00023031	0.002	0.00730001	0.00146744	0	0.00025048	0.008	0.07800002	0.03098921	0.41052157	0.14789195	0.038246673	0.199489	2.04460065	0.04521938	0.59903211	0.16192307	0.038246673	0.199489	2.04460065	0.04494506	0.99969584	3.76300068	3.24624934	0.00840866	0.00117028	0.00025742
San Francisco (SF)	2025	LHD1	Aggregate	Aggregate	Diesel	1645.33281	74071.8686	74071.8686	0	20696.2169		0.83154274	1.59546141	0	0.02331059	0.02684214	0	0.003	0.00730001	0.0243646	0.02805582	0	0.012	0.07800002	0.12354409	0.1097597	0	0	0	0.14064673	0.12495413	0	0	0	0	0.03793832	0.29875818	0.90974508	0	0.00595063	0.00119368	0
San Francisco (SF)	2025	LHD1	Aggregate	Aggregate	Electricity	43.1664454	2971.82683	0	2971.82683	603.671317		0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.03900001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LHD2	Aggregate	Aggregate	Gasoline	613.121884	23192.4794	23192.4794	0	9134.60253		0.1280296	0.03500351	0.60240605	0.00126258	0	0.00018791	0.002	0.03185001	0.00137318	0	0.00020437	0.008	0.09100003	0.02170968	0.40146273	0.14224998	0.037405291	0.190932946	2.01563418	0.03167872	0.58581348	0.15574582	0.037405291	0.19093295	2.01563418	0.04498362	0.80987589	3.76630462	3.21058212	0.00948879	0.00135186	0.0002512
San Francisco (SF)	2025	LHD2	Aggregate	Aggregate	Diesel	997.914726	41685.3797	41685.3797	0	12552.5119		0.77922806	1.77029256	0	0.02415934	0.0268396	0	0.003	0.03185001	0.02525172	0.02805317	0	0.012	0.09100003	0.12517659	0.1097597	0	0	0	0.14250523	0.12495413	0	0	0	0	0.02055884	0.29973001	0.90974508	0	0.00719298	0.00195638	0
San Francisco (SF)	2025	LHD2	Aggregate	Aggregate	Electricity	11.0908472	725.570631	0	725.570631	147.075344		0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.04550001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Gasoline	27332.362	1015528.52	1015528.52	0	129175.935		0.06359207	0	0.32258319	0.00145799	0	0.00186131	0.002	0.00399084	0.00158569	0	0.00202433	0.008	0.0114024	0.01323251	0	0.38640397	0.074243599	0.199741652	1.20717336	0.01930634	0	0.42306333	0.074243599	0.19974165	1.20717336	0.03787112	0.82696186	0	3.41174656	0.00413096	0	0.00098725
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Diesel	499.069751	18274.0881	18274.0881	0	2334.77389		0.05115913	0	0	0.00562396	0	0	0.002	0.00413473	0.00587825	0	0	0.008	0.01181351	0.01789885	0	0	0	0	0	0.02037665	0	0	0	0	0	0.0031	0.34164085	0	0	0.00417195	0	0
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Electricity	501.213001	17720.2981	0	17720.2981	2547.36694		0	0	0	0	0	0	0.002	0.00152639	0	0	0	0.008	0.00436113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Plug-in Hybrid	310.943758	14184.14	6466.55493	7717.58507	1285.75244		0.03365179	0	0.11696743	0.00061568	0	0.00172016	0.002	0.00149301	0.00060961	0	0.00187083	0.008	0.00426574	0.00177687	0	0.17554487	0.028135305	0.024062001	0.30191328	0.00259281	0	0.19219953	0.028135305	0.024062	0.30191328	0.01914782	0.23377477	0	1.36979495	0.00144004	0	0.00089649
San Francisco (SF)	2025	T6 Instate small	Aggregate	Aggregate	Diesel	2377.53308	91004.6521	91004.6521	0	30599.2555		0.9289023	10.9135279	1.64259069	0.01227191	0.02189458	0	0.003	0.03510614	0.01282679	0.02288456	0	0.012	0.0460754	0.028845	0.22476297	0	0	0	0.03283784	0.25587553	0	0	0	0	0.21541609	0.11494022	7.49044823	0	0.01086347	0.02201964	0
San Francisco (SF)	2025	T6 Instate small	Aggregate	Aggregate	Electricity	18.608706	818.093193	0	818.093193	239.01459		0	0	0	0	0	0	0.003	0.00805798	0	0	0	0.012	0.02302279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 Instate small	Aggregate	Aggregate	Natural Gas	9.61267296	394.857823	394.857823	0	124.965331		0.09914105	5.2273833	0	0.00140296	0.01696669	0	0.003	0.01615643	0.00152585	0.01845283	0	0.012	0.04616122	0.0107419	0.18657204	0	0	0	0.76727856	13.3265739	0	0	0	0	1.06	3.18503246	33.2323308	0	0	0	0
San Francisco (SF)	2025	T6TS	Aggregate	Aggregate	Gasoline	619.838854	29858.9804	29858.9804	0	12401.7358		0.39417214	0.08759075	0.42393951	0.00110628	0	0.00041612	0.003	0.0157561	0.00120318	0	0.00045257	0.012	0.04501744	0.05995306	1.01775784	0.24677106	0.03335227	0.255006237	2.50597132	0.08748336	1.48510985	0.27018325	0.03335227	0.25500624	2.50597132	0.0449911	1.24314797	15.1752351	5.16972502	0.0179218	0.00535593	0.00045333
San Francisco (SF)	2025	T6TS	Aggregate	Aggregate	Electricity	3.03930305	268.350748	0	268.350748	60.8103755		0	0	0	0	0	0	0.003	0.00787805	0	0	0	0.012	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	Aggregate	Diesel	354.873357	20199.9587	20199.9587	0	3342.90702		1.31371039	21.5828536	3.21578822	0.01621979	0.01648284	0	0.009	0.02814294	0.01695318	0.01722812	0	0.03600001	0.08040839	0.0129341	1.88809818	0	0	0	0.01472449	2.14945605	0	0	0	0	0.21987081	0.07695212	27.0743013	0	0.01571242	0.0425474	0
San Francisco (SF)	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503338	237.567686	0	237.567686	30.0972145		0	0	0	0	0	0	0.009	0.01413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	Aggregate	Natural Gas	21.9816313	1324.52677	1324.52677	0	207.066966		0.31076571	11.6972948	0	0.00177866	0.03419486	0	0.009	0.02811589	0.00193446	0.03719003	0	0.03600001	0.08038825	0.015186	0.43707608	0	0	0	1.08471432	31.2197202	0	0	0	0	1.06	6.00277088	65.9941727	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	Aggregate	Diesel	145.207283	11375.7578	11375.7578	0	2109.86182		1.555107	40.1189713	3.92580271	0.02248187	0.01530212	0	0.009	0.02744968	0.0234984	0.01599402	0	0.03600001	0.07842765	0.01394618	3.45459198	0	0	0	0.01587666	3.93279	0	0	0	0	0.21998364	0.07828483	50.6647472	0	0.01468083	0.07848077	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.7429568	64.4873927	0	64.4873927	10.7951624		0	0	0	0	0	0	0.009	0.01388109	0	0	0	0.03600001	0.03966026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	Aggregate	Natural Gas	28.2625396	2178.71014	2178.71014	0	410.654701		0.51131151	22.4358437	0	0.00124999	0.0459747	0	0.009	0.02743904	0.00135948	0.05000168	0	0.03600001	0.07839724	0.01427208	0.94017224	0	0	0	1.01943411	67.15516	0	0	0	0	1.06	8.97250679	83.0550695	0	0	0	0
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Gasoline	135.57625	6617.68771	6617.68771	0	542.305001		0.02603682	0	0.42196142	0.00117837	0	0.0001587	0.00203134	0.03193871	0.00128158	0	0.0001726	0.00805336	0.09125346	0.00476593	0	0.14613639	0.033534589	0.09110026	0.37451506	0.00695443	0	0.16000095	0.033534589	0.09110026	0.37451506	0.045	0.58507331	0	6.35779444	0.00881305	0	0.00038416
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Diesel	784.367001	63648.5826	63648.5826	0	3137.468		0.41126117	0	0	0.00749216	0	0	0.003	0.00876995	0.03849178	0.00783092	0	0	0.0350798	0.10997653	0.07273827	0	0	0	0.08280698	0	0	0	0	0	0.22	0.08464206	0	0	0.01251846	0	0
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603229	67.8090746	0	67.8090746	3.14412918		0	0	0	0	0	0	0.003	0.00856913	0.01925001	0	0	0	0.03427652	0.05500002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Natural Gas	67.3339951	5710.54326	5710.54326	0	269.13598		0.05882006	0	0	0.00036666	0	0	0.003	0.00786194	0.03846296	0.00033818	0	0	0.03185577	0.10980418	0.05997064	0	0	0	4.24449427	0	0	0	0	0	0.97	47.6718508	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUNEX	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	SOx_RUNEX	NH3_RUNEX	PM10_PMBW	PM2.5_PMBW
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.639801	8739.639801	0	0.06644666	0.008217386	0.008937157	0.053252822	0.077706393	1.243654057	0.006407956	0.036297666	0.005934447	0.002077056
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.38011785	25.38011785	0	0.242947064	0.060487048	0.063222004	0.28036965	0.319182207	4.577890502	0.0056644	0.0031	0.006082721	0.002128952
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.15664	0	11804.15664	0	0	0	0	0	0	0	0	0.001328455	0.000464959
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.439668	160.5402144	1215.899454	0.002995733	0.000975218	0.001060639	0.003083172	0.004498957	0.227121668	0.000942963	0.004649882	0.001327743	0.00046471
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.5079324	753.5079324	0	0.150908984	0.010142381	0.011030765	0.109044032	0.159116796	1.972378353	0.00763848	0.035111814	0.008465677	0.002962987
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.134420127	0.134420127	0	1.129429317	1.006979635	1.052510786	1.271040834	1.446995485	4.646631021	0.010032718	0.0031	0.009735317	0.003407361
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.79927237	0	42.79927237	0	0	0	0	0	0	0	0	0.001330607	0.000465712
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694038	0.812624128	7.411069909	0.002538045	0.00058547	0.000636752	0.002612124	0.003811605	0.19242198	0.000798897	0.004150229	0.001322982	0.000463044
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.509779	4343.509779	0	0.092343235	0.008688678	0.00944973	0.059178577	0.08635324	1.350612031	0.00795176	0.037420442	0.008153693	0.002853793
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.17206242	21.17206242	0	0.160039934	0.012660791	0.013233255	0.271791869	0.309416972	2.861570884	0.007533639	0.0031	0.0083074	0.00290759
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.1930384	0	422.1930384	0	0	0	0	0	0	0	0	0.001323608	0.000463263
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.0728926	21.4995052	178.5733874	0.002760048	0.000759009	0.000825491	0.002840608	0.004145008	0.209253207	0.000868777	0.00450717	0.001325334	0.000463867
San Francisco (SF)	2025	LHD1	Aggregate	5	Gasoline	5987.57561	5987.57561	0	0.163885328	0.003111213	0.003383728	0.09119699	0.133074434	2.182537662	0.014892352	0.044945055	0.078000022	0.027300008
San Francisco (SF)	2025	LHD1	Aggregate	5	Diesel	1550.529271	1550.529271	0	1.202058493	0.050687102	0.052978948	0.249377579	0.283899794	0.746203493	0.010879352	0.197938322	0.078000022	0.027300008
San Francisco (SF)	2025	LHD1	Aggregate	5	Electricity	80.58261108	0	80.58261108	0	0	0	0	0	0	0	0	0.039000011	0.013650004
San Francisco (SF)	2025	LHD2	Aggregate	5	Gasoline	722.2679754	722.2679754	0	0.183254222	0.002930739	0.003187446	0.068388351	0.099792121	1.679265545	0.016812128	0.044983621	0.091000026	0.031850009
San Francisco (SF)	2025	LHD2	Aggregate	5	Diesel	872.5903988	872.5903988	0	1.299445569	0.050815815	0.05311348	0.240395622	0.273674433	0.745223206	0.013080335	0.200558839	0.091000026	0.031850009
San Francisco (SF)	2025	LHD2	Aggregate	5	Electricity	17.36091405	0	17.36091405	0	0	0	0	0	0	0	0	0.045500013	0.015925005
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.004843	2032.004843	0	0.109334957	0.007947495	0.008643608	0.070020657	0.102165031	1.390117487	0.009478538	0.037871122	0.008114629	0.00284012
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.31338882	35.31338882	0	0.137473529	0.013771799	0.014394498	0.199240937	0.226822561	4.061952141	0.009210864	0.0031	0.008407202	0.002942521
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.0220744	0	450.0220744	0	0	0	0	0	0	0	0	0.001323447	0.000463206
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.9455254	12.4961622	104.4493632	0.00274454	0.000792405	0.000861813	0.002824646	0.004121717	0.20807742	0.000863895	0.004487891	0.001325461	0.000463911
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.1544878	810.1544878	0	0.673849856	0.005698018	0.006197115	0.302121193	0.440854536	2.402500187	0.038792537	0.044991097	0.061495877	0.021523557
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.281077917	0	7.281077917	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.20688	28295.20688	0	0.056936086	0.005178359	0.005631938	0.033777583	0.04928817	1.130735574	0.005205436	0.036297666	0.007339337	0.002568768
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.16994083	82.16994083	0	0.225477885	0.044214919	0.046214122	0.206120062	0.234653987	3.412073895	0.00471898	0.0031	0.007522712	0.002632949
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.46515	0	18884.46515	0	0	0	0	0	0	0	0	0.0023506	0.00082271
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.407199	519.7603888	4861.64681	0.001571889	0.000508124	0.000552631	0.001224104	0.001786209	0.113580579	0.000549004	0.003850549	0.002349291	0.000822252
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.535647	2439.535647	0	0.127105592	0.006429829	0.006993025	0.070280885	0.102553703	1.77275398	0.006204844	0.035111814	0.010532756	0.003686465
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.435194742	0.435194742	0	1.186607791	0.701031401	0.73272893	0.885063016	1.007585401	3.301696117	0.008445206	0.0031	0.012112407	0.004239342
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.47091172	0	68.47091172	0	0	0	0	0	0	0	0	0.002354408	0.000824043
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.26331655	2.630928545	29.632388	0.001327133	0.000303997	0.000330624	0.001033501	0.001508082	0.095895184	0.00046352	0.003424911	0.002340902	0.000819316
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.42255	14062.42255	0	0.07879064	0.005473985	0.005953458	0.037634146	0.054915658	1.226757895	0.006458749	0.037420442	0.010144595	0.003550608
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.54606138	68.54606138	0	0.134436438	0.011048481	0.011548044	0.203187476	0.231315432	2.141054569	0.006341565	0.0031	0.010335833	0.003617541
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.4306945	0	675.4306945	0	0	0	0	0	0	0	0	0.002342023	0.000819708
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6131955	69.60618074	714.0070147	0.001445642	0.000394766	0.000429344	0.001125789	0.001642748	0.104458268	0.00050491	0.003725716	0.00234505	0.000820767
San Francisco (SF)	2025	LHD1	Aggregate	10	Gasoline	13095.76457	13095.76457	0	0.146244745	0.002310545	0.002512928	0.0622330	0.090810321	1.701207424	0.01270639	0.044945055	0.078000022	0.027300008
San Francisco (SF)	2025	LHD1	Aggregate	10	Diesel	3968.830906	3968.830906	0	1.086348373	0.042054042	0.04395554	0.211476352	0.240751766	0.6048385	0.009464418	0.197938322	0.078000022	0.027300008
San Francisco (SF)	2025	LHD1	Aggregate	10	Electricity	185.3866055	0	185.3866055	0	0	0	0	0	0	0	0	0.039000011	0.013650004
San Francisco (SF)	2025	LHD2	Aggregate	10	Gasoline	1579.713055	1579.713055	0	0.160656361	0.002170053	0.002360131	0.045738635	0.066741708	1.357863216	0.01433836	0.044983621	0.091000026	0.031850009
San Francisco (SF)	2025	LHD2	Aggregate	10	Diesel	2233.536514	2233.536514	0	1.141968008	0.042692187	0.044622538	0.208022651	0.236819957	0.612235084	0.011405167	0.200558839	0.091000026	0.031850009
San Francisco (SF)	2025	LHD2	Aggregate	10	Electricity	41.96931284	0	41.96931284	0	0	0	0	0	0	0	0	0.045500013	0.015925005
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.760535	6578.760535	0	0.0931103	0.005011149	0.005450069	0.04463595	0.065126498	1.258739112	0.007698089	0.037871122	0.010095992	0.003533597
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.3296137	114.3296137	0	0.11779779	0.011431576	0.011948461	0.148634791	0.169210828	3.03847519	0.007822266	0.0031	0.010460003	0.003661001
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.9519998	0	719.9519998	0	0	0	0	0	0	0	0	0.002341738	0.000819608
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.0870715	40.45721595	417.6298556	0.00143735	0.000412087	0.000448183	0.001119332	0.001633326	0.103859138	0.000502014	0.003709345	0.002345262	0.000820842
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.606712	2535.606712	0	2.497668002	0.039888068	0.041691629	0.172548192	0.196432982	0.387595682	0.018832163	0.215368856	0.061495877	0.021523557
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.91289675	0	22.91289675	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.29555486	11.29555486	0	0.309957451	0.003696949	0.00402077	0.03629014	2.592152847	7.617796827	0	1.06	0.061495877	0.021523557
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.482354	1446.482354	0	0.586535243	0.003591998	0.003906625	0.191398523	0.279288275	2.120297567	0.031491387	0.044991097	0.061495877	0.021523557
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.99992888	0	12.99992888	0	0	0	0	0	0	0	0	0.030747939	0.010761779
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.3560355	239.3560355	0	5.741149077	0.007393932	0.007728253	0.067350005	0.076672854	0.647096954	0.026897591	0.219870805	0.137175535	0.048011437
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.815018601	0	2.815018601	0	0	0	0	0	0	0	0	0.068895779	0.024113523
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.69475867	15.69475867	0	1.446023995	0.007124619	0.007748673	0.078097554	5.578396745	21.73995533	0	1.06	0.137141137	0.047999398
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.10940499	92.10940499	0	7.332150843	0.008126013	0.008493436	0.073038828	0.083149146	0.745965733	0.025662703	0.219983645	0.137175407	0.048011392
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.522153817	0	0.522153817	0	0	0	0	0	0	0	0	0.069354736	0.024274158
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.64099572	17.64099572	0	3.13107158	0.005215433	0.005672259	0.090097242	6.435517297	22.70463004	0	1.06	0.137123085	0.04799308

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
3.07E+04	Carbon Dioxide, non-biogenic CO2 (6960)	2.56E+03	8.10E+06		CO2
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
4.74E-01	Methane (CH4) (6970)	3.95E-02	1.25E+02		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
5.76E-02	Nitrous Oxide (N2O) (2030)	4.80E-03	1.52E+01		N2O
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

		PM PROFILE			OG PROFILE			
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	Trimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	Isomers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	T-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	Dimethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	Diethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	Ethylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	Ethyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	Tetramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	Diethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	Dipropylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	Pentylindenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	Dimethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	

517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	ns-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	1-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

SF Gateway - Expanded Wholesale Storage Use 49/49 split

Operational Emissions Summary

Summary of Average Daily Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Daily Emissions (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	21.59	0.00	0.001	0.001
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	2.96	34.78	1.812	1.087
Stationary Sources	1.46	4.01	0.211	0.211
Mobile	9.44	112.69	42.760	12.437
TRUs	17.13	17.01	0.451	0.415
Total Proposed Daily Operational Emissions	***52.58***	***168.50***	***45.235***	***14.152***
Existing Site Operational Emissions[2]				
Area	7.88	0.00	0.00	0.00
Energy	0.15	1.38	0.10	0.10
Mobile	1.30	16.10	6.25	1.84
Total Existing Daily Operational Emissions	***9.33***	***17.48***	***6.35***	***1.95***
Net New Daily Operational Emissions	**43.25**	**151.02**	**38.88**	**12.20**
BAAQMD Thresholds of Significance	54	54	82	54
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors. Existing operational emissions modeled based on year 2023 - the proposed year for demolition of existing uses under the proposed project.

Summary of Maximum Annual Long-Term Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	Annual Emissions (tpy)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Proposed Operational Emissions[1]				
Area	3.94	0.00	0.000	0.000
Energy	0.00	0.00	0.000	0.000
Manufacturing & Maker Space Industry TACs	0.39	4.59	0.239	0.144
Stationary Sources	0.04	0.10	0.005	0.005
Mobile	1.72	20.57	7.804	2.270
TRUs	3.12	3.10	0.082	0.076
Total Proposed Annual Operational Emissions	***9.20***	***28.35***	***8.13***	***2.49***
Existing Site Operational Emissions[2]				
Area	1.44	0.00	0.00	0.00
Energy	0.03	0.25	0.02	0.02
Mobile	0.24	2.94	1.14	0.34
Total Existing Annual Operational Emissions	***1.70***	***3.19***	***1.16***	***0.36***
Net New Annual Operational Emissions	**7.50**	**25.16**	**6.97**	**2.14**
BAAQMD Thresholds of Significance	10.00	10.00	15.00	10.00
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

1. Area and Energy Sources are modeled using CalEEMod defaults for the proposed and existing land uses. , On-site Equipment and Stationary (i.e., backup generator) emissions sources are modeled outside of CalEEMod using both CalEEMod input factors and EPA emissions factors. Manufacturing & Maker Space TACs are based upon TAC profiles from existing similar land uses and the maximum potential emissions are presented for each pollutant; Mobile emissions are modeled for on-site activity and trips to/from the site based upon the project-specific VMT analysis and EMFAC 2021 emission factors.
2. Area and Energy emissions are modeled using CalEEMod for the exisitng land use at the Project site. Mobile emissions are modeled for existing mobile trips using empirical traffic data and EMFAC 2021 emission factors.

	Emissions (lbs/day)							Emissions (tons/year)						
Emissions Source	**ROG**	**CO**	**NO_X**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_X**	**PM_{10} Exhaust**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ BW, TW, roadway dust**
Proposed Operational Emissions														
Area	21.5867	0.2200	0.0020	0.0008	0.0000	0.0008	0.0000	3.94	0.02	0.00	0.00	0.00	0.00	0.00
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing & Maker Space TACs	2.9634	8.7398	34.7837	1.8123	0.0000	1.0874	0.0000	0.39	1.15	4.59	0.24	0.00	0.14	0.00
Stationary Sources	1.4637	3.6957	4.0125	0.2112	0.0000	0.2112	0.0000	0.04	0.09	0.100312	0.01	0.00	0.01	0.00
Mobile (trips to/from site)	6.8287	236.2295	98.7927	1.5376	40.6657	1.4580	10.7983	1.25	43.11	18.03	0.28	7.42	0.27	1.97
Mobile (activity within buildings)	2.6122	34.9165	13.8951	0.0538	0.5026	0.0505	0.1304	0.48	6.37	2.54	0.01	0.09	0.01	0.02
TRUs in-transit	14.4474	1.5719	14.3128	0.3760	0.0000	0.3462	0.0000	2.63	0.29	2.60	0.07	0.00	0.06	0.00
TRUs on-site	2.6804	0.2916	2.7000	0.0752	1.0000	0.0692	1.0000	0.49	0.05	0.49	0.01	1.00	0.01	1.00
Existing Site Operational Emissions														
Area	7.88	0.04	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.15	1.16	1.38	0.10	0.00	0.10	0.00	0.03	0.21	0.25	0.02	0.00	0.02	0.00
Mobile	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

HRA Emissions Summary

	Pollutant (lb/day)			Pollutant (lb/year)			Pollutant (lb/hr)		
Land Use Emissions Source	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**
Manufacturing & Maker Space TAGs	7.0628	1.0874	1.0874	792.3101	187.0637	187.0637	0.2230	0.0906	0.0906
Stationary Sources									
350 Horsepower Backup Generators (4 total)	NA	.89211	.89211	NA	89871	89871	NA	.89211	.89211
680 Horsepower Backup Generators (2 total)	NA	0.2112	0.2112	NA	10.5162	10.5162	NA	0.2112	0.2112

	PEAK DAY (lb/day)			PEAK DAY (lb/day)			PEAK DAY (lb/day)		
Mobile Emissions Source	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**	**ROG**	**PM2.5 Exhaust**	**PM2.5 Total**
Electric Vehicle and TNC Activity (Resto Exhaust) - Onsite									
Ground Level	0.1055	0.0006	0.0191	474.7606	1.8878	10.2177	0.0144	0.0006	0.0023
2nd Floor	0.1160	0.0007	0.0123	86.4157	1.1673	8.2186	0.0196	0.0009	0.0019
3rd Floor	0.1160	0.0001	0.0015	16.5838	0.8961	1.4998	0.0130	0.0002	0.0013
4th Floor	0.0975	0.0003	0.0088	15.1869	0.4787	1.2119	0.0080	0.0002	0.0007
Onsite Vehicle and TNC Activity (Non-Exhaust Total) - Transit									
Ground Level	0.0000	0.0060	0.0172	162.3994	2.1905	13.5949	0.0325	0.0005	0.0031
2nd Floor	0.0000	0.0060	0.0172	162.3994	2.1905	13.5949	0.0325	0.0005	0.0031
3rd Floor	0.0000	0.0060	0.0172	162.3994	2.1905	13.5949	0.0325	0.0005	0.0031
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Onsite Vehicle and TNC Activity (Non-Exhaust Total) - Idling									
Ground Level	0.0050	0.0005	0.0007	1.8260	0.9744	0.9869	0.0008	0.0002	0.0002
2nd Floor	0.0028	0.0003	0.0004	1.0150	0.7116	0.7221	0.0005	0.0002	0.0002
3rd Floor	0.0028	0.0003	0.0004	1.0150	0.7116	0.7221	0.0005	0.0002	0.0002
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Onsite Vehicle and TNC Activity (Non-Exhaust Total) - Idling									
Ground Level	0.0451	0.0029	0.0148	16.4569	8.3642	8.8999	0.0038	0.0019	0.0020
2nd Floor	0.0265	0.0026	0.0140	9.6400	6.9660	7.3648	0.0022	0.0013	0.0013
3rd Floor	0.0265	0.0026	0.0140	12.8265	6.4835	6.8830	0.0028	0.0014	0.0046
4th Floor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offsite Trips									
Autos/Pickups (last-mile)	0.0583	0.0000	0.1161	21.2896	0.0019	37.9962	0.0049	0.0000	0.0087
Autos/Pickups	0.1332	0.0000	0.1678	48.2060	0.0097	61.2650	0.0092	0.0000	0.0140
Vans (last-mile only)	0.0261	0.0007	0.0864	29.8412	0.2648	71.1176	0.0047	0.0006	0.0114
Vans	0.0067	0.0001	0.0073	1.7315	0.0037	2.6469	0.0006	0.0000	0.0006
Medium/Heavy Trucks (last-mile only)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Unit Trucks	0.0062	0.0000	0.0133	1.5439	1.4686	11.9610	0.0006	0.0004	0.0027
Tractor Trailer Trucks	0.0000	0.0003	0.0119	0.1191	1.9833	1.9833	0.0000	0.0000	0.0000
TRUs on Single Unit Trucks	0.0000	0.0076	0.0076	0.0000	2.7636	2.7636	0.0000	0.0006	0.0006
TRUs on Tractor Trailer Trucks	0.0000	0.0007	0.0007	0.0000	0.2716	0.2716	0.0000	0.0000	0.0001

****Note that emissions in all tables above represent total emissions for all sources on the project site.**
***** Backfire Gas 400 electric Evo doesn't exist and therefore was not included**

Operational Days/Year	
Manufacturing & Maker Space TAGs	260
Stationary Sources[1]	52
Vehicle Activity	365
Operational Hrs/Day	
Manufacturing & Maker Space TAGs	12
Stationary Sources	1
Vehicle Activity	24
Ramp Exhaust Emission by Floor[2]	Total 40%
Ground Level	0.55
2nd Floor	0.22
3rd Floor	0.08
4th Floor	0.15
Total Fan Exhaust Emissions by Floor[3]	Total 60%
Ground Level	0.2
2nd Floor	0.2
3rd Floor	0.2
4th Floor	0.4
Idling Exhaust Emissions	Total 100%
Ramps	0.1
Fans	0.9

	% Vehicle Activity Per Floor	
Floor	**Single Unit Trucks**	**Tractor Trailer Trucks[4]**
Subbasement	10%	10%
2nd	10%	10%
3rd	32%	10%
4th/Roof	3%	3%
Total	100%	100%

Notes:
1. Backup generators assumed to operate 1 hr/wk, up to 50 hours per year.
2. Percent of emissions modeled to be released through exhaust vents vs openings along the ramps as each floor is detailed in the methodology memo page 18 of 26. No tractor trailer trucks would operate on the 4th floor; these "ramp exhaust" emissions are redistributed evenly throughout the first three floors to account for 100 % of the tractor trailer truck exhaust emissions that would release through openings along the ramps.

Mobile Emissions Breakdown

Table IV. Mobile Emissions within HRA Domain

	Vehicle Emissions: Pollutant (lb/day)			TAC Emissions (DPM in lb/day)
Mobile Emissions Source	ROG[1]	PM2.5 Exhaust[2]	PM2.5 Total[3]	PM2.5 Exhaust[2]
On-Site Mobile Activity[4]				
Autos/Pickups	1.2969E-01	6.7836E-05	0.1129272	0
Vans	0.0451274	0.0001839	0.0248819	0
Single Unit Trucks - Idling	0.0001726	0.0138726	0.0138726	0.0138726
Single Unit Trucks	0.0018417	0.0002124	0.0230646	0.0195019
Tractor Trailer Trucks - Idling	0.0112363	0.0009927	0.000969	0.0009
Tractor Trailer Trucks	0.0012193	0.0006411	0.0073054	0.0053
Off-Site Worker Vehicle Trips[4]				
Autos/Pickups	0.0501802	2.2936E-05	0.1168802	0
Off-Site Visitor Vehicle Trips[4]				
Autos/Pickups (visitor worker)				
Maker and Manufacturing	0.0021754	4.6217E-07	0.0042398	0
Parcel and Last Mile Delivery	0.0058275	1.6236E-05	0.0109	0
Wholesale and Storage	0.0000547	7.6497E-06	0.0001784	0
General Retail / Café/Quick Service Restaurants	0.0045	9.1362E-07	0.0085	0
Vans				
Maker and Manufacturing	0.0007	9.1568E-06	0.0011	0
Parcel and Last Mile Delivery	0.0019	0.0006	0.0086	0
Wholesale and Storage	0.0000	1.5287E-05	0.0000	0
General Retail / Café/Quick Service Restaurants	0.0015	1.8268E-06	0.0034	0
Single Unit Trucks				
Maker and Manufacturing	0.0003	9.1568E-06	0.0011	0
Parcel and Last Mile Delivery	0.0019	0.0006	0.0086	0
Wholesale and Storage	0.0000	1.5287E-05	0.0000	0
General Retail / Café/Quick Service Restaurants	0.0015	1.8268E-06	0.0034	0
Tractor Trailer Trucks				
Maker and Manufacturing	4.2787E-06	4.7148E-05	0.0001	4.7149E-05
Parcel and Last Mile Delivery	0.0000	0.0022	0.0029	0.0022
Wholesale and Storage	1.0757E-07	0.0001	0.0002	0.0001
General Retail / Café/Quick Service Restaurants	0	0	0	0

Notes:
1. ROG emissions are those generated by gasoline powered vehicles.
2. PM2.5 Exhaust emissions are those generated by diesel powered vehicles.
3. PM2.5 Total emissions are PM2.5 Exhaust, Tire Wear, Brake Wear, and RE-entrained dust generated by mobile activity.
4. 100% of on-site mobile source emissions are counted for its service as origin to the HRA modeling.
5. Percent of off-site worker vehicle trip-mobile emissions accounted for to serve as an input to the HRA modeling is calculated based on the percentage of the average worker trip distance that would occur within the HRA modeling domain.
6. Percent of off-site visitor vehicle trip-mobile emissions counted for to serve as an input to the HRA modeling is calculated based on the percentage of the average trip distance for each land use and vehicle category that would occur within the HRA modeling domain.

Table III-a

% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category for Visitor Trips

Land Use Type	Autos/Pickups[1]	Vans	Single Unit Trucks	Tractor Trailer Trucks
Maker and Manufacturing	3.34%	3.21%	1.49%	1.49%
Parcel and Last Mile Delivery	2.04%	1.24%	2.04%	1.24%
Wholesale and Storage	1.34%	1.21%	1.34%	1.21%
General Retail / Café/QSR	3.34%	3.21%	1.49%	1.49%

Table III-b

% of Total One-way Trip Within HRA Modeling Domain per Vehicle Category For Worker Trips

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	3.34%
Parcel and Last Mile Delivery	2.04%
Wholesale and Storage	1.34%
General Retail / Café/QSR	3.34%

Table III-c.

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Autos/Pickups[2]	
Maker and Manufacturing	44
Parcel and Last Mile Delivery	1062
Wholesale and Storage	144
General Retail/QSR	733
Total Vehicle Trips[3]	**2048**

Table III-d.

Weighted Average % one-way trip within HRA Modeling Domain.	2.36%

Table III-e

Modeling Domain One-way Off-site Trip Distance per Vehicle Category for Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	14.7
Parcel and Last Mile Delivery	14.7
Wholesale and Storage	14.7
General Retail / Café/QSR	14.7

Table III-f

Off-site One-way Trip Distance per Vehicle Category for Visitor Trips (miles)

Land Use Type	Autos/Pickups[1]	Vans	Single Unit Trucks	Tractor Trailer Trucks
Maker and Manufacturing	40	40	40	40
Parcel and Last Mile Delivery	40	40	40	40
Wholesale and Storage	40	40	40	40
General Retail / Café/QSR	40	40	40	40

Table III-g

One-way Off-site Trip Distance per Vehicle Category For Worker Trips (miles)

Land Use Type	Autos/Pickups[1]
Maker and Manufacturing	14.7
Parcel and Last Mile Delivery	14.7
Wholesale and Storage	14.7
General Retail / Café/QSR	14.7

1. Except for Retail/QSR, miles per trip distance estimated based on total PDR worker VMT from the SF Travel Demand Model Page A-92 Table A and the total PDR trips on Page A-91 in Table 2.

Table III-h.

Vehicle Type and Land Use	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Autos/Pickups[2]	
Maker and Manufacturing	44
Parcel and Last Mile Delivery	1062
Wholesale and Storage	144
General Retail/QSR	733
Total Vehicle Trips[3]	**2048**

Table III-i.

Weighted Average one-way trip distance for worker trips	14.69

Conversion Factors	
lb	Existing
1	454.59237
Imperial mile	Existing
1	1609.000
ton	lbs
1	2000
metric ton	lbs
1	2204.623
Imperial mile	Km
0.907185	1

% Fleet makeup that is Diesel or Gasoline

Vehicle Category	% Diesel	% Gasoline
Autos/Pickups	0.33%	99.7%
Vans	5%	95%
Single Unit Trucks	78%	22%
Tractor Trailer Trucks	86%	14%

Reflects % VMT of total Diesel + Gasoline powered vehicles and does not include electric as electric do not contribute to total emissions.
Gasoline includes hybrid and natural gas vehicles

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

	Total Emissions (lbs/day)			Gasoline-Powered Vehicle Emissions (lbs/day)			Diesel-Powered Vehicle Emissions (lbs/day)		
Vehicle Category	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ RW, TW**	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ RW, TW**	**ROG**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ RW, TW**
Autos/Pickups (visitor worker)									
Maker and Manufacturing	0.0710	0.0060	0.1203	0.0708	0.0060	0.1199	0.0002	0.0000	0.0004
Parcel and Last Mile Delivery	0.7268	0.0616	1.2294	0.7246	0.0614	1.2254	0.0024	0.0002	0.0040
Wholesale and Storage	0.1665	0.0141	0.2817	0.1659	0.0140	0.2808	0.0005	0.0001	0.0009
General Retail / Café/Quick Service Restaurants	0.1476	0.0012	0.0505	0.1471	0.0012	0.0503	0.0005	0.0000	0.0002
Vans									
Maker and Manufacturing	0.0378	0.0043	0.0484	0.0342	0.0039	0.0438	0.0036	0.0004	0.0046
Parcel and Last Mile Delivery	1.4246	0.1598	1.8762	1.2878	0.1445	1.6963	0.1368	0.0153	0.1800
Wholesale and Storage	0.1700	0.0166	0.2177	0.1538	0.0176	0.1971	0.0161	0.0018	0.0206
General Retail / Café/Quick Service Restaurants	0.0264	0.0000	0.0039	0.0239	0.0027	0.0387	0.0025	0.0003	0.0032
Single Unit Trucks									
Maker and Manufacturing	0.7626	0.0700	0.9892	0.7143	0.0564	0.0388	0.0482	0.0136	0.9504
Parcel and Last Mile Delivery	0.6565	0.2011	0.9128	0.1468	0.0465	0.2059	0.5098	0.1547	0.7069
Wholesale and Storage	1.0501	0.3284	1.4720	0.2348	0.0757	0.3353	0.8153	0.2526	1.1368
General Retail / Café/Quick Service Restaurants	0.0177	0.0054	0.0247	0.0039	0.0012	0.0055	0.0138	0.0042	0.0192
Tractor Trailer Trucks									
Maker and Manufacturing	0.0060	0.0054	0.0176	0.0006	0.0009	0.0029	0.0054	0.0046	0.0148
Parcel and Last Mile Delivery	0.1867	0.2302	0.8086	0.0295	0.0402	0.1302	0.1542	0.2100	0.6786
Wholesale and Storage	0.1797	0.2448	0.7910	0.0288	0.0393	0.1271	0.1508	0.2054	0.6639
General Retail / Café/Quick Service Restaurants	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.7764	1.1068	7.7759	2.9347	0.4835	4.2951	1.8398	0.6643	3.4786

Manufacturing and Maker Space Maximum Emissions Calculations

		Emissions (lbs/day)							Emissions (tons/year)						
Land Use Type	**Square Footage**	**ROG**	**CO**	**NO_x**	**PM_{10}**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$**	**$PM_{2.5}$ BW, TW, roadway dust**	**ROG**	**CO**	**NO_x**	**PM_{10}**	**PM_{10} BW, TW, roadway dust**	**$PM_{2.5}$**	**$PM_{2.5}$ BW, TW, roadway dust**
Manufacturing & Maker Space (Bakery)[1]	35000														
TACs		2.96	2.41	9.68	1.81	0	1.1	0	0.391172	0.318732	1.278338	0.23922	0	0.143532	0
Manufacturing & Maker Space (Apparel)[1]	35000														
TACs		1.43	8.74	34.78	0.72	0.00	0.69	0.00	0.188288	1.15365	4.591448	0.094823	0	0.091366	0
Maximum TACs		**2.96**	**8.74**	**34.78**	**1.81**	**0.00**	**1.09**	**0.00**	**0.39**	**1.15**	**4.59**	**0.24**	**0.00**	**0.14**	**0**

[1] Emissions based upon BAAQMD emission profiles for the respective land uses.

Bakery Organic TACs

Pollutant	lb/hr	lb/yr
Benzene (41)	0.00001	0.01807
Formaldehyde (124)	0.00007	0.21306
Toluene (293)	0.00000	0.00963

Annual PM2.5 Modeling for Bakery Scenario (Worst-Case for HRA Modeling)

lb/yr	g/s
287.06366	4.13E-03

Apparel Organic TACs (Worst-Case for HRA Modeling)

Pollutant	lb/hr	lb/yr
Benzene (41)	1.33E-04	4.20E-01
Formaldehyde (124)	1.56E-03	4.94E+00
Glycols (131)	2.33E-02	7.39E+01
Isopropyl alcohol (157)	9.33E-03	2.96E+01
Toluene (293)	1.13E-04	3.57E-01
Ethyl Benzene	2.94E-05	9.32E-02
O-Xylene	1.32E-04	4.18E-01
M-Xylene	1.91E-04	6.04E-01
Chlorobenzene	2.24E-05	7.10E-02
Naphthalene	2.94E-05	9.32E-02

Annual PM2.5 Modeling for Apparel Scenario

lb/yr	g/s
182.73192	3.63E-03

***Conditional formatting indicates worst-case scenario in orange.**

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

On-Site Emergency Generator Exhaust Emissions

						Emissions (lbs/day)							Emissions (tons/year)						
Equipment Type	Horsepower	Load Factor	Hours of Operation per Day	Number of Units	Days per Year	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
400KV Backup Generator	440	0.74	1	2	50	1.46370224	3.695716379	4.01249207	0.211183793	0	0.2111838	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0
Total	-	-	-	-	-	1.46370224	3.695716379	4.01249207	0.211183793	0	0.2111838	0	0.03659	0.09239	0.10031	0.00528	0	0.00528	0

Emission factors and load power based upon CalEEMod v2020.4 modeling factors in Tables 3.4 and 3.3, respectively, for operational model year 2025.

Number of backup generators and size[1]:

Size	Number of Units	Horsepower[2]
400KV	1 per building	440

1. Project Description input.
2. HP from applicant response in 04072020 email
Note that KV is assumed to be kVA.

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000
Horsepower	Kilowatt
1.359621617	1

CalEEMod Emission Factors	Diesel Emergency Generator Emission Factors						
Power Rating (Horsepower)	TOG (lb/hp-hr)	ROG (lb/hp-hr)	CO (g/hp-hr)	NOX (g/hp-hr)	SO2 (g/hp-hr)	PM10 (g/hp-hr)	PM2.5 (g/hp-hr)
400 kV (440 hp)	0.00247	0.00225	2.574	2.795	0.005	0.15	0.15

g	1.35g
kwhr	1kwh

Pollutant	Emissions Factor Source	Notes
TOG	AP42 Table 3.3-1	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG	https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s03.pdf
CO	CO CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf
Nox	NOx CCR 2423 for engines <50 hp, CARB ATCM Final Regulation for engines >= 50 hp. Assumes NOx accounts for 95% of (NMHC+NOx).	CARB ATCM required Tier 3 by 2023, so assume Tier 3 engine: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_ATCM_12.5.18R.pdf CCR 2423 Table 1a emissions fro Tier 3:
SO2	SO2 Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 BTU/lb, Brake specific fuel consumption (BSFC) of 7000 BTU/hp-hr	
PM10	PM10 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp	
PM2.5	PM2.5 CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5	

Mobile Source Emissions - Summary

Mobile Source	Emissions (lbs/day)							Emissions (tons/year)						
	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Vehicle Trips to/from Site														
On-Site Worker	*2.05428*	*82.76031*	*5.09993*	*0.166416*	*11.89915*	*0.153175*	*3.024358*	*0.374906*	*15.10376*	*0.930737*	*0.030371*	*2.171594*	*0.027954*	*0.551945*
Visitor	*4.77441*	*153.4692*	*93.69279*	*1.371184*	*28.76655*	*1.30482*	*7.773922*	*0.87133*	*28.00812*	*17.09893*	*0.250241*	*5.249896*	*0.23813*	*1.418741*
Sub-Total	6.82869	236.2295	98.79272	1.5376	40.6657	1.457996	10.79828	1.246236	43.11188	18.02967	0.280612	7.42149	0.266084	1.970686
On-Site Vehicle Activity Within Buildings	2.61	34.91651	13.89506	0.053846	0.502552	0.050516	0.130432	0.476735	6.372262	2.535849	0.009827	0.091716	0.009219	0.023804
Gross Mobile Source Emissions from Proposed Project	**9.440938**	**271.146**	**112.6878**	**1.591446**	**41.16825**	**1.508512**	**10.92871**	**1.722971**	**49.48414**	**20.56552**	**0.290439**	**7.513206**	**0.275303**	**1.99449**
Existing Land Use Mobile Emissions	1.29593	36.84234	16.09655	0.236917	6.00896	0.225024	1.61766	0.236507	6.723727	2.93762	0.043237	1.096635	0.041067	0.295223
Net Mobile Emissions (Proposed - Existing)	**8.145008**	**234.3036**	**96.59123**	**1.354528**	**35.15929**	**1.283488**	**9.311053**	**1.486464**	**42.76041**	**17.6279**	**0.247201**	**6.416571**	**0.234236**	**1.699267**

Worker Trips - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Starts/Day[1]	VMT/Day[2]	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	gasoline	1520	45264	2.054280069	82.76031481	5.09993018	0.166415719	11.89914608	0.15317529	3.024357835	0.374906113	15.10375745	0.93073726	0.03037087	2.17159416	0.02795449	0.5519453

1. Starts per day reflect 1/2 of total trips based upon trip Rates for Maker and Manufacturing, General Retail, and QSR from Sep 2020 Travel Demand Memo page A-79, Daily Work Vehicle Trips and trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the June 2021 Trip Gen Memo Table 12 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses. One-half of the total trip starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

*Note that starts / day for worker mobile trips + starts / day for visitor mobile trips is equal to the total auto/pickup on-site starts.

2. VMT per day based on Table 12 of June 2021 Trip Gen Memo for PDR use VMT. Retail worker VMT added to this total based on weighted average trip distance from Table 3.2 and worker trip rate from Table 6, as calculated in Table III below.

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StrEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.25445557	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212

Operational Days Per Year:	
Autos/Pickups (on-site worker)	365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

VMT Estimates for Proposed Worker Trips - Suplemental Calculations for Retail/QSR Land Uses

Table I. Retail Worker VMT Estimate

	Trips/Day Retail[1]	Trips/Day Quick Service Restaurant[1]	Total Trips	Weighted Average Trip Distance	Retail Worker VMT
Autos/ Pickups[2]	26	106	132	9.11	1202

Notes:

1. Trips per day based on Trip Type on Page A-79 of the Travel Demand Memo.

2. Autos/Pickups calculated based upon total Veh Trips by Type for Automobiles minus Work trips listed in Daily Vehicle Trips.

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table II. Retail Trip Distance Estimate

Place of Trip Origin/Destination	Retail Work Vehicle Trips	Quick Service Restaurant Work Vehicle Trips	Total Trips	% Visitor Trips[1]	Distance to Site (miles)[2]
SF Superdistrict 1	6	26	32	24%	5
SF Superdistrict 2	4	12	16	12%	6
SF Superdistrict 3	8	38	46	35%	2
SF Superdistrict 4	0	2	2	2%	7
East Bay	0	2	2	2%	28
North Bay	2	4	6	5%	28
South Bay	6	22	28	21%	22
Out of Region	0	0	0	0%	65
Total	**26**	**106**	**132**	**100%**	
			Weighted Average Retail Worker Trip Distance:		**9.11**

Notes:

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Table III.

Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]	
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	1,626
Wholesale and Storage	1,194
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3040**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:

Visitor Trips - Mobile Source Emissions

Proposed Project Mobile Source Emissions

Vehicle Category	Starts/Day[1]	VMT/Day[2]	Emissions (lbs/day) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	Emissions (tons/year) ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (visiting worker)	874	28156	1.2283	50.9888	3.1322	0.1032	7.4017	0.0950	1.8813	0.2242	9.3054	0.5716	0.0188	1.3508	0.0173	0.3433
Maker and Manufacturing	45	1800	0.0710	3.1849	0.1941	0.0065	0.4732	0.0060	0.1203	0.0130	0.5813	0.0354	0.0012	0.0864	0.0011	0.0219
Parcel and Last Mile Delivery	460	18400	0.7258	32.5572	1.9846	0.0669	4.8371	0.0616	1.2294	0.1324	5.9417	0.3622	0.0122	0.8828	0.0112	0.2244
Wholesale and Storage	180	7200	0.2840	12.7398	0.7766	0.0262	1.8928	0.0241	0.4811	0.0518	2.3250	0.1417	0.0048	0.3454	0.0044	0.0878
General Retail / Café/Quick Service Restaurants[3]	189	756	0.1476	2.5068	0.1770	0.0035	0.1987	0.0032	0.0505	0.0269	0.4575	0.0323	0.0006	0.0363	0.0006	0.0092
												0.0000				
Vans	367	22020	1.3861	40.2880	6.6642	0.1684	6.6625	0.1585	1.7756	0.2530	7.3526	1.2162	0.0307	1.2159	0.0289	0.3240
Maker and Manufacturing	10	600	0.0378	1.0978	0.1816	0.0046	0.1815	0.0043	0.0484	0.0069	0.2003	0.0331	0.0008	0.0331	0.0008	0.0088
Parcel and Last Mile Delivery	305	18300	1.1519	33.4819	5.5383	0.1399	5.5370	0.1318	1.4756	0.2102	6.1104	1.0107	0.0255	1.0105	0.0240	0.2693
Wholesale and Storage	45	2700	0.1700	4.9400	0.8171	0.0206	0.8169	0.0194	0.2177	0.0310	0.9015	0.1491	0.0038	0.1491	0.0035	0.0397
General Retail / Café/Quick Service Restaurants[3]	7	420	0.0264	0.7684	0.1271	0.0032	0.1271	0.0030	0.0339	0.0048	0.1402	0.0232	0.0006	0.0232	0.0006	0.0062
										0.0000		0.0000				
Single Unit Trucks	304	24320	1.7926	22.6209	46.8167	0.5763	9.0098	0.5509	2.4999	0.3272	4.1283	8.5441	0.1052	1.6443	0.1005	0.4562
Maker and Manufacturing	11	880	0.0649	0.8185	1.6940	0.0209	0.3260	0.0199	0.0905	0.0118	0.1494	0.3092	0.0038	0.0595	0.0036	0.0165
Parcel and Last Mile Delivery	111	8880	0.6545	8.2596	17.0943	0.2104	3.2898	0.2011	0.9128	0.1195	1.5074	3.1197	0.0384	0.6004	0.0367	0.1666
Wholesale and Storage	179	14320	1.0555	13.3195	27.5664	0.3394	5.3051	0.3244	1.4720	0.1926	2.4308	5.0309	0.0619	0.9682	0.0592	0.2686
General Retail / Café/Quick Service Restaurants[3]	3	240	0.0177	0.2232	0.4620	0.0057	0.0889	0.0054	0.0247	0.0032	0.0407	0.0843	0.0010	0.0162	0.0010	0.0045
												0.0000				
Tractor Trailer Trucks	92	11960	0.3674	39.5715	37.0796	0.5233	5.6925	0.5004	1.6172	0.0670	7.2218	6.7670	0.0955	1.0389	0.0913	0.2951
Maker and Manufacturing	1	130	0.0040	0.4301	0.4030	0.0057	0.0619	0.0054	0.0176	0.0007	0.0785	0.0736	0.0010	0.0113	0.0010	0.0032
Parcel and Last Mile Delivery	46	5980	0.1837	19.7857	18.5398	0.2616	2.8463	0.2502	0.8086	0.0335	3.6109	3.3835	0.0477	0.5194	0.0457	0.1476
Wholesale and Storage	45	5850	0.1797	19.3556	18.1368	0.2559	2.7844	0.2448	0.7910	0.0328	3.5324	3.3100	0.0467	0.5081	0.0447	0.1444
General Retail / Café/Quick Service Restaurants[3]	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
												0.0000				
Total	**1637**	**86456**	**4.7744**	**153.4692**	**93.6928**	**1.3712**	**28.7666**	**1.3048**	**7.7739**	**0.8713**	**28.0081**	**17.0989**	**0.2502**	**5.2499**	**0.2381**	**1.4187**

Notes:

1. One-half of the starts would occur within the facility and are accounted for within the "On-Site Mobile" emissions estimates.

Operational Days Per Year:	
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000

Vehicle Category	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX) ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (visiting worker)	0.010039135	0.314075231	0.724652717	3.117609703	0.042561792	0.254455574	0.00159983	0.002019879	0.119241823	0.001472609	0.001857204	0.030307212
Vans	0.0244306	0.247319397	0.782912077	2.819141908	0.131203427	0.364355418	0.00344953	0.001128128	0.137241828	0.003248649	0.001037278	0.036574983
Single Unit Trucks	0.032620144	0.065106563	0.404852827	1.36394853	0.855556494	1.409818459	0.010747862	0.000119404	0.168041663	0.010272803	0.000109788	0.046624724
Trucks	0.013932276	0	1.500778898	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018978819	0	0.061335075

VMT Estimates for Proposed Visitor Trips - Supllemental Calculations for Retail/QSR and Parcel & Last Mile Delivery Land Uses

Table I.

	Net Visitor VMT by Vehicle Type and Land Use[1]				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	**Total Visitor VMT by Land Use**
Maker and Manufacturing	1800	600	880	130	**3,410**
Parcel and Last Mile Delivery	18400	18300	8880	5980	**51,560**
Wholesale and Storage	7200	2700	14320	5850	**30,070**
General Retail / Café/Quick Service Restaurants[2]	756	420	240	0	**1,416**
Total Visitor VMT by Vehicle Type	**28156**	**22020**	**24320**	**11960**	**86,456**

Table II.

	Total Daily Visitior Vehicle Trips by Land Use and Vehicle Type[1]				
Vehicle Type and Land Use	Autos/ Pickups[2]	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
Maker and Manufacturing	90	20	22	2	134
Parcel and Last Mile Delivery	920	610	222	92	1844
Wholesale and Storage	360	90	358	90	898
General Retail / Café/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[1]	**1748**	**734**	**608**	**184**	**3274**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for all vehicle categories except for Autos/Pickus are per Table 11 of Travel Demand Memo. Table 11 data for autos/pickups includes worker and visitor trips; data above for autos/pickups reflects the total visitor VMT for autos/trucks divided by the trip distance for autos / trucks.
2. Trip rate for Visitor Trips of Auto/Pickups is based upon Table 11 of Travel Demand Memo, subtracting "Work" vehicle trips for each land use type from the total Automobile Vehicle Trips by Type for each Land Use.

Table III.

	Total Daily Auto/Pickup Vehicle Trips by Land Use[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	178
Parcel and Last Mile Delivery	2546
Wholesale and Storage	1,554
General Retail	156
Quick Service Restaurant	354
Total Vehicle Trips[1]	**4788**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand M

Notes:
1. Trip Rates are per Travel Demand Memo Table 11 Total Daily Vehicle Trips by Vehicle Class and Land Use.

Table IV.

	Total Daily Work Vehicle Trips by Land Use and Vehicle Type[1]
Vehicle Type and Land Use	Autos/ Pickups[2]
Maker and Manufacturing	88
Parcel and Last Mile Delivery	1,626
Wholesale and Storage	1,194
General Retail	26
Quick Service Restaurant	106
Total Vehicle Trips[1]	**3040**

Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

Notes:
1. Trip Rates for Maker and Manufacturing, General Retail, and QSR are per Travel Demand Memo page A-79, Daily Work Vehicle Trips. Trip rates for Parcel & Last Mile Delivery and Wholesale & Storage are calculated based upon the Appendix F Table 4 Daily VMT for PDR Use, dividing total Non-Commuter VMT for Automobile vehicle category by the miles per trip to estimate total non-commuter trips and subtracting this from the Total Automobile trips for these land uses to estimate the remaining worker (commuter) trips for these land uses.

Table V.

	Gross VMT Travel Distance for Parcel and Last Mile Delivery Visitor Trips by Vehicle Type[1]			
	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks
Parcel & Last Mile Delivery Land Use	20	30	40	65

Notes:
1. Page A-93, Appendis F Table 4 of Travel Demand Memo; One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.
Source: Adavant LCW 2021, SF Gateway Final Travel Demand Memo - Adavant LCW 2021 12 10

On-Site Mobile

Proposed Project Mobile Source Emissions

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.7326	18.7680	1.4735	0.0225	0.1625	0.0207	0.0921	0.3162	3.4252	0.2689	0.0041	0.0662	0.0038	0.0168
Vans	0.2210	2.8411	0.3352	0.0038	0.0646	0.0035	0.0172	0.0403	0.5185	0.0608	0.0007	0.0118	0.0006	0.0031
Single Unit Trucks	0.5806	11.5792	9.8821	0.0262	0.0531	0.0251	0.0147	0.1060	2.1132	1.8035	0.0048	0.0097	0.0046	0.0027
Tractor Trailer Trucks	0.0780	1.7282	2.2063	0.0013	0.0222	0.0013	0.0069	0.0142	0.3154	0.4026	0.0002	0.0041	0.0002	0.0012
Total	2.61	34.92	13.90	0.05	0.50	0.05	0.11	0.48	6.37	2.54	0.01	0.09	0.01	0.02

	Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups	1.7326	18.7680	1.4735	0.0225	0.1625	0.0207	0.0921	0.3162	3.4252	0.2689	0.0041	0.0662	0.0038	0.0168
Vans	0.2210	2.8411	0.3352	0.0038	0.0646	0.0035	0.0172	0.0403	0.5185	0.0608	0.0007	0.0118	0.0006	0.0031
Single Unit Trucks - Idling	0.4819	10.3422	8.3513	0.0175	0.0000	0.0167	0.0000	0.0879	1.8874	1.5241	0.0032	0.0000	0.0030	0.0000
Single Unit Trucks	0.0988	1.2370	1.5308	0.0088	0.0531	0.0084	0.0147	0.0180	0.2257	0.2794	0.0016	0.0097	0.0015	0.0027
Tractor Trailer Trucks - Idling	0.0702	1.2897	0.8585	0.0005	0.0000	0.0005	0.0000	0.0128	0.2354	0.1567	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks	0.0078	0.4385	1.3478	0.0008	0.0222	0.0008	0.0069	0.0014	0.0800	0.2460	0.0002	0.0041	0.0001	0.0012
Total	2.61	34.92	13.90	0.05	0.50	0.0505	0.11	0.48	6.37	2.54	0.01	0.09	0.01	0.02

Proposed Project Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Starts/Day[1]	5pmh VMT/Day[2]	10pmh VMT/Day[2]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups - 5mph	2394	169.01		1.6687	16.7063	1.3579	0.0124	0.0444	0.0114	0.0113	0.3045	3.0489	0.2478	0.0023	0.0081	0.0021	0.0021
Autos/Pickups - 10mph			1210.11	0.0639	2.0617	0.1156	0.0101	0.3181	0.0093	0.0809	0.0117	0.3763	0.0211	0.0018	0.0581	0.0017	0.0148
Vans - 5mph	367	55.19		0.2073	2.4318	0.3056	0.0019	0.0167	0.0017	0.0044	0.0378	0.4438	0.0558	0.0003	0.0030	0.0003	0.0008
Vans - 10mph			158.36	0.0138	0.4093	0.0276	0.0019	0.0479	0.0017	0.0128	0.0025	0.0747	0.0050	0.0003	0.0087	0.0003	0.0023
Single Unit Trucks - Idling				0.4819	10.3422	8.3513	0.0175	0.0000	0.0167	0.0000	0.0879	1.8874	1.5241	0.0032	0.0000	0.0030	0.0000
Single Unit Trucks - 5mph	304	41.67		0.0613	1.0026	1.1535	0.0029	0.0154	0.0028	0.0043	0.0112	0.1830	0.2105	0.0005	0.0028	0.0005	0.0008
Single Unit Trucks - 10mph			101.80	0.0375	0.2344	0.3773	0.0058	0.0377	0.0056	0.0105	0.0068	0.0428	0.0689	0.0011	0.0069	0.0010	0.0019
Tractor Trailer Trucks - Idling				0.0702	1.2897	0.8585	0.0005	0.0000	0.0005	0.0000	0.0128	0.2354	0.1567	0.0001	0.0000	0.0001	0.0000
Tractor Trailer Trucks - 5mph	92	13.03		0.0022	0.1223	0.1223	0.0055	0.0002	0.0052	0.0018	0.0004	0.0223	0.1561	0.0000	0.0011	0.0000	0.0003
Tractor Trailer Trucks - 10mph			33.71	0.0056	0.3162	0.4923	0.0006	0.0160	0.0006	0.0046	0.0010	0.0577	0.0898	0.0001	0.0029	0.0001	0.0008
Total	3157	278.89	1503.97	2.61	34.92	13.90	0.05	0.50	0.05	0.11	0.48	6.37	2.54	0.01	0.09	0.01	0.02

Notes:
1. Only 1/2 of total trips are counted for starting emissions, as the vehicles would only be starting once of every two-way trip within the BAAQMD at the proposed facility.

Operational Days Per Year:	
Autos/Pickups	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365

		Emissions Factors (g/mi for RunEx, BW, TW and g/trip for STREX)										
Vehicle Category	Speed Bin	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups	5	0.02965305	0.31407523	0.676172538	3.117609703	0.040015802	0.254455576	0.00477225	0.0020199	0.1192418	0.004349256	0.001857204	0.0303072
Autos/Pickups	10	0.02395198	0.31407523	0.772812712	3.117609703	0.04319483	0.254455576	0.00379187	0.0020199	0.1192418	0.003489068	0.001857204	0.0303072
Vans	5	0.05879157	0.2473194	1.34019504	2.819141908	0.088567751	0.364355418	0.00868481	0.0011281	0.1372418	0.0074378	0.003037278	0.036575
Vans	10	0.03949965	0.2473194	1.172414351	2.819141908	0.079357831	0.364355418	0.00537129	0.0011281	0.1372418	0.004942254	0.003037278	0.036575
Single Unit Trucks	5	0.19204748	0.065160656	0.963295312	1.36394853	2.271367996	1.409818459	0.03093208	0.0001194	0.1680417	0.029540918	0.000109788	0.0466247
Single Unit Trucks	10	0.16701127	0.065160656	1.044283493	1.36394853	1.681231232	1.409818459	0.02601521	0.0001194	0.1680417	0.02483922	0.000109788	0.0466247
Tractor Trailer Trucks	5	0.07542192	0	4.255299455	0	6.625359092	3.279178154	0.0080019	0	0.2158929	0.007621912	0	0.0613351
Tractor Trailer Trucks	10	0.07542192	0	4.255299455	0	6.625359092	3.279178154	0.0080019	0	0.2158929	0.007621912	0	0.0613351

On-Site Idling:

			Emissions (g/day)				
Vehicle Category	Number of Vehicle Trips per Day	Idling Duration per Day	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
Single Unit Trucks	608	0.1	218.57	4691.13	3788.07	7.92	7.58
Tractor Trailer Trucks	184	0.1	31.84	585.01	389.42	0.23	0.21
		Total	250.42	5276.14	4177.48	8.14	7.79

Emissions for truck idling usine EMFAC 2011 idline emission rates onovided in e/hr-vehicle (https://www.arb.ca.eov/msei/emfac2011 idline emission rates.xlsx)
Emissions for TRU emissions usine OFFROAD 2017 emissions rates.

			Emission Factors (g/vehicle/day)				
Vehicle Category	Model Year	Fuel	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX
T6TS	Aggregated	GAS	1.017757837	15.17529532	0.08759075	0	0
T6 Instate small	Aanreated	DSL	0.224762065	7.490448227	10.9135275	0.02288456	0.021894582
T7 Single	Aanreated	DSL	0.437076583	65.39417267	11.65723988	0.03710503	0.034194804
T7 tractor	Aggregated	DSL	1.031945028	55.70336178	37.079144	0.02144287	0.020211877

*Source: EMFAC 2017

Vehicle Category	Idle--hour factor
T6TS	0.098
T6 Instate small	0.098
T7 Single	0.79
	-
T7 tractor	1.46

	Emission Factors (g/vehicle/idle-hr)					
	ROG IDLEX	CO IDLEX	NOx IDLEX	PM10 IDLEX	PM2 5 IDLEX	
	10.38528405	154.849338	0.89378316	0	0	
	2.299499646	76.43314517	111.362253	0.2335159	0.223414102	
	0.284510083	9.481580834	13.81455923	0.02896779	0.027714661	
Weighted Average:	4.319566442	92.58810993	74.76444947	0.15427209	0.14901165	
	2.978074675	98.15298752	25.3960674	0.01146859	0.010844456	

*Source: For T6TS and T instate small, Table 4.4-9 EMFAC2017 idle Hours for Selected Categories from CARB EMFAC2017 volume iii technical documentation (https://www.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf); for T7 Single and T7 Tractor, idle-hour factors updated to EMFAC2021 documentation Table 4.4.2-5, as updated data was provided for EMFAC2021 for these vehicle categories.

Single Unit Trucks		% Population
T6TS	GAS	26.76%
T6 instate small	DSL	66.93%
T7 Single	DSL	7.21%
	Total	100.00%

Conversion Factors	
lb	grams
1	453.59237
metric ton	grams
1	1000000
ton	lbs
1	2000

On-Site Mobile

Total Internal Buildine VMT Estimate

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 5mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	39.28	5.29	14.71	3.61	**62.88**
2nd	47.39	31.36	11.49	4.75	**94.99**
3rd	33.97	18.56	15.46	6.85	**72.84**
4th/Roof	24.45	8.96	9.09	5.95	**48.55**
Total	**144.91**	**64.16**	**50.75**	**21.16**	**279.06**

	Total Daily Vehicle Activity (Distance Travelled in Miles) per Floor at 10mph				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	55.90	7.40	20.94	4.96	**284.75**
2nd	141.91	94.09	34.47	14.25	**518.89**
3rd	101.90	55.67	46.39	14.96	**911.88**
4th/Roof	310.78	8.96	9.09	5.95	**1808.87**
Total	**1810.11**	**188.86**	**101.89**	**39.71**	**6.00**

Total Daily Internal Building Vehicle Activity

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 5 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	88.48	62821.76	8368.64	23072.48	5661.44	**100771.33**
2nd	126.38	74128.93	49476.71	18450.82	7002.66	**152759.21**
3rd	126.38	54954.75	29864.47	24890.64	7809.26	**117225.52**
4th/Roof	25.09	77972.62	191.86	0.00	0.00	**78279.48**
Total	**367.33**	**271869.08**	**88815.08**	**67056.93**	**20472.68**	**448853.54**

		Total Daily Vehicle Activity (Distance Travelled in meters) per Floor at 10 mph				
Floor	Distance per Trip per Floor (meters)	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	127.38	89964.00	11968.90	33085.70	7926.50	**143396.70**
2nd	226.48	226196.43	151438.13	55472.47	22944.53	**455877.68**
3rd	376.88	163894.20	88584.02	74059.92	23427.77	**351076.97**
4th/Roof	481.98	149338.45	1931.94	0.00	0.00	**151270.39**
Total	**1868.70**	**#######**	**#######**	**#######**	**#######**	**#######**

	Total Daily Vehicle Activity (Trips) per Floor				
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks[1]	Total
1st/Ground	786	86	264	81	**1125**
2nd	603	498	147	61	**1310**
3rd	433	227	197	61	**888**
4th/Roof	3846	4	0	0	**3850**
Total	**4788**	**794**	**608**	**184**	**6814**

Gateway Center Distribution Ramp Lengths

Vehicles within distribution center will travel along straight or curved ramp segments. These can be flat or inclinded.
Both building A and B have identical layouts (just rotated), so the numbers below are applicable to each building.
Ramp includes and Straights assumed to be travelled at 10mph, as well as Level 4 Parking Aisles.
Ramp curves assumed to be travelled at 5mph.

Ramp Inclines	Length (m)	Levels
Straight UP	127.5	1, 2, 3
Straight DOWN	123.6	4, 3, 2

Ramp Levels	L1	L2	L3	L4
Straight (m)	0	127.5	127.5	0
Curve A (m)	43.1	67.5	67.5	25.6
Curve B (m)	46.5	0	58.7	0

Level 4 Parkine aisles	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
Straight (m)	174.4	178	170.4	171.7	178.7	170.7

*Assumed that each vehicle that is active on Level 4 would traverse one aisle start to end and then return; used maximum row distance to conservatively estimate distance per trip.

UPDATED TRIP RATES IN THIS TABLE - SEE NOTES 1 AND 2 BELOW TABLE

	Total Daily Vehicle Trips by Land Use and Vehicle Type				
Vehicle Type and Land Use	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer Trucks	Total
On-site workers	3040	-	-	-	-
Hues Maker and Manufacturing	98	30	22	3	154
on Parcel and Last Mile Delivery	920	610	222	92	1844
Workers Wholesale and Storage	360	90	338	90	888
Cafe/Quick Service Restaurants	378	14	6	0	398
Total Vehicle Trips[2]	**4788**	**734**	**608**	**184**	**6814**

Source: Adavant ICW 2021, SF Gateway Final Travel Demand Memo - Adavant ICW 2021 12 10

	% Vehicle Activity Per Floor			
Floor	Autos/ Pickups	Vans	Single Unit Trucks	Tractor Trailer
1st/Ground	15%	13%	43%	33%
2nd	13%	54%	24%	33%
3rd	9%	12%	32%	34%
4th/Roof	64%	1%	0%	0%
Total	100%	100%	100%	100%

Notes:
1. On-site worker trips are per updated page A-79 of Travel Demand Memo in Mobile Trip Data Tab
2. All other trip rates are per Table 11 in Travel Demand Memo.

Vehicle Type	L1	L2	L3	L4
Total Daily Auto/Pickup Per Level	353	302	217	1523
Total Daily Van Per Level	47	200	118	2
Total Daily MT Per Level	132	73	99	0
Total Daily HT Per Level	31	30	31	0
	562	605	464	1525

Conversion Factors	
Miles	Meters
1	1609.34
lb	grams
1	453.59237
ton	lbs
1	2000

Step 1 - Consider Square Feet of Uses Per Floor

USE SCENARIO	L1	L2	L3	L4	Project Total
PDR Uses					
Manufac	35,000	-	-	-	35000
Parcel Delivery /Last Mile	-	374,352	192,848	3,724	570924
Wholesale and Storage	372,434	-	191,964	-	564400
Retail	8,400	-	-	-	8400
Logistics Yard		72,400	73,400		145800
Vehicle Circulation	13,800	112,800	95,400	17,400	239400
Parking	111,800			487,600	599400
Total	541,434	559,552	553,612	508,924	2160000

Source: July 2019 Project Description - Table 3

* assumed the majority of Parcel stayed on L2 and 1/3 shared space with Warehouse on L3.
* assumed the majority of Wholesale stayed on L1 and 1/3 shared space with Parcel on L3.

check

*Left split of logistics yard, vehicle circ, and parking the same as PP, as the totals for Alt 4 and PP are the same.

Step 2 - Estimated % Use per Floor

Use (% Per Use Per Floor)	L1	L2	L3	L4	
PDR Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
PDR Visiting Workers					
Manufac	100.0%	0.0%	0.0%	0.0%	Utilize Level 1 Logistics Yard and Parking
Parcel Delivery /Last Mile	0.0%	65.57%	33.78%	0.7%	Utilize Level 2 and 3 Logistics Yard and Parkine and small area of L4 parkine (assume autos/pickups and vans only)
Wholesale and Storage	66.00%	0.00%	34.00%	0.0%	Utilize Level 1, 2, and 3 Logistics Yard and Parking
Retail Onsite Workers	0.0%	0.0%	0.0%	100.0%	All on-site workers park rooftop
Retail Visitors	100.0%	0.0%	0.0%	0.0%	Retail Visitors (delivery and consumers) Utilitize Ground Level Logistics and Parkine

Step 3 - Total Project Daily Traffic Per Use

Use	Auto/Pickup	Van	MT	HT
PDR	4278	720	602	184
Onsite Worker	2908	0	0	0
Visiting Worker	1370	720	602	184
Manufac	90	20	22	2
Parcel	920	610	222	92
Wholesa	360	90	338	90
Retail/QSR	510	14	6	0
Onsite Worker	132	0	0	0
Visiting Worker	378	14	6	0

Source: Dec 10 2021 Traffic Demand Memo - Table 11 and asse A-79 for worker trip data

Step 4 - Using Total Traffic Per Use and Percent Use Per Floor - Calculate Vehicles Per Floor (Per Building)

Vehicle Type	L1	L2	L3	L4
PDR Auto (incl pickup & van)	204	302	335	1439
PDR Auto/Pickup	164	302	217	1437
PDR Van	40	200	118	2
PDR MT	129	73	99	0
PDR HT	31	30	31	0
Retail Auto (incl pickup & van)	196	0	0	66
Retail Auto/Pick	189	0	0	66
Retail Van	7	0	0	0
Retail MT	3	0	0	0
Retail HT	0	0	0	0
Total Daily Auto Per Level	400	302	335	1525
Total Daily Auto	353	302	217	1523
Total Daily Van	47	200	118	2
Total Daily MT Per Level	132	73	99	0
Total Daily HT Per Level	31	30	31	0

Existing Land Use - Mobile Source Emissions

				Emissions (lbs/day)							Emissions (tons/year)						
Vehicle Category	Predominant Fuel Type	Trips/Day[1]	VMT/Day[1]	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW	ROG	CO	NO_x	PM_{10} Exhaust	PM_{10} BW, TW	$PM_{2.5}$ Exhaust	$PM_{2.5}$ BW, TW
Autos/Pickups (on-site worker)	gasoline	199	3021	0.20	6.19	0.40	0.01	0.79	0.01	0.20	0.04	1.13	0.07	0.00	0.14	0.00	0.04
Autos/Pickups (visiting worker)	gasoline	200	4000	0.23	7.76	0.49	0.01	1.05	0.01	0.27	0.04	1.42	0.09	0.00	0.19	0.00	0.05
Vans	gasoline	154	4610	0.33	8.91	1.46	0.04	1.39	0.03	0.37	0.06	1.63	0.27	0.01	0.25	0.01	0.07
Single Unit Trucks	diesel	132	5293	0.40	5.12	10.39	0.13	1.96	0.12	0.54	0.07	0.93	1.90	0.02	0.36	0.02	0.10
Tractor Trailer Trucks	diesel	14	888	0.03	2.94	2.80	0.04	0.42	0.04	0.12	0.00	0.54	0.51	0.01	0.08	0.01	0.02
Buses	diesel	18	720	0.11	5.91	0.56	0.01	0.38	0.01	0.11	0.02	1.08	0.10	0.00	0.07	0.00	0.02
Total		717	18532	1.30	36.84	16.10	0.24	6.01	0.23	1.62	0.24	6.72	2.94	0.04	1.10	0.04	0.30

1. Existing VMT is per Table 11 from June 2021 updated tables, and existing trips per day are calculated based upon that data.

Operational Days Per Year:	
Autos/Pickups (on-site worker)	365
Autos/Pickups (visiting worker)	365
Vans	365
Single Unit Trucks	365
Tractor Trailer Trucks	365
Buses	365

Conversion Factors	
lb	grams
1	453.59237
ton	lbs
1	2000

	Emissions Factors (g/mi for RunEx, BW, TW and g/trip for StartEx)											
Vehicle Category	ROG RunEx	ROG StrEx	CO RunEx	CO StrEx	NOx RunEx	NOx StrEx	PM_{10} RunEx	PM10 StrEx	PM_{10} BW, TW, roadway dust	$PM_{2.5}$ RunEx	PM2.5 StrEx	$PM_{2.5}$ BW, TW, roadway dust
Autos/Pickups (on-site worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.0018572	0.030307212
Autos/Pickups (visiting worker)	0.010039	0.314075	0.724653	3.117609703	0.042561792	0.254455574	0.00159983	0.00201988	0.119241823	0.001473	0.0018572	0.030307212
Vans	0.024431	0.247319	0.782912	2.819141908	0.131203427	0.364355418	0.00344953	0.00112813	0.137241828	0.003249	0.00103728	0.036574983
Single Unit Trucks	0.03262	0.065107	0.404853	1.36394853	0.855556494	1.409818459	0.010747862	0.0001194	0.168041663	0.010273	0.00010979	0.046624724
Tractor Trailer Trucks	0.013932	0	1.500779	0	1.381049371	3.279178154	0.019845431	0	0.215892863	0.018979	0	0.061335075
Buses	0.065799	0.020052	3.70166	0.872379279	0.350904342	0.057899073	0.006694704	5.9922E-09	0.24243064	0.006401	2.1775E-05	0.070974795

TRU Emissions Associated with Refrigerated Trucks

						Emissions (lb/day)					Emissions (tons/year)				
Vehicle Type	Horsepower[1]	Load Factor[2]	VMT Per Day	Average Travel Speed (miles per hour)[3]	Estimated Daily Hours Travel for TRU in-transit operations	ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$	ROG	CO	NO_x	$PM_{10\ (Exhaust)}$	$PM_{2.5\ (Exhaust)}$
Off-Site Emissions															
TRU on Single Unit Truck															
Maker and Manufacturing	17.2	0.56	220	47	4.7	0.160	0.017	0.168	0.005	0.005	0.021	0.002	0.022	0.001	0.001
Parcel and Last Mile Delivery	17.2	0.56	5,683	47	120.9	4.122	0.449	4.328	0.137	0.126	0.752	0.082	0.790	0.025	0.023
Wholesale and Storage	17.2	0.56	6,444	47	137.1	4.674	0.509	4.908	0.155	0.143	0.853	0.093	0.896	0.028	0.026
TRU on Tractor Trailer Truck															
Maker and Manufacturing	33.8	0.38	33	47	0.7	0.027	0.003	0.025	0.000	0.000	0.004	0.000	0.003	0.000	0.000
Parcel and Last Mile Delivery	33.8	0.38	3,827	47	81.4	3.238	0.352	2.894	0.046	0.042	0.591	0.064	0.528	0.008	0.008
Wholesale and Storage	33.8	0.38	2,633	47	56.0	2.227	0.242	1.991	0.032	0.029	0.406	0.044	0.363	0.006	0.005
					Total Off-Site Emissions	**14.447**	**1.572**	**14.313**	**0.376**	**0.346**	**2.627**	**0.286**	**2.602**	**0.068**	**0.063**
On-Site Emissions															
TRU on Single Unit Truck															
5mph	17.2	0.56	42	5	8.3	0.284	0.031	0.298	0.009	0.009	0.052	0.006	0.054	0.002	0.002
10mph	17.2	0.56	102	10	10.2	0.347	0.038	0.364	0.012	0.011	0.063	0.007	0.066	0.002	0.002
TRU on Tractor Trailer Truck															
5mph	33.8	0.38	13	5	2.6	0.104	0.011	0.093	0.001	0.001	0.019	0.002	0.017	0.000	0.000
10mph	33.8	0.38	34	10	3.4	0.134	0.015	0.120	0.002	0.002	0.024	0.003	0.022	0.000	0.000
TRU on-site Idling															
Single-Unit Truck	17.2	0.56	NA	NA	38.6	1.315	0.143	1.381	0.044	0.040	0.240	0.026	0.252	0.008	0.007
Tractor Trailer Truck	33.8	0.38	NA	NA	12.5	0.496	0.054	0.444	0.007	0.007	0.091	0.010	0.081	0.001	0.001
					Total On-Site Emissions	**2.680**	**0.292**	**2.700**	**0.075**	**0.069**	**0.489**	**0.053**	**0.493**	**0.014**	**0.013**

1. Average horsepower within each horsepower bin, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Hp < 25 assumed for single-unit trucks (consistent with document assumption that all "Only California-based TRUs have a group for units under 23 horsepower because all single body trucks are assumed to be California based units, and all trailer units are over 23 horsepower."
2. Average load factor within each TRU category, per CARB 2021 TRU Emissions Inventory. https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf.
3. Average Truck Travel Speeds on Select Metropolitan Area Interstates (2012-2015), selected for San Francisco, CA, per Bureau of Transportation Statistics. Table 4-1. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf

Average Horsepower for TRU:	
CATTrailer (hp bin: 50)	33.8
CATTrailer (hp bin: 25)	24.8
CATTruck (hp bin: 23)	17.2

Conversion Factors:	
grams per pound:	453.59237
pounds per ton:	2000
grams per ton:	907185
Operational Days Per Year (Manufacture&Maker Space)	264
Operational Days Per Year (PDR not Manufacture&Maker Space)	365

Single Unit Truck TRU On-Site Idling

Land Use	**Total Trucks to Site Per Day**
Maker and Manufacturing	11
Parcel and Last Mile Delivery	111
Wholesale and Storage	179
Total	301

Trailer Truck Truck TRU On-Site Idling

Land Use	Total Trucks to Site Per Day	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
		25%	2.75	0.25	0.6875
Maker and Manufacturing	1	64%	71.04	0.25	17.76
Parcel and Last Mile Delivery	46	45%	80.55	0.25	20.1375
Wholesale and Storage	45		154.34	0.25	38.585
Total	92				

Table III.

Land Use	**Total TRU VMT** / **% Refrigeration Req'd**[4]	% of Trips with TRUs	Total TRUs On Single-Unit Trucks per Day	Idling Duration Per TRU per Day (hours)	TRU Idling Duration Per Land Use per Day (hours)
	25%	25%	0.25	0.25	0.0625
Maker and Manufacturing	64%	64%	29.44	0.25	7.36
Parcel and Last Mile Delivery	45%	45%	20.25	0.25	5.0625
Wholesale and Storage	64%		49.94	0.25	12.485
Total	45%				

1. 07Aug2019 response to 'CEQA Analysis Air Quality & Noise Information Request'

UPDATED TO REFLECT UPDATED TRAFFIC DATA IN NEW "MOBILE TRIP DATA" TAB.

Table II.

	Gross Visitor Daily VMT by Vehicle Type and Land Use[1]	**TRU VMT on Single-Unit Trucks**	**TRU VMT on Tractor Trailer Trucks**
	220		32.5
Vehicle Type and Land Use	Autos/ Pickups	5683.2	3827.2
Maker and Manufacturing	1800	6444	2632.5
Parcel and Last Mile Delivery	18400	12347.2	6492.2
Wholesale and Storage	7200		
Total Visitor VMT by Vehicle Type	**27400**		

Notes:
1. Unless otherwise noted, VMT is based upon Table 12 of June 2021 Trip Gen Data.
2. Parcel and Last Mile Delivery VMT reflects gross trip distances of 20 miles per trip for autos, 30 miles per trip for vans, 40 miles per trip for single-unit trucks, and 65 miles per trip for tractor trailer trucks, and not taking credit for the project siting and -7.5 mile trip credit that is applicable to the traffic analysis.

Vans	**Single Unit Trucks**	**Tractor Trailer Trucks**	**Total Visitor VMT by Land Use**
600	880	130	**1,610**
18300	8880	5980	**33,160**
2700	14320	5850	**22,870**
21600	**24080**	**11960**	**57,640**

TRU Emission Factors
Model Output: OFFROAD2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year
San Francisco (SF)	2025
San Francisco (SF)	2025

VehClass	MdlYr	HP_Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	SOx_tpd	NH3_tpd	Fuel_gpy	Total_Activity_hpy	%Activity	Total_Population	Horsepower_Hours_hhpy
TRU - Instate Trailer	Aggregated	25	Diesel	0.000448086	0.00457437	0.0006449	0.000497771	0.0048035	0.000152094	0.000140057	1204.82	1.71976E-08	24964.89	38047.75	0.403604395	21.27381	943584.2
TRU - Instate Trailer	Aggregated	50	Diesel	0.000789277	0.008058908	0.001136175	0.000876552	0.007203247	0.000114781	0.000105689	2049.8	2.9268E-08	42472.43	56222.16	0.596395605	31.47779	1900309.008

	Emission Rates					
	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr
	ROG Exhaust	NOX Exhaust	CO Exhaust	PM10 Exhaust	PM2.5 Exhaust	SOX Exhaust
Truck TRU	1.61	1.685644004	0.17	0.05	0.05	422795.38
Trailer TRU	1.40	1.255141835	0.15	0.02	0.02	357170.83

Mobile Trip Data (per Adavant 02/02/2023 SF Gateway Trip Gen v214- Updated Rates New Land Use New VMT - ALT 4 v2 VMT Calculations.pdf)

Table 11: Total Daily Vehicle Trips by Vehicle Class and Land Use

Land Use Type	Autos	Buses	Vans	SU Trucks	Tractor Trailers	Total
Maker & Manufacturing	178	0	20	22	2	222
Parcel & Last-mile Delivery	2546	0	610	222	92	3470
Wholesale and Storage	1554	0	90	358	90	2092
Laboratory/&RD	-	0	-	-	-	0
General Retail	156	0	2	0	0	158
Quick Service Restaurant	354	0	12	6	0	372
Public feel staging/maintenance	-	0	-	-	-	0
Private fleet/staging maintenance	-	0	-	-	-	0
Total	**4788**	**0**	**734**	**608**	**184**	**6314**
% of Total Trips	76%	0%	12%	10%	3%	100%
% of Commercial/Service Trips	N/A	N/A	48%	40%	12%	100%

Page A-93, Appendix F Table 4: Daily VMT for PDR Use

(Worker [commuter] VMT)		Proposed Project Land Use						AECOM Calculation:
Place of Origin:	Daily Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates for Worker (commuter) VMT
SD1	5	40	620	460	1120	75	1045	15
SD2	6	48	996	732	1776	126	1650	21
SD3	2	44	776	568	1388	96	1292	48
SD4	7	42	896	658	1596	108	1488	15
East Bay	28	337	6171	4544	11052	755	10297	27
North Bay	28	166	2663	1942	4771	332	4439	12
South Bay	22	518	10064	7386	17968	1239	16729	56
Out of Region	65	129	2454	1808	4391	290	4101	4
	Totals	1324	24640	18098	44062	3021	41041	199

(Non-Commuter VMT)								AECOM Calculations:		
Vehicle Category	Total Miles (one-way)	Net Miles	Maker & Manufacturing	Parcel & Last-mile Delivery	Wholesale and Storage	Total PDR	Existing Uses Daily VMT	Total Net PDR VMT	Existing Uses Trip Rates*	Gross Parcel & Last Mile VMT for AQ:	Total PDR with Gross Parcel & Last Mile Trip Distances
Autos	20	-7.5	1800	-6900	7200	2100	4000	-1900	200	18400	27400
Buses	40	7.5	0	0	0	0	720	-720	18	0	0
Vans	30	-7.5	600	-4575	2700	-1275	4610	-5885	154	18300	21600
SU Trucks	40	-7.5	880	-1665	14320	13535	5293	8242	132	8880	24080
Tractor Trailers *	65	7.5	130	690	5850	6670	888	5782	14	5980	11960
Total Non-Commuter VMT	N/A	N/A	3410	-12450	30070	21030	16127	5519		51560	

*Travel Demand Memo Tractor Trailer

Truck One-Way Distance: 110

Note: One-way miles for Tractor Trailer Trucks is 65 miles, per average distance to BAAQMD boundary as calculated by Urban Crossroads 2020.

Trip Rate Data

Page A-92, Appendix F Table 1

Daily Vehilce Trips									
Trip Type	**Maker & Manufacturing**	**Parcel & Last-mile Delivery**	**Wholesale and Storage**	**Laboratory/&RD**	**General Retail**	**Quick Service Restaurant**	**Public feel staging/ maintenance**	**Private fleet/staging maintenance**	**Total**
Work	88	1626	1194	0	26	106	0	0	3040
Non-work	134	1844	898	0	132	266	0	0	3274
Total	222	3470	2092	0	158	372	0	0	6314

Paved Roadway Re-entrained Fugitive Dust Emissions

Paved Roads	100%

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.032	road surface silt loading (g/m^2) based on EPA 2011 default for collector streets (https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf)
W	2.40	average weight (short tons) of all the vehicles traveling the road. The statewide default is 2.4 short tons (CARB 2021e); California Air Resources Board (CARB). 2021e.
P	64	number of "wet" days with at least 2.54 mm of precipitation during the averaging period
N	365	number of days in averaging period

All Vehicle Trip Types

EF (PM10)	0.101653639	g/mile
EF (PM2.5)	0.024951348	g/mile

Conversion Factors	
lbs	tons
2000	1
lbs	grams
1	453.59237

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	Total VMT	%VMT	Trips	% Trips	ROG_RunEx	ROG_IdlEx	ROG_STREX	CO_RunEx	CO_IdlEX	CO_STREX	NOx_RunEx	Nox_IdlEx	NOx_STREX	PM10_RunEx	PM10_IdlEx	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2.5_RunEx	PM2.5_IdlEx	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
Autos / Pickups																									
LDA	Gasoline	126519	4522617	57.50%	586,607	57.23%	9.87E-03	0.00E+00	3.19E-01	7.47E-01	0.00E+00	3.20E+00	3.91E-02	0.00E+00	2.52E-01	1.64E-03	0.00E+00	2.10E-03	8.00E-03	9.25E-03	1.50E-03	0.00E+00	1.93E-03	2.00E-03	3.24E-03
LDA	Diesel	523	13134	0.17%	2,182	0.21%	3.65E-02	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	1.96E-02	0.00E+00	0.00E+00	8.00E-03	9.48E-03	1.88E-02	0.00E+00	0.00E+00	2.00E-03	3.32E-03
LDA	Electricity	10080	464806	5.91%	49,586	4.84%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDA	Plug-in Hybrid	3902	172918	2.20%	16,136	1.57%	1.87E-03	0.00E+00	1.76E-01	2.46E-01	0.00E+00	1.37E+00	3.85E-03	0.00E+00	1.17E-01	7.96E-04	0.00E+00	2.12E-03	8.00E-03	4.26E-03	7.32E-04	0.00E+00	1.95E-03	2.00E-03	1.49E-03
LDT1	Gasoline	12874	389928	4.96%	57,785	5.64%	2.13E-02	0.00E+00	4.45E-01	1.15E+00	0.00E+00	4.36E+00	8.55E-02	0.00E+00	3.37E-01	2.06E-03	0.00E+00	2.57E-03	8.00E-03	1.19E-02	1.89E-03	0.00E+00	2.37E-03	2.00E-03	4.16E-03
LDT1	Diesel	7	70	0.00%	21	0.00%	3.49E-01	0.00E+00	0.00E+00	1.60E+00	0.00E+00	0.00E+00	1.51E+00	0.00E+00	0.00E+00	2.90E-01	0.00E+00	0.00E+00	8.00E-03	1.37E-02	2.77E-01	0.00E+00	0.00E+00	2.00E-03	4.79E-03
LDT1	Electricity	40	1685	0.02%	190	0.02%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.38E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT1	Plug-in Hybrid	22	968	0.01%	90	0.01%	1.69E-03	0.00E+00	1.76E-01	2.23E-01	0.00E+00	1.37E+00	3.48E-03	0.00E+00	1.17E-01	5.10E-04	0.00E+00	1.49E-03	8.00E-03	4.26E-03	4.69E-04	0.00E+00	1.37E-03	2.00E-03	1.49E-03
LDT2	Gasoline	65146	2247694	28.58%	306,132	29.87%	1.11E-02	0.00E+00	3.46E-01	8.09E-01	0.00E+00	3.40E+00	5.38E-02	0.00E+00	2.99E-01	1.73E-03	0.00E+00	2.13E-03	8.00E-03	1.15E-02	1.59E-03	0.00E+00	1.96E-03	2.00E-03	4.01E-03
LDT2	Diesel	324	10956	0.14%	1,519	0.15%	2.28E-02	0.00E+00	0.00E+00	2.37E-01	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00	5.96E-03	0.00E+00	0.00E+00	8.00E-03	1.17E-02	5.71E-03	0.00E+00	0.00E+00	2.00E-03	4.09E-03
LDT2	Electricity	471	16624	0.21%	2,393	0.23%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
LDT2	Plug-in Hybrid	574	24320	0.31%	2,373	0.23%	1.78E-03	0.00E+00	1.76E-01	2.35E-01	0.00E+00	1.37E+00	3.66E-03	0.00E+00	1.17E-01	6.40E-04	0.00E+00	1.78E-03	8.00E-03	4.26E-03	5.88E-04	0.00E+00	1.64E-03	2.00E-03	1.49E-03
	Total:		7,865,720	100.00%	1,025,014	100.00%																			
				Weighted Average Emission Factors*:			0.01004		0.31408	0.72465		3.11761	0.04256		0.25446	0.00160		0.00202	0.00800	0.00959	0.00147		0.00186	0.00200	0.00336
Vans																									
LHD1	Gasoline	4927	192265	13.38%	73,402	29.14%	3.10E-02	4.11E-01	1.48E-01	1.00E+00	3.76E+00	3.25E+00	1.23E-01	3.58E-02	6.06E-01	1.47E-03	0.00E+00	2.50E-04	8.00E-03	7.80E-02	1.35E-03	0.00E+00	2.30E-04	2.00E-03	2.73E-02
LHD1	Diesel	1645	74072	5.16%	20,696	8.22%	1.24E-01	1.10E-01	0.00E+00	2.99E-01	9.10E-01	0.00E+00	8.32E-01	1.60E+00	0.00E+00	2.44E-02	2.81E-02	0.00E+00	1.20E-02	7.80E-02	2.33E-02	2.68E-02	0.00E+00	3.00E-03	2.73E-02
LHD1	Electricity	43	2972	0.21%	604	0.24%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.37E-02
LHD2	Gasoline	613	23192	1.61%	9,135	3.63%	2.17E-02	4.01E-01	1.42E-01	8.10E-01	3.77E+00	3.21E+00	1.28E-01	3.50E-02	6.02E-01	1.37E-03	0.00E+00	2.04E-04	8.00E-03	9.10E-02	1.26E-03	0.00E+00	1.88E-04	2.00E-03	3.19E-02
LHD2	Diesel	998	41685	2.90%	12,553	4.98%	1.25E-01	1.10E-01	0.00E+00	3.00E-01	9.10E-01	0.00E+00	7.79E-01	1.77E+00	0.00E+00	2.53E-02	2.81E-02	0.00E+00	1.20E-02	9.10E-02	2.42E-02	2.68E-02	0.00E+00	3.00E-03	3.19E-02
LHD2	Electricity	11	726	0.05%	147	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.59E-02
MDV	Gasoline	27332	1051529	73.19%	129,176	51.28%	1.32E-02	0.00E+00	3.86E-01	8.27E-01	0.00E+00	3.41E+00	6.36E-02	0.00E+00	3.23E-01	1.59E-03	0.00E+00	2.02E-03	8.00E-03	1.14E-02	1.46E-03	0.00E+00	1.86E-03	2.00E-03	3.99E-03
MDV	Diesel	499	18274	1.27%	2,335	0.93%	1.79E-02	0.00E+00	0.00E+00	3.42E-01	0.00E+00	0.00E+00	5.12E-02	0.00E+00	0.00E+00	5.88E-03	0.00E+00	0.00E+00	8.00E-03	1.18E-02	5.62E-03	0.00E+00	0.00E+00	2.00E-03	4.13E-03
MDV	Electricity	501	17720	1.23%	2,547	1.01%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.53E-03
MDV	Plug-in Hybrid	311	14184	0.99%	1,286	0.51%	1.78E-03	0.00E+00	1.76E-01	2.34E-01	0.00E+00	1.37E+00	3.65E-03	0.00E+00	1.17E-01	6.70E-04	0.00E+00	1.87E-03	8.00E-03	4.27E-03	6.16E-04	0.00E+00	1.72E-03	2.00E-03	1.49E-03
	Total:		1,436,619	100.00%	251,880	100.00%																			
				Weighted Average Emission Factors*:			0.02443		0.24732	0.78291		2.81914	0.13120		0.36436	0.00345		0.00113	0.00832	0.02727	0.00325		0.00104	0.00208	0.00954

Single Unit Trucks																							
T6TS	Gasoline	620	29859	20.72%	12,402	26.38%	6.00E-02	1.02E+00	2.47E-01	1.24E+00	1.52E+01	5.17E+00	3.94E-01	8.76E-02	4.24E-01	1.20E-03	0.00E+00	4.53E-04	1.20E-02	4.50E-02	1.11E-03	0.00E+00	4.16E-04	3.00E-03	1.58E-02
T6TS	Electricity	3	268	0.19%	61	0.13%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	7.88E-03
T6 instate small	Diesel	2378	91005	63.15%	30,599	65.10%	2.88E-02	2.25E-01	0.00E+00	1.15E-01	7.49E+00	0.00E+00	9.29E-01	1.09E+01	1.64E+00	1.28E-02	2.29E-02	0.00E+00	1.20E-02	4.60E-02	1.23E-02	2.19E-02	0.00E+00	3.00E-03	1.61E-02
T6 instate small	Electricity	19	818	0.57%	239	0.51%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.30E-02	0.00E+00	0.00E+00	0.00E+00	3.00E-03	8.06E-03
T6 instate small	Natural Gas	10	395	0.27%	125	0.27%	1.07E-02	1.87E-01	0.00E+00	3.19E+00	3.32E+01	0.00E+00	9.91E-02	5.23E+00	0.00E+00	1.53E-03	1.85E-02	0.00E+00	1.20E-02	4.62E-02	1.40E-03	1.70E-02	0.00E+00	3.00E-03	1.62E-02
T7 Single	Diesel	355	20200	14.02%	3,343	7.11%	1.29E-02	1.89E+00	0.00E+00	7.70E-02	2.71E+01	0.00E+00	1.31E+00	2.16E+01	3.22E+00	1.70E-02	1.72E-02	0.00E+00	3.60E-02	8.04E-02	1.62E-02	1.65E-02	0.00E+00	9.00E-03	2.81E-02
T7 Single	Electricity	3	238	0.16%	30	0.06%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.04E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.41E-02
T7 Single	Natural Gas	22	1325	0.92%	207	0.44%	1.52E-02	4.37E-01	0.00E+00	6.00E+00	6.60E+01	0.00E+00	3.11E-01	1.17E+01	0.00E+00	1.93E-03	3.72E-02	0.00E+00	3.60E-02	8.04E-02	1.78E-03	3.42E-02	0.00E+00	9.00E-03	2.81E-02
		Total:	144,107	100.00%	47,006	100.00%																			
				Weighted Average Emission Factors*:			0.03262		0.06511	0.40485		1.36395	0.85556		1.40982	0.01075		0.00012	0.01562	0.05076	0.01027		0.00011	0.00391	0.01777
Tractor Trailer Trucks																									
T7 tractor	Diesel	145	11376	83.53%	2,110	83.35%	1.39E-02	3.45E+00	0.00E+00	7.83E-02	5.07E+01	0.00E+00	1.56E+00	4.01E+01	3.93E+00	0.02350	1.60E-02	0.00E+00	3.60E-02	7.84E-02	2.25E-02	1.53E-02	0.00E+00	9.00E-03	2.74E-02
T7 tractor	Electricity	1	64	0.47%	11	0.43%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	3.97E-02	0.00E+00	0.00E+00	0.00E+00	9.00E-03	1.39E-02
T7 tractor	Natural Gas	28	2179	16.00%	411	16.22%	1.43E-02	9.40E-01	0.00E+00	8.97E+00	8.31E+01	0.00E+00	5.13E-01	2.24E+01	0.00E+00	0.0014	5.00E-02	0.00E+00	3.60E-02	7.84E-02	1.25E-03	4.60E-02	0.00E+00	9.00E-03	2.74E-02
		Total:	13,619		2,531	100.00%																			
				Weighted Average Emission Factors*:			0.01393		0.00000	1.50078		0.00000	1.38105		3.27918	0.01985		0.00000	0.03600	0.07824	0.01898		0.00000	0.00900	0.02738

*Calculated

Idling Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Vehicle Category	Fuel	Population	% Trips	ROG_IdlEx	CO_IdlEX	Nox_IdlEx	PM_{10}_IdlEx	$PM_{2.5}$_IdlEx
Single Unit Trucks								
T6TS	Gasoline	619.838854	26.38%	1.017757837	15.17523512	0.08759075	0	0
T6TS	Electricity	3.039303052	0.13%	0	0	0	0	0
T6 instate small	Diesel	2377.533076	65.10%	0.224762965	7.490448227	10.9135279	0.022884558	0.021894582
T6 instate small	Electricity	18.60870601	0.51%	0	0	0	0	0
T6 instate small	Natural Gas	9.612672955	0.27%	0.186572035	33.23233081	5.227383301	0.018452827	0.016966693
T7 Single	Diesel	354.8733567	7.11%	1.888098178	27.07430131	21.58285364	0.017228121	0.01648284
T7 Single	Electricity	3.195033382	0.06%	0	0	0	0	0
T7 Single	Natural Gas	21.98163126	0.44%	0.437076083	65.99417267	11.69729479	0.037190034	0.034194864
		Total:	100.00%					
		Weighted Average Emission Factors*:		0.55153	11.18427	8.72778	0.01634	0.01562
Tractor Trailer Trucks								
T7 tractor	Diesel	145.207283	83.35%	3.454591977	50.6647472	40.11897128	0.015994017	0.015302123
T7 tractor	Electricity	0.742956805	0.43%	0	0	0	0	0
T7 tractor	Natural Gas	28.26253962	16.22%	0.94017224	83.05506955	22.43584367	0.050001679	0.045974698
		Total:	100.00%					
		Weighted Average Emission Factors*:		3.03195	55.70336	37.07914	0.02144	0.02021

*Calculated

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBV and PMTV, mph for Speed

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Total VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	5	Gasoline	8739.6398	31.5%	0.053252822	0.077706393	1.243654057	0.06644666	0.006407956	0.008937157	0.008217386
San Francisco (SF)	2025	LDA	Aggregate	5	Diesel	25.380118	0.1%	0.28036965	0.319182207	4.577890502	0.242947064	0.0056644	0.063222004	0.060487048
San Francisco (SF)	2025	LDA	Aggregate	5	Electricity	11804.157	42.6%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.4397	5.0%	0.003083172	0.004498957	0.227121668	0.002995733	0.000942963	0.001060639	0.000975218
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.50793	2.7%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.1344201	0.0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.799272	0.2%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0.0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.5098	15.7%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.172062	0.1%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.19304	1.5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.07289	0.7%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
					Total:	**27,737**	**100%**							
					Veighted Average Emission Factors*:			**0.02965**	**0.04312**	**0.67617**	**0.04002**	**0.00354**	**0.00473**	**0.00435**
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	5	Gasoline	753.50793	9%	0.109044032	0.159116796	1.972378353	0.150908984	0.00763848	0.011030765	0.010142381
San Francisco (SF)	2025	LDT1	Aggregate	5	Diesel	0.1344201	0%	1.271040834	1.446995485	4.646631021	1.129429317	0.010032718	1.052510786	1.006979635
San Francisco (SF)	2025	LDT1	Aggregate	5	Electricity	42.799272	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.223694	0%	0.002612124	0.003811605	0.19242198	0.002538045	0.000798897	0.000636752	0.00058547
San Francisco (SF)	2025	LDT2	Aggregate	5	Gasoline	4343.5098	52%	0.059178577	0.08635324	1.350612031	0.092343235	0.00795176	0.00944973	0.008688678
San Francisco (SF)	2025	LDT2	Aggregate	5	Diesel	21.172062	0%	0.271791869	0.309416972	2.861570884	0.160039934	0.007533639	0.013233255	0.012660791
San Francisco (SF)	2025	LDT2	Aggregate	5	Electricity	422.19304	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.07289	2%	0.002840608	0.004145008	0.209253207	0.002760048	0.000868777	0.000825491	0.000759009
San Francisco (SF)	2025	MDV	Aggregate	5	Gasoline	2032.0048	24%	0.070020657	0.102165031	1.390117487	0.109334957	0.009478538	0.008643608	0.007947495
San Francisco (SF)	2025	MDV	Aggregate	5	Diesel	35.313389	0%	0.199240937	0.226822561	4.061952141	0.137473529	0.009210864	0.014394498	0.013771799
San Francisco (SF)	2025	MDV	Aggregate	5	Electricity	450.02207	5%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	5	Plug-in Hybrid	116.94553	1%	0.002824646	0.004121717	0.20807742	0.00274454	0.000863895	0.000861813	0.000792405
					Total:	**8,426**	**100%**							
					Veighted Average Emission Factors*:			**0.05879**	**0.08529**	**1.24020**	**0.08857**	**0.00716**	**0.00808**	**0.00744**
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.6067	70%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.912897	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.295555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	5	Gasoline	810.15449	22%	0.302121193	0.440854536	2.402500187	0.673849856	0.038792537	0.006197115	0.005698018
San Francisco (SF)	2025	T6TS	Aggregate	5	Electricity	7.2810779	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.35604	7%	0.067350005	0.076672854	0.647096954	5.741149077	0.026897591	0.007728253	0.007393932
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.8150186	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.694759	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
					Total:	**3,645**	**100%**							
					Veighted Average Emission Factors*:			**0.19205**	**0.27171**	**0.96330**	**2.27137**	**0.02349**	**0.03093**	**0.02954**
					**Note: Vhere there Vas no data for emissions factors at the 5mph speed bin, emissions for 10 mph Vere used.*									
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.109405	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.5221538	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.640996	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
					Total:	**110**	**100%**							
					Veighted Average Emission Factors*:			**0.07542**	**1.09898**	**4.25530**	**6.62536**	**0.02144**	**0.00800**	**0.00762**
					**Note: Vhere there Vas no data for emissions factors at the 5mph speed bin, emissions for 10 mph Vere used.*									

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	% VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Autos / Pickups														
San Francisco (SF)	2025	LDA	Aggregate	10	Gasoline	28295.207	40%	0.033777583	0.04928817	1.130735574	0.056936086	0.005205436	0.005631938	0.005178359
San Francisco (SF)	2025	LDA	Aggregate	10	Diesel	82.169941	0%	0.206120062	0.234653987	3.412073895	0.225477885	0.00471898	0.046214122	0.044214919
San Francisco (SF)	2025	LDA	Aggregate	10	Electricity	18884.465	27%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.4072	8%	0.001224104	0.001786209	0.113580579	0.001571889	0.000549004	0.000552631	0.000508124
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.5356	3%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.4351947	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.470912	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.263317	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.423	20%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.546061	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.43069	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	1%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
					Total:	**70,774**	**100%**							
					Veighted Average Emission Factors*:			**0.02395**	**0.03481**	**0.77281**	**0.04333**	**0.00364**	**0.00379**	**0.00349**
Vans														
San Francisco (SF)	2025	LDT1	Aggregate	10	Gasoline	2439.5356	9%	0.070280885	0.102553703	1.77275398	0.127105592	0.006204844	0.006993025	0.006429829
San Francisco (SF)	2025	LDT1	Aggregate	10	Diesel	0.4351947	0%	0.885063016	1.007585401	3.301696117	1.186607791	0.008445206	0.73272893	0.701031401
San Francisco (SF)	2025	LDT1	Aggregate	10	Electricity	68.470912	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.263317	0%	0.001033501	0.001508082	0.095895184	0.001327133	0.00046352	0.000330624	0.000303997
San Francisco (SF)	2025	LDT2	Aggregate	10	Gasoline	14062.423	54%	0.037634146	0.054915658	1.226757895	0.07879064	0.006458749	0.005953458	0.005473985
San Francisco (SF)	2025	LDT2	Aggregate	10	Diesel	68.546061	0%	0.203187476	0.231315432	2.141054569	0.134436438	0.006341565	0.011548044	0.011048481
San Francisco (SF)	2025	LDT2	Aggregate	10	Electricity	675.43069	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.6132	3%	0.001125789	0.001642748	0.104458268	0.001445642	0.00050491	0.000429344	0.000394766
San Francisco (SF)	2025	MDV	Aggregate	10	Gasoline	6578.7605	25%	0.04463595	0.065126498	1.258739112	0.0931103	0.007698089	0.005450069	0.005011149
San Francisco (SF)	2025	MDV	Aggregate	10	Diesel	114.32961	0%	0.148634791	0.169210828	3.03847519	0.11779779	0.007822266	0.011948461	0.011431576
San Francisco (SF)	2025	MDV	Aggregate	10	Electricity	719.952	3%	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	10	Plug-in Hybrid	458.08707	2%	0.001119332	0.001633326	0.103859138	0.00143735	0.000502014	0.000448183	0.000412087
					Total:	**26,002**	**100%**							
					Veighted Average Emission Factors*:			**0.03950**	**0.05725**	**1.17241**	**0.07906**	**0.00610**	**0.00537**	**0.00494**
Single Unit Trucks														
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Diesel	2535.6067	59%	0.172548192	0.196432982	0.387595682	2.497668002	0.018832163	0.041691629	0.039888068
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Electricity	22.912897	1%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate small	Aggregate	10	Natural Gas	11.295555	0%	0.03629014	2.592152847	7.617796827	0.309957451	0	0.00402077	0.003696949
San Francisco (SF)	2025	T6TS	Aggregate	10	Gasoline	1446.4824	34%	0.191398523	0.279288275	2.120297567	0.586535243	0.031491387	0.003906625	0.003591998
San Francisco (SF)	2025	T6TS	Aggregate	10	Electricity	12.999929	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Diesel	239.35604	6%	-	-	-	-	-	-	-
San Francisco (SF)	2025	T7 Single	Aggregate	10	Electricity	2.8150186	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	10	Natural Gas	15.694759	0%	0.078097554	5.578396745	21.73995533	1.446023995	0	0.007748673	0.007124619
					Total:	**4,287**	**100%**							
					Veighted Average Emission Factors*:			**0.16701**	**0.23766**	**1.04428**	**1.68123**	**0.02176**	**0.02602**	**0.02484**
Tractor Trailer Trucks														
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Diesel	92.109405	84%	0.073038828	0.083149146	0.745965733	7.332150843	0.025662703	0.008493436	0.008126013
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Electricity	0.5221538	0%	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	10	Natural Gas	17.640996	16%	0.090097242	6.435517297	22.70463004	3.13107158	0	0.005672259	0.005215433
					Total:	**110**	**100%**							
					Veighted Average Emission Factors*:			**0.07542**	**1.09898**	**4.25530**	**6.62536**	**0.02144**	**0.00800**	**0.00762**

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Gasoline	126519.333	4522617	4522617	0	586607	0.0390995	0	0.25181404	0.00150425	0	0.00192927	0.002	0.00323592	0.001636	0	0.00209826	0.008	0.00924547	0.00987364	0	0.31892093	0.091494696	0.235610625	1.38503645	0.01440759	0	0.349178278	0.091494696	0.235610625	1.385036446	0.036297666	0.746685618	0	3.198476435	0.00282411	0	0.00067965
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Diesel	522.923379	13133.8	13133.8	0	2181.78	0.17692005	0	0	0.01875212	0	0	0.002	0.00331677	0.01960001	0	0	0.008	0.00947648	0.03649175	0	0	0	0	0	0.04145343	0	0	0	0	0	0.0031	0.471041794	0	0	0.00242602	0	0
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Electricity	10080.3795	464806	0	464806	49586.4	0	0	0	0	0	0	0.002	0.00153217	0	0	0	0.008	0.00437763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDA	Aggregate	Aggregate	Plug-in Hy	3902.37647	172918	83076.9	89840.7	16136.3	0.00384837	0	0.11696743	0.00073155	0	0.00195222	0.002	0.00149273	0.00079563	0	0.00213221	0.008	0.00426494	0.00187252	0	0.17554487	0.040981342	0.036860583	0.41351645	0.00373238	0	0.192199534	0.040981342	0.036860583	0.413516449	0.019153856	0.246312279	0	1.369749453	0.00151747	0	0.00063233
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Gasoline	12873.7807	389928	389928	0	57785.1	0.08547825	0	0.33731769	0.00189428	0	0.00236593	0.002	0.00416349	0.0020602	0	0.00257317	0.008	0.01189568	0.02132181	0	0.44477472	0.136491328	0.371983028	2.09041944	0.03111274	0	0.486972331	0.136491328	0.371983028	2.090419443	0.035111814	1.148911458	0	4.361438201	0.00338548	0	0.00082416
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Diesel	7.45932398	69.5602	69.5602	0	20.6959	1.51441845	0	0	0.02739235	0	0	0.002	0.00478791	0.2899348	0	0	0.008	0.01367973	0.34919819	0	0	0	0	0	0.39753892	0	0	0	0	0	0.0031	1.604483182	0	0	0.0043771	0	0
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Electricity	39.7582389	1685.29	0	1685.29	189.527	0	0	0	0	0	0	0.002	0.00153465	0	0	0	0.008	0.00438472	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	21.6865936	968.111	420.519	547.591	89.6741	0.00347934	0	0.11696743	0.00046867	0	0.00137388	0.002	0.00149248	0.00050973	0	0.00149422	0.008	0.00426422	0.00169296	0	0.17554487	0.024130781	0.020405943	0.26865021	0.00247036	0	0.192199534	0.024130781	0.020405943	0.268650215	0.01824359	0.222774746	0	1.369749453	0.00137211	0	0.00067097
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Gasoline	65146.2824	2247694	2247694	0	306132	0.05379963	0	0.29868534	0.00158919	0	0.001959	0.002	0.00401005	0.00172839	0	0.0021306	0.008	0.01145729	0.01106646	0	0.34587642	0.073542195	0.189839959	1.1576584	0.01614815	0	0.378691148	0.073542195	0.189839959	1.157658403	0.037420442	0.808624799	0	3.403243452	0.00348662	0	0.00083406
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Diesel	323.609745	10956.2	10956.2	0	1519.06	0.04606735	0	0	0.00570535	0	0	0.002	0.00408565	0.00596332	0	0	0.008	0.01167327	0.02281856	0	0	0	0	0	0.02597741	0	0	0	0	0	0.0031	0.237163918	0	0	0.00324306	0	0
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Electricity	471.005854	16624.5	0	16624.5	2393.17	0	0	0	0	0	0	0.002	0.00152658	0	0	0	0.008	0.00436166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LDT2	Aggregate	Aggregate	Plug-in Hy	573.855998	24320.1	11125.6	13194.5	2372.89	0.00366433	0	0.11696743	0.00058843	0	0.00161596	0.002	0.00149253	0.00063997	0	0.00177926	0.008	0.00426436	0.00178297	0	0.17554487	0.026394882	0.023454188	0.29496145	0.00260171	0	0.192199534	0.026394882	0.023454188	0.294961451	0.019187697	0.234581046	0	1.369749453	0.00144499	0	0.00073509
San Francisco (SF)	2025	LHD1	Aggregate	Aggregate	Gasoline	4926.78621	192265	192265	0	73401.8	0.12268552	0.03588604	0.60057951	0.00134926	0	0.00023031	0.002	0.00273001	0.00146744	0	0.00025048	0.008	0.07080002	0.03098921	0.41052157	0.14789195	0.038246673	0.199488999	2.04460065	0.04521938	0.59903211	0.161923073	0.038246673	0.199488999	2.044600648	0.044945055	0.999635839	3.763000677	3.246249344	0.00940866	0.00117028	0.00025742
San Francisco (SF)	2025	LHD1	Aggregate	Aggregate	Diesel	1645.33281	74071.9	74071.9	0	20696.2	0.83154274	1.59546141	0	0.02331059	0.02684214	0	0.003	0.02730001	0.0243646	0.02805582	0	0.012	0.07800002	0.12354409	0.1097597	0	0	0	0	0.14064673	0.12495413	0	0	0	0	0.197938322	0.29875818	0.909745076	0	0.00595063	0.00119368	0	0
San Francisco (SF)	2025	LHD1	Aggregate	Aggregate	Electricity	43.1664454	2971.83	0	2971.83	603.671	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.03900001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	LHD2	Aggregate	Aggregate	Gasoline	613.121884	23192.5	23192.5	0	9134.6	0.1280296	0.03500351	0.60240605	0.00126258	0	0.00018791	0.002	0.03185001	0.00137318	0	0.00020437	0.008	0.09100003	0.02170968	0.40146273	0.14224998	0.037405291	0.190932946	2.01563418	0.03167872	0.58581348	0.155745824	0.037405291	0.190932946	2.01563418	0.044983621	0.809875891	3.766304622	3.210582123	0.00948879	0.00135186	0.0002512
San Francisco (SF)	2025	LHD2	Aggregate	Aggregate	Diesel	997.914726	41685.4	41685.4	0	12552.5	0.77922806	1.77029256	0	0.02415934	0.0268396	0	0.003	0.03185001	0.02525172	0.02805317	0	0.012	0.09100003	0.12517659	0.1097597	0	0	0	0	0.14250523	0.12495413	0	0	0	0	0.200558839	0.299730009	0.909745076	0	0.00719298	0.00195638	0	0
San Francisco (SF)	2025	LHD2	Aggregate	Aggregate	Electricity	11.0908472	725.571	0	725.571	147.075	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.04550001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Gasoline	27332.362	1051529	1051529	0	129176	0.06359207	0	0.33258319	0.00145799	0	0.00186131	0.002	0.00399084	0.00158569	0	0.00202433	0.008	0.0114024	0.01323251	0	0.38640397	0.07424599	0.199741652	1.20717336	0.01930634	0	0.423063332	0.074243599	0.199741652	1.20717336	0.037871122	0.826961861	0	3.411746556	0.00413096	0	0.00098725
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Diesel	499.069751	18274.1	18274.1	0	2334.77	0.05115913	0	0	0.00562396	0	0	0.002	0.00413473	0.00587825	0	0	0.008	0.01181351	0.01789885	0	0	0	0	0	0.02037665	0	0	0	0	0	0.0031	0.341640847	0	0	0.00417195	0	0
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Electricity	501.213001	17720.3	0	17720.3	2547.37	0	0	0	0	0	0	0.002	0.00152639	0	0	0	0.008	0.00436113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	MDV	Aggregate	Aggregate	Plug-in Hy	310.943758	14184.1	6466.55	7717.59	1285.75	0.00365179	0	0.11696743	0.00061568	0	0.00172016	0.002	0.00149301	0.00066961	0	0.00187083	0.008	0.00426574	0.00177687	0	0.17554487	0.028135305	0.024062001	0.30191328	0.00259281	0	0.192199534	0.028135305	0.024062001	0.301913285	0.019147816	0.233774772	0	1.369749453	0.00144004	0	0.00089649
San Francisco (SF)	2025	T6 instate (	Aggregate	Aggregate	Diesel	2377.53308	91004.7	91004.7	0	30599.3	0.9289023	10.9135279	1.64259069	0.01227191	0.02189458	0	0.003	0.01610614	0.01282679	0.02288456	0	0.012	0.04601754	0.028845	0.22476297	0	0	0	0	0.03283784	0.25587553	0	0	0	0	0.215416088	0.114940225	7.490448227	0	0.01086347	0.02010964	0	0
San Francisco (SF)	2025	T6 instate (	Aggregate	Aggregate	Electricity	18.608706	818.093	0	818.093	239.015	0	0	0	0	0	0	0.003	0.00805798	0	0	0	0.012	0.02302279	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T6 instate (	Aggregate	Aggregate	Natural G	9.61267296	394.858	394.858	0	124.965	0.09914105	5.2273833	0	0.00140296	0.01696669	0	0.003	0.01615643	0.00152585	0.01845283	0	0.012	0.04616122	0.0107419	0.18657204	0	0	0	0	0.76727856	13.3265739	0	0	0	0	1.06	3.185032455	33.23233081	0	0	0	0	0
San Francisco (SF)	2025	T6TS	Aggregate	Aggregate	Gasoline	619.838854	29859	29859	0	12401.7	0.39417214	0.08759075	0.42393951	0.00110628	0	0.00041612	0.003	0.01575611	0.00120318	0	0.00045257	0.012	0.04501744	0.05995306	1.01775784	0.24677106	0.03335227	0.255006237	2.50597132	0.08748336	1.48510985	0.270183251	0.03335227	0.255006237	2.505971323	0.044991097	1.243147968	15.17523512	5.169725024	0.0179218	0.00535593	0.00045333	0
San Francisco (SF)	2025	T6TS	Aggregate	Aggregate	Electricity	3.03930305	268.351	0	268.351	60.8104	0	0	0	0	0	0	0.003	0.00787805	0	0	0	0.012	0.02250872	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	Aggregate	Diesel	354.873357	20200	20200	0	3342.91	1.31371039	21.5828536	3.21578822	0.01621979	0.01648284	0	0.009	0.02814294	0.01695318	0.01722812	0	0.03600001	0.08040839	0.0129341	1.88809818	0	0	0	0	0.01472449	2.14945605	0	0	0	0	0.219870805	0.076952119	27.07430131	0	0.01571242	0.0425474	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	Aggregate	Electricity	3.19503338	237.568	0	237.568	30.0972	0	0	0	0	0	0	0.009	0.01413579	0	0	0	0.03600001	0.04038797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Single	Aggregate	Aggregate	Natural G	21.9816313	1324.53	1324.53	0	207.067	0.31076571	11.6972948	0	0.00177866	0.03419486	0	0.009	0.02813589	0.00193446	0.03719003	0	0.03600001	0.08038825	0.015186	0.43707608	0	0	0	0	1.08471432	31.2197202	0	0	0	0	1.06	6.002770882	65.99417267	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	Aggregate	Diesel	145.207283	11375.8	11375.8	0	2109.86	1.555107	40.1189713	3.92580271	0.02248187	0.01530212	0	0.009	0.02744968	0.0234984	0.01599402	0	0.03600001	0.07842765	0.01394618	3.45459198	0	0	0	0	0.01587666	3.93279	0	0	0	0	0.219983645	0.078284829	50.6647472	0	0.01468083	0.07848077	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	Aggregate	Electricity	0.7429568	64.4874	0	64.4874	10.7952	0	0	0	0	0	0	0.009	0.01388109	0	0	0	0.03600001	0.03966026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	T7 Tractor	Aggregate	Aggregate	Natural G	28.2625396	2178.71	2178.71	0	410.655	0.5131151	22.4358437	0	0.00124999	0.0459747	0	0.009	0.02743904	0.00135948	0.05000168	0	0.03600001	0.07839724	0.01427208	0.94017224	0	0	0	0	1.01943411	67.15516	0	0	0	0	1.06	8.972506791	83.05506955	0	0	0	0	0
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Gasoline	135.57625	6617.69	6617.69	0	542.305	0.02603682	0	0.42196142	0.00117837	0	0.0001587	0.00201334	0.03193871	0.00128158	0	0.0001726	0.00805336	0.09125346	0.00476593	0	0.14613639	0.033534589	0.09110026	0.37451506	0.00695443	0	0.16000095	0.033534589	0.09110026	0.37451506	0.045	0.585073312	0	6.357794444	0.00881305	0	0.00038416
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Diesel	784.367001	63648.6	63648.6	0	3137.47	0.41126117	0	0	0.00749216	0	0	0	0.00876995	0.00349178	0.00783092	0	0	0.0350798	0.10997653	0.07273827	0	0	0	0	0.08280698	0	0	0	0	0	0.22	0.084642061	0	0	0.01251846	0	0	0
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Electricity	0.78603229	67.8091	0	67.8091	3.14413	0	0	0	0	0	0	0	0.00856913	0.01925001	0	0	0	0.03427652	0.05500002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco (SF)	2025	UBUS	Aggregate	Aggregate	Natural G	67.3339951	5710.54	5710.54	0	269.336	0.05882006	0	0	0.0003666	0	0	0	0.00796394	0.03846296	0.00038318	0	0	0.03185577	0.10989418	0.05997064	0	0	0	0	4.24449427	0	0	0	0	0	0.97	47.67185083	0	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: San Francisco (SF)
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUNEX	PM2.5_RUNEX	PM10_RUI	ROG_RUN	TOG_RUNI	CO_RUNEX	SOx_RUNE	NH3_RUNI	PM10_PM	PM2.5_PM
San Franci	2025	LDA	Aggregate	5	Gasoline	8739.64	8739.64	0	0.06644666	0.008217386	0.00894	0.05325	0.07771	1.24365	0.00641	0.0363	0.00593	0.00208
San Franci	2025	LDA	Aggregate	5	Diesel	25.3801	25.3801	0	0.242947064	0.060487048	0.06322	0.28037	0.31918	4.57789	0.00566	0.0031	0.00608	0.00213
San Franci	2025	LDA	Aggregate	5	Electricity	11804.2	0	11804.2	0	0	0	0	0	0	0	0	0.00133	0.00046
San Franci	2025	LDA	Aggregate	5	Plug-in Hybrid	1376.44	160.54	1215.9	0.002995733	0.000975218	0.00106	0.00308	0.0045	0.22712	0.00094	0.00465	0.00133	0.00046
San Franci	2025	LDT1	Aggregate	5	Gasoline	753.508	753.508	0	0.150908984	0.010142381	0.01103	0.10904	0.15912	1.97238	0.00764	0.03511	0.00847	0.00296
San Franci	2025	LDT1	Aggregate	5	Diesel	0.13442	0.13442	0	1.129429317	1.006979635	1.05251	1.27104	1.447	4.64663	0.01003	0.0031	0.00974	0.00341
San Franci	2025	LDT1	Aggregate	5	Electricity	42.7993	0	42.7993	0	0	0	0	0	0	0	0	0.00133	0.00047
San Franci	2025	LDT1	Aggregate	5	Plug-in Hybrid	8.22369	0.81262	7.41107	0.002538045	0.00058547	0.00064	0.00261	0.00381	0.19242	0.0008	0.00415	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Gasoline	4343.51	4343.51	0	0.092343235	0.008688678	0.00945	0.05918	0.08635	1.35061	0.00795	0.03742	0.00815	0.00285
San Franci	2025	LDT2	Aggregate	5	Diesel	21.1721	21.1721	0	0.160039934	0.012660791	0.01323	0.27179	0.30942	2.86157	0.00753	0.0031	0.00831	0.00291
San Franci	2025	LDT2	Aggregate	5	Electricity	422.193	0	422.193	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	LDT2	Aggregate	5	Plug-in Hybrid	200.073	21.4995	178.573	0.002760048	0.000759009	0.00083	0.00284	0.00415	0.20925	0.00087	0.00451	0.00133	0.00046
San Franci	2025	LHD1	Aggregate	5	Gasoline	5987.58	5987.58	0	0.163885328	0.003111213	0.00338	0.0912	0.13307	2.18254	0.01489	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Diesel	1550.53	1550.53	0	1.202058493	0.050687102	0.05298	0.24938	0.2839	0.7462	0.01088	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	5	Electricity	80.5826	0	80.5826	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	5	Gasoline	722.268	722.268	0	0.183254222	0.002930739	0.00319	0.06839	0.09979	1.67927	0.01681	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Diesel	872.59	872.59	0	1.299445569	0.050815815	0.05311	0.2404	0.27367	0.74522	0.01308	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	5	Electricity	17.3609	0	17.3609	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	5	Gasoline	2032	2032	0	0.109334957	0.007947495	0.00864	0.07002	0.10217	1.39012	0.00948	0.03787	0.00811	0.00284
San Franci	2025	MDV	Aggregate	5	Diesel	35.3134	35.3134	0	0.137473529	0.013771799	0.01439	0.19924	0.22682	4.06195	0.00921	0.0031	0.00841	0.00294
San Franci	2025	MDV	Aggregate	5	Electricity	450.022	0	450.022	0	0	0	0	0	0	0	0	0.00132	0.00046
San Franci	2025	MDV	Aggregate	5	Plug-in Hybrid	116.946	12.4962	104.449	0.00274454	0.000792405	0.00086	0.00282	0.00412	0.20808	0.00086	0.00449	0.00133	0.00046
San Franci	2025	T6TS	Aggregate	5	Gasoline	810.154	810.154	0	0.673849856	0.005698018	0.0062	0.30212	0.44085	2.4025	0.03879	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	5	Electricity	7.28108	0	7.28108	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	LDA	Aggregate	10	Gasoline	28295.2	28295.2	0	0.056936086	0.005178359	0.00563	0.03378	0.04929	1.13074	0.00521	0.0363	0.00734	0.00257
San Franci	2025	LDA	Aggregate	10	Diesel	82.1699	82.1699	0	0.225477885	0.044214919	0.04621	0.20612	0.23465	3.41207	0.00472	0.0031	0.00752	0.00263
San Franci	2025	LDA	Aggregate	10	Electricity	18884.5	0	18884.5	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDA	Aggregate	10	Plug-in Hybrid	5381.41	519.76	4861.65	0.001571889	0.000508124	0.00055	0.00122	0.00179	0.11358	0.00055	0.00385	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Gasoline	2439.54	2439.54	0	0.127105592	0.006429829	0.00699	0.07028	0.10255	1.77275	0.0062	0.03511	0.01053	0.00369
San Franci	2025	LDT1	Aggregate	10	Diesel	0.43519	0.43519	0	1.186607791	0.701031401	0.73273	0.88506	1.00759	3.3017	0.00845	0.0031	0.01211	0.00424
San Franci	2025	LDT1	Aggregate	10	Electricity	68.4709	0	68.4709	0	0	0	0	0	0	0	0	0.00235	0.00082
San Franci	2025	LDT1	Aggregate	10	Plug-in Hybrid	32.2633	2.63093	29.6324	0.001327133	0.000303997	0.00033	0.00103	0.00151	0.0959	0.00046	0.00342	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Gasoline	14062.4	14062.4	0	0.07879064	0.005473985	0.00595	0.03763	0.05492	1.22676	0.00646	0.03742	0.01014	0.00355
San Franci	2025	LDT2	Aggregate	10	Diesel	68.5461	68.5461	0	0.134436438	0.011048481	0.01155	0.20319	0.23132	2.14105	0.00634	0.0031	0.01034	0.00362
San Franci	2025	LDT2	Aggregate	10	Electricity	675.431	0	675.431	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	LDT2	Aggregate	10	Plug-in Hybrid	783.613	69.6062	714.007	0.001445642	0.000394766	0.00043	0.00113	0.00164	0.10446	0.0005	0.00373	0.00235	0.00082
San Franci	2025	LHD1	Aggregate	10	Gasoline	13095.8	13095.8	0	0.146244745	0.002310545	0.00251	0.06223	0.09081	1.70121	0.01271	0.04495	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Diesel	3968.83	3968.83	0	1.086348373	0.042054042	0.04396	0.21148	0.24075	0.60484	0.00946	0.19794	0.078	0.0273
San Franci	2025	LHD1	Aggregate	10	Electricity	185.387	0	185.387	0	0	0	0	0	0	0	0	0.039	0.01365
San Franci	2025	LHD2	Aggregate	10	Gasoline	1579.71	1579.71	0	0.160656361	0.002170053	0.00236	0.04574	0.06674	1.35786	0.01434	0.04498	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Diesel	2233.54	2233.54	0	1.141968008	0.042692187	0.04462	0.20802	0.23682	0.61224	0.01141	0.20056	0.091	0.03185
San Franci	2025	LHD2	Aggregate	10	Electricity	41.9693	0	41.9693	0	0	0	0	0	0	0	0	0.0455	0.01593
San Franci	2025	MDV	Aggregate	10	Gasoline	6578.76	6578.76	0	0.0931103	0.005011149	0.00545	0.04464	0.06513	1.25874	0.0077	0.03787	0.0101	0.00353
San Franci	2025	MDV	Aggregate	10	Diesel	114.33	114.33	0	0.11779779	0.011431576	0.01195	0.14863	0.16921	3.03848	0.00782	0.0031	0.01046	0.00366
San Franci	2025	MDV	Aggregate	10	Electricity	719.952	0	719.952	0	0	0	0	0	0	0	0	0.00234	0.00082
San Franci	2025	MDV	Aggregate	10	Plug-in Hybrid	458.087	40.4572	417.63	0.00143735	0.000412087	0.00045	0.00112	0.00163	0.10386	0.0005	0.00371	0.00235	0.00082
San Franci	2025	T6 instate small	Aggregate	10	Diesel	2535.61	2535.61	0	2.497668002	0.039888068	0.04169	0.17255	0.19643	0.3876	0.01883	0.21537	0.0615	0.02152
San Franci	2025	T6 instate small	Aggregate	10	Electricity	22.9129	0	22.9129	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T6 instate small	Aggregate	10	Natural Gas	11.2956	11.2956	0	0.309957451	0.003696949	0.00402	0.03629	2.59215	7.6178	0	1.06	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Gasoline	1446.48	1446.48	0	0.586535243	0.003591998	0.00391	0.1914	0.27929	2.1203	0.03149	0.04499	0.0615	0.02152
San Franci	2025	T6TS	Aggregate	10	Electricity	12.9999	0	12.9999	0	0	0	0	0	0	0	0	0.03075	0.01076
San Franci	2025	T7 Single	Aggregate	10	Diesel	239.356	239.356	0	5.741149077	0.007393932	0.00773	0.06735	0.07667	0.6471	0.0269	0.21987	0.13718	0.04801
San Franci	2025	T7 Single	Aggregate	10	Electricity	2.81502	0	2.81502	0	0	0	0	0	0	0	0	0.0689	0.02411
San Franci	2025	T7 Single	Aggregate	10	Natural Gas	15.6948	15.6948	0	1.446023995	0.007124619	0.00775	0.0781	5.5784	21.74	0	1.06	0.13714	0.048
San Franci	2025	T7 Tractor	Aggregate	10	Diesel	92.1094	92.1094	0	7.332150843	0.008126013	0.00849	0.07304	0.08315	0.74597	0.02566	0.21998	0.13718	0.04801
San Franci	2025	T7 Tractor	Aggregate	10	Electricity	0.52215	0	0.52215	0	0	0	0	0	0	0	0	0.06935	0.02427
San Franci	2025	T7 Tractor	Aggregate	10	Natural Gas	17.641	17.641	0	3.13107158	0.005215433	0.00567	0.0901	6.43552	22.7046	0	1.06	0.13712	0.04799

35,000 sq ft Bakery

lbs/day	Pollutant
1.06E-04	Benzene (41)
1.36E+04	Carbon Dioxide, non-biogenic CO2 (6960)
3.74E+00	Carbon Monoxide (CO) pollutant (4990)
1.06E+00	Ethyl alcohol (105)
1.25E-03	Formaldehyde (124)
5.43E-02	Methane (CH4) (6970)
1.50E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
2.47E-02	Nitrous Oxide (N2O) (2030)
4.59E+00	Organics (other, including CH4) (990)
4.01E+00	Particulates (part not spec elsewhere) (1990)
6.08E-02	Sulfur Dioxide (SO2) (3990)
5.65E-05	Toluene (293)

54211	Freund Bakery Square Footage
35000	Bakery Maker Space Square Footage

lbs/day	Pollutant	lb/hr	lb/yr			
6.84E-05	Benzene (41)	5.70E-06	1.81E-02	Carcinogen		
8.78E+03	Carbon Dioxide, non-biogenic CO2 (6960)	7.32E+02	2.32E+06		CO2	
2.41E+00	Carbon Monoxide (CO) pollutant (4990)	2.01E-01	6.37E+02		CO	
6.84E-01	Ethyl alcohol (105)	5.70E-02	1.81E+02			
8.07E-04	Formaldehyde (124)	6.73E-05	2.13E-01	Carcinogen		
3.51E-02	Methane (CH4) (6970)	2.92E-03	9.26E+00		CH4	
9.68E+00	Nitrogen Oxides (part not spec elsewhere) (2990)	8.07E-01	2.56E+03		NOx	
1.59E-02	Nitrous Oxide (N2O) (2030)	1.33E-03	4.21E+00		N2O	
2.96E+00	Organics (other, including CH4) (990)	2.47E-01	7.82E+02		TOG	Use ratio below for ROG
2.59E+00	Particulates (part not spec elsewhere) (1990)	2.16E-01	6.83E+02		TPM	Use ratios below for PM2.5 and PM10
3.93E-02	Sulfur Dioxide (SO2) (3990)	3.27E-03	1.04E+01		SO2	
3.65E-05	Toluene (293)	3.04E-06	9.63E-03	Acute HI, Chronic HI		

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=420

SCC/EIC	YEAR	PM PROFILE NUMBER	PM2.5/TPM	PM10/TPM	OG PROFILE NUMBER	ROG/TOG	VOC/TOG
42041260120000	0	900	0.42	0.7	211	1	1

<--- Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr
211	Beer fermentation- ethanol	43302	1	Ethyl Alcohol	2.47E-01	7.82E+02

Apparel Manufacturing/Printing

lbs/day	Pollutant
5.44E-04	Benzene (41)
1.05E+04	Carbon Dioxide, non-biogenic CO2 (6960)
2.99E+00	Carbon Monoxide (CO) pollutant (4990)
6.40E-03	Formaldehyde (124)
9.58E-02	Glycols (131)
3.83E-02	Isopropyl alcohol (157)
1.62E-01	Methane (CH4) (6970)
0.00E+00	Mineral spirits (184)
1.19E+01	Nitrogen Oxides (part not spec elsewhere) (2990)
1.97E-02	Nitrous Oxide (N2O) (2030)
5.75E-02	Organic liquid evap - other/not spec (201)
4.88E-01	Organics (other, including CH4) (990)
2.56E-01	Particulates (part not spec elsewhere) (1990)
4.85E-02	Sulfur Dioxide (SO2) (3990)
2.90E-04	Toluene (293)

11974	Graphic Square Footage
35000	Apparel Maker Space Square Footage

lb/day	Pollutant	lb/hr	lb/yr		
1.59E-03	Benzene (41)	1.33E-04	4.20E-01	Carcinogen	
3.07E+04	Carbon Dioxide, non-biogenic CO2 (6960)	2.56E+03	8.10E+06		CO2
8.74E+00	Carbon Monoxide (CO) pollutant (4990)	7.28E-01	2.31E+03		CO
1.87E-02	Formaldehyde (124)	1.56E-03	4.94E+00	Carcinogen	
2.80E-01	Glycols (131)	2.33E-02	7.39E+01		
1.12E-01	Isopropyl alcohol (157)	9.33E-03	2.96E+01	Acute, Chronic HI	
4.74E-01	Methane (CH4) (6970)	3.95E-02	1.25E+02		CH4
0.00E+00	Mineral spirits (184)	0.00E+00	0.00E+00		
3.48E+01	Nitrogen Oxides (part not spec elsewhere) (2990)	2.90E+00	9.18E+03		NOx
5.76E-02	Nitrous Oxide (N2O) (2030)	4.80E-03	1.52E+01		N2O
1.68E-01	Organic liquid evap - other/not spec (201)	1.40E-02	4.44E+01		
1.43E+00	Organics (other, including CH4) (990)	1.19E-01	3.77E+02		TOG
7.48E-01	Particulates (part not spec elsewhere) (1990)	6.24E-02	1.98E+02		TPM
1.42E-01	Sulfur Dioxide (SO2) (3990)	1.18E-02	3.74E+01		SO2
8.48E-04	Toluene (293)	7.06E-05	2.24E-01	Acute HI, Chronic HI	

EIC Code: https://www.arb.ca.gov/app/emsinv/2017/emseic_query.php?F_YR=2012&F_DIV=1&F_SEASON=A&SP=SIP105ADJ&SPN=SIP105ADJ&F_AREA=CA&F_EICSUM=240

	PM PROFILE			OG PROFILE				
SCC/EIC	YEAR	NUMBER	PM2.5/TPM	PM10/TPM	NUMBER	ROG/TOG	VOC/TOG	Column1
24026884000000	0	2204	0.925	0.96	517	1	1	<---

Ratio of Total PM (TPM) to PM10 and PM2.5, also ratio of Total Organic Compounds to ROG

https://ww3.arb.ca.gov/ei/speciate/webfraction21feb19.zip

OG PROFILE NUMBER	OG PROFILE NAME	SAROAD	WEIGHT FRACTION	TAC	lb/hr	lb/yr	
517	Printing evaporation loss- general	43109	0.07214998	Isomers Of Decane	1.01E-03	3.20E+00	
517	Printing evaporation loss- general	43110	0.04752998	Isomers Of Undecane	6.66E-04	2.11E+00	
517	Printing evaporation loss- general	43111	0.0067	Isomers Of Dodecane	9.38E-05	2.97E-01	
517	Printing evaporation loss- general	43112	0.0003	Isomers Of Tridecane	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	43146	0.0059	C11 Internal Alkenes	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	43147	0.0007	C12 Internal Alkenes	9.80E-06	3.11E-02	
517	Printing evaporation loss- general	43151	0.0004	Isomers Of Decyne	5.60E-06	1.77E-02	
517	Printing evaporation loss- general	43152	0.0013	Isomers Of Undecyne	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	43229	0.0001	2-Methylpentane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43235	0.04183	N-Nonane	5.86E-04	1.86E+00	
517	Printing evaporation loss- general	43261	0.0001	Methylcyclohexane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43267	0.0001	1-Nonene	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	43288	0.0035	Ethylcyclohexane	4.90E-05	1.55E-01	
517	Printing evaporation loss- general	43302	0.20019974	Ethyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43304	0.20013977	Isopropyl Alcohol	2.80E-03	8.88E+00	
517	Printing evaporation loss- general	43336	0.0006	Octanol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	43397	0.001	Trimethylcyclohexanol	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	43566	0.0009	rimethylcyclopentanon	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	43567	0.0038	Tetramethylpentanone	5.32E-05	1.69E-01	
517	Printing evaporation loss- general	45105	0.02242	somers Of Butylbenzen	3.14E-04	9.95E-01	
517	Printing evaporation loss- general	45107	0.01341	Trimethylbenzenes	1.88E-04	5.95E-01	
517	Printing evaporation loss- general	45202	0.003	Toluene	4.20E-05	1.33E-01	Acute HI, Chronic HI
517	Printing evaporation loss- general	45203	0.0021	Ethyl Benzene	2.94E-05	9.32E-02	Carcinogen
517	Printing evaporation loss- general	45204	0.00941	O-Xylene	1.32E-04	4.18E-01	Chronic HI
517	Printing evaporation loss- general	45205	0.01360998	M-Xylene	1.91E-04	6.04E-01	Chronic HI
517	Printing evaporation loss- general	45209	0.0059	N-Propylbenzene	8.26E-05	2.62E-01	
517	Printing evaporation loss- general	45215	0.0019	T-Butylbenzene	2.66E-05	8.43E-02	
517	Printing evaporation loss- general	45245	0.0006	C11 Dialkyl Benzenes	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	45303	0.0023	C10 Alkylphenols	3.22E-05	1.02E-01	
517	Printing evaporation loss- general	45304	0.001	C11 Alkylphenols	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	45320	0.0009	Dimethylbenzylalcohol	1.26E-05	3.99E-02	
517	Printing evaporation loss- general	45801	0.0016	Chlorobenzene	2.24E-05	7.10E-02	Chronic HI
517	Printing evaporation loss- general	46202	0.001	Octahydroindenes	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	46601	0.0003	Tetramethylthiourea	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46602	0.0003	Benzothiazole	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	46748	0.0033	Methyldecalins	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	46753	0.0036	-Decahydronaphthalen	5.04E-05	1.60E-01	
517	Printing evaporation loss- general	90047	0.02502	2-Methylnonane	3.50E-04	1.11E+00	
517	Printing evaporation loss- general	90049	0.0055	Methylundecane	7.70E-05	2.44E-01	
517	Printing evaporation loss- general	90063	0.0026	2,4-Dimethyl-1-Pentene	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90066	0.001	Nonadiene	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90069	0.0057	imethylethylcyclohexan	7.98E-05	2.53E-01	
517	Printing evaporation loss- general	90071	0.0014	Dimethylundecane	1.96E-05	6.21E-02	
517	Printing evaporation loss- general	90072	0.03592999	ethyl Propylcyclohexan	5.03E-04	1.59E+00	
517	Printing evaporation loss- general	90074	0.0017	Dimethyldecane	2.38E-05	7.54E-02	
517	Printing evaporation loss- general	90076	0.01490998	Dimethylnonane	2.09E-04	6.62E-01	
517	Printing evaporation loss- general	90077	0.0013	Ethyloctane	1.82E-05	5.77E-02	
517	Printing evaporation loss- general	90081	0.002	Ethylhexane	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	90082	0.0006	Ethylmethylhexane	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90083	0.02561998	thylmethylcyclohexane	3.59E-04	1.14E+00	
517	Printing evaporation loss- general	90090	0.003	thyl Propylcyclohexane	4.20E-05	1.33E-01	
517	Printing evaporation loss- general	90095	0.0021	Trimethylhexene	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90096	0.0021	Trimethyloctanes	2.94E-05	9.32E-02	
517	Printing evaporation loss- general	90097	0.0001	Trimethyldecane	1.40E-06	4.44E-03	
517	Printing evaporation loss- general	90098	0.0033	etramethylcyclopentan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90101	0.01011	Butylcyclohexane	1.42E-04	4.49E-01	
517	Printing evaporation loss- general	90105	0.0046	Propenylcyclohexane	6.44E-05	2.04E-01	
517	Printing evaporation loss- general	90107	0.004	Methyldecene	5.60E-05	1.77E-01	
517	Printing evaporation loss- general	90109	0.0033	Propyl Heptene	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90110	0.0033	ethylmethylcyclohexan	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	90111	0.0026	propylmethylcyclohexa	3.64E-05	1.15E-01	
517	Printing evaporation loss- general	90112	0.0006	Dimethyoctyne Diol	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90113	0.001	entylindenecyclohexan	1.40E-05	4.44E-02	
517	Printing evaporation loss- general	90114	0.0003	imethylbutylcyclohexan	4.20E-06	1.33E-02	
517	Printing evaporation loss- general	90118	0.0006	Octahydropentalene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	90120	0.01271	Isopropylcyclohexane	1.78E-04	5.64E-01	
517	Printing evaporation loss- general	98025	0.0006	A-Pinene	8.40E-06	2.66E-02	
517	Printing evaporation loss- general	98039	0.01290998	C10 Internal Alkenes	1.81E-04	5.73E-01	
517	Printing evaporation loss- general	98046	0.0021	Naphthalene	2.94E-05	9.32E-02	Carcinogen, Chronic HI
517	Printing evaporation loss- general	98048	0.002	Indene	2.80E-05	8.87E-02	
517	Printing evaporation loss- general	98059	0.0028	s-1,3-Dimethylcyclohex	3.92E-05	1.24E-01	
517	Printing evaporation loss- general	98060	0.01210999	Trimethylcyclohexane	1.70E-04	5.37E-01	
517	Printing evaporation loss- general	98062	0.0027	Diethylcyclohexane	3.78E-05	1.20E-01	
517	Printing evaporation loss- general	98091	0.0033	Dimethylheptanes	4.62E-05	1.46E-01	
517	Printing evaporation loss- general	98146	0.00891	2-Methyloctane	1.25E-04	3.95E-01	
517	Printing evaporation loss- general	98147	0.03532	2,4,5-Trimethylheptane	4.95E-04	1.57E+00	
517	Printing evaporation loss- general	98149	0.03893	2,4-Dimethyloctane	5.45E-04	1.73E+00	
517	Printing evaporation loss- general	98155	0.02511998	2-Methyldecane	3.52E-04	1.11E+00	
517	Printing evaporation loss- general	99915	0.0023	l-Methyl-2-Ethylbenzen	3.22E-05	1.02E-01	

Attachment B

Alternatives Health Risk Assessment and $PM_{2.5}$ Modeling Inputs

Alternative Emission Percent Changes from Proposed Project and Estimated Health Risks for Alternatives C and D

Percent Change from Project

Pollutant by Alternative	Emission Source Group				
	Onsite (Mobile)	Onsite (Generators)	Onsite (Makerspace)	Offsite (Last Mile)	Offsite (Deliveries/Workers)
Alternative B - Code Compliant					
ROG	-31%	0%	-31%	-30%	-31%
PM2.5 Exhaust	-30%	0%	-31%	-30%	-30%
PM2.5 Total	-24%	0%	0%	-30%	-31%
Alternative C - Fleet Management					
ROG	-27%	0%	-100%	-24%	-13%
PM2.5 Exhaust	-47%	0%	-100%	-23%	-2%
PM2.5 Total	-18%	0%	-100%	-23%	+20%
Alternative D - Expanded Parcel Delivery					
ROG	+4%	0%	-100%	+53%	-16%
PM2.5 Exhaust	-8%	0%	-100%	+52%	-8%
PM2.5 Total	-1%	0%	-100%	+53%	-18%

Project

Cancer Risk - Resident

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Scenario 1					
Risk (in-a-mil)	1.48	1.69	0.49	0.39	4.05
% Culp	37%	42%	12%	10%	100%
Scenario 2					
Risk (in-a-mil)	N/A	3.07	0.89	0.72	4.68
% Culp	N/A	66%	19%	15%	100%

Cancer Risk - Worker

Parameter		Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Scenario 1					
Risk (in-a-mil)	0.66	3.48	0.8	0.15	5.09
% Culp	13%	68%	16%	3%	100%
Scenario 2					
Risk (in-a-mil)	N/A	3.79	0.87	0.16	4.82
% Culp	N/A	79%	18%	3%	100%

Annual PM2.5 - Resident (553000, 4177060)

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Risk (in-a-mil)	N/A	0.028	0.039	0.013	0.080
% Culp	N/A	35%	48%	16%	100%

Annual PM2.5 - Worker (552920, 4177300)

Parameter		Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Risk (in-a-mil)	N/A	0.111	0.019	0.044	0.174
% Culp	N/A	64%	11%	25%	100%

Cancer Risk for Alternative C - Fleet Management

Cancer Risk - Resident

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
		Scenario 1			
Risk (in-a-mil)	1.48	0.90	0.38	0.38	3.14
% Culp	47%	29%	12%	12%	100%
		Scenario 2			
Risk (in-a-mil)	N/A	1.63	0.69	0.71	3.02
% Culp	N/A	54%	23%	23%	100%

Cancer Risk - Worker

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
		Scenario 1			
Risk (in-a-mil)	0.66	1.84	0.62	0.15	3.27
% Culp	20%	56%	19%	4%	100%
		Scenario 2			
Risk (in-a-mil)	N/A	2.01	0.67	0.16	2.84
% Culp	N/A	71%	24%	6%	100%

Annual PM2.5 - Resident (553000, 4177060)

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Risk (in-a-mil)	N/A	0.023	0.030	0.016	0.068
% Culp	N/A	34%	44%	23%	100%

Annual PM2.5 - Worker (552920, 4177300)

Parameter		Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Risk (in-a-mil)	N/A	0.091	0.015	0.053	0.159
% Culp	N/A	57%	9%	33%	100%

Cancer Risk for Alternative D - Expanded Parcel Delivery

Cancer Risk - Resident

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
		Scenario 1			
Risk (in-a-mil)	1.48	1.55	0.74	0.36	4.14
% Culp	36%	38%	18%	9%	100%
		Scenario 2			
Risk (in-a-mil)	N/A	2.82	1.35	0.66	4.84
% Culp	N/A	58%	28%	14%	100%

Cancer Risk - Worker

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
		Scenario 1			
Risk (in-a-mil)	0.66	3.20	1.22	0.14	5.22
% Culp	13%	61%	23%	3%	100%
		Scenario 2			
Risk (in-a-mil)	N/A	3.49	1.32	0.15	4.96
% Culp	N/A	70%	27%	3%	100%

Annual PM2.5 - Resident (553000, 4177060)

Parameter	Construction	Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Risk (in-a-mil)	N/A	0.028	0.059	0.011	0.098
% Culp	N/A	29%	61%	11%	100%

Annual PM2.5 - Worker (552920, 4177300)

Parameter		Onsite (Mobile + Stationary)	Offsite (Last Mile)	Offsite (Deliveries/Workers)	Total
Risk (in-a-mil)	N/A	0.110	0.030	0.036	0.176
% Culp	N/A	63%	17%	21%	100%

HRA Model Inputs: Code Compliant Alternative (Alt B)

SRC ID	SRC No.	CAS No.	Pollutant	Operations - Onsite	
				lb/yr	lb/hr
EMGEN_A1	1	9901	DieselExhPM	5.28E+00	0.00E+00
EMGEN_B1	2	9901	DieselExhPM	5.28E+00	0.00E+00
EXHL1	3	9901	DieselExhPM	2.07E+00	0.00E+00
EXHL2	4	9901	DieselExhPM	3.74E+00	0.00E+00
EXHL3	5	9901	DieselExhPM	1.18E+01	0.00E+00
VEH_AL1	6	9901	DieselExhPM	9.71E-01	0.00E+00
VEH_AL2	7	9901	DieselExhPM	8.57E-01	0.00E+00
VEH_AL3	8	9901	DieselExhPM	3.14E-01	0.00E+00
VEH_BL1	9	9901	DieselExhPM	9.71E-01	0.00E+00
VEH_BL2	10	9901	DieselExhPM	8.57E-01	0.00E+00
VEH_BL3	11	9901	DieselExhPM	3.14E-01	0.00E+00
MKSPACE	12	71432	Benzene	2.64E-01	8.33E-05
MKSPACE	12	50000	Formaldehyde	3.11E+00	9.80E-04
MKSPACE	12	1115	Glycol Ethers	4.65E+01	1.47E-02
MKSPACE	12	67630	Isopropyl Alcoh	1.86E+01	5.87E-03
MKSPACE	12	108883	Toluene	2.24E-01	7.08E-05
MKSPACE	12	100414	Ethyl Benzene	5.86E-02	1.85E-05
MKSPACE	12	95476	o-Xylene	2.63E-01	8.29E-05
MKSPACE	12	108383	m-Xylene	3.80E-01	1.20E-04
MKSPACE	12	108907	Chlorobenzn	4.46E-02	1.41E-05
MKSPACE	12	91203	Naphthalene	5.86E-02	1.85E-05
EXHL1	3	75070	Acetaldehyde	1.20E-01	1.37E-05
EXHL1	3	107028	Acrolein	5.57E-02	6.36E-06
EXHL1	3	71432	Benzene	1.06E+00	1.21E-04
EXHL1	3	106990	1,3-Butadiene	2.36E-01	2.69E-05
EXHL1	3	100414	Ethylbenzene	4.50E-01	5.14E-05
EXHL1	3	50000	Formaldehyde	6.77E-01	7.73E-05
EXHL1	3	110543	Hexane	6.85E-01	7.82E-05
EXHL1	3	67561	Methanol	5.14E-02	5.87E-06
EXHL1	3	78933	Methyl Ethyl Ketone	8.57E-03	9.78E-07
EXHL1	3	91203	Naphthalene	2.14E-02	2.45E-06
EXHL1	3	115071	Propylene	1.31E+00	1.50E-04
EXHL1	3	100425	Styrene	5.14E-02	5.87E-06
EXHL1	3	108883	Toluene	2.47E+00	2.82E-04
EXHL1	3	1330207	Xylenes	2.06E+00	2.35E-04
EXHL2	4	75070	Acetaldehyde	1.94E-01	2.22E-05
EXHL2	4	107028	Acrolein	9.01E-02	1.03E-05
EXHL2	4	71432	Benzene	1.71E+00	1.95E-04
EXHL2	4	106990	1,3-Butadiene	3.81E-01	4.35E-05
EXHL2	4	100414	Ethylbenzene	7.28E-01	8.31E-05
EXHL2	4	50000	Formaldehyde	1.09E+00	1.25E-04
EXHL2	4	110543	Hexane	1.11E+00	1.27E-04
EXHL2	4	67561	Methanol	8.32E-02	9.49E-06
EXHL2	4	78933	Methyl Ethyl Ketone	1.39E-02	1.58E-06
EXHL2	4	91203	Naphthalene	3.46E-02	3.96E-06

EXHL2	4	115071	Propylene	2.12E+00	2.42E-04
EXHL2	4	100425	Styrene	8.32E-02	9.49E-06
EXHL2	4	108883	Toluene	3.99E+00	4.56E-04
EXHL2	4	1330207	Xylenes	3.33E+00	3.80E-04
EXHL3	5	75070	Acetaldehyde	6.51E-01	7.43E-05
EXHL3	5	107028	Acrolein	3.02E-01	3.45E-05
EXHL3	5	71432	Benzene	5.74E+00	6.55E-04
EXHL3	5	106990	1,3-Butadiene	1.28E+00	1.46E-04
EXHL3	5	100414	Ethylbenzene	2.44E+00	2.79E-04
EXHL3	5	50000	Formaldehyde	3.67E+00	4.19E-04
EXHL3	5	110543	Hexane	3.72E+00	4.25E-04
EXHL3	5	67561	Methanol	2.79E-01	3.18E-05
EXHL3	5	78933	Methyl Ethyl Ketone	4.65E-02	5.31E-06
EXHL3	5	91203	Naphthalene	1.16E-01	1.33E-05
EXHL3	5	115071	Propylene	7.11E+00	8.12E-04
EXHL3	5	100425	Styrene	2.79E-01	3.18E-05
EXHL3	5	108883	Toluene	1.34E+01	1.53E-03
EXHL3	5	1330207	Xylenes	1.12E+01	1.27E-03
VEH_AL1	6	75070	Acetaldehyde	1.36E-01	1.55E-05
VEH_AL1	6	107028	Acrolein	6.31E-02	7.21E-06
VEH_AL1	6	71432	Benzene	1.20E+00	1.37E-04
VEH_AL1	6	106990	1,3-Butadiene	2.67E-01	3.05E-05
VEH_AL1	6	100414	Ethylbenzene	5.10E-01	5.82E-05
VEH_AL1	6	50000	Formaldehyde	7.67E-01	8.76E-05
VEH_AL1	6	110543	Hexane	7.77E-01	8.87E-05
VEH_AL1	6	67561	Methanol	5.83E-02	6.65E-06
VEH_AL1	6	78933	Methyl Ethyl Ketone	9.72E-03	1.11E-06
VEH_AL1	6	91203	Naphthalene	2.43E-02	2.77E-06
VEH_AL1	6	115071	Propylene	1.49E+00	1.70E-04
VEH_AL1	6	100425	Styrene	5.83E-02	6.65E-06
VEH_AL1	6	108883	Toluene	2.80E+00	3.19E-04
VEH_AL1	6	1330207	Xylenes	2.33E+00	2.66E-04
VEH_AL2	7	75070	Acetaldehyde	9.90E-02	1.13E-05
VEH_AL2	7	107028	Acrolein	4.60E-02	5.25E-06
VEH_AL2	7	71432	Benzene	8.74E-01	9.97E-05
VEH_AL2	7	106990	1,3-Butadiene	1.95E-01	2.22E-05
VEH_AL2	7	100414	Ethylbenzene	3.71E-01	4.24E-05
VEH_AL2	7	50000	Formaldehyde	5.59E-01	6.38E-05
VEH_AL2	7	110543	Hexane	5.66E-01	6.46E-05
VEH_AL2	7	67561	Methanol	4.24E-02	4.84E-06
VEH_AL2	7	78933	Methyl Ethyl Ketone	7.07E-03	8.07E-07
VEH_AL2	7	91203	Naphthalene	1.77E-02	2.02E-06
VEH_AL2	7	115071	Propylene	1.08E+00	1.24E-04
VEH_AL2	7	100425	Styrene	4.24E-02	4.84E-06
VEH_AL2	7	108883	Toluene	2.04E+00	2.33E-04
VEH_AL2	7	1330207	Xylenes	1.70E+00	1.94E-04
VEH_AL3	8	75070	Acetaldehyde	6.71E-02	7.66E-06

VEH_AL3	8	107028	Acrolein	3.12E-02	3.56E-06
VEH_AL3	8	71432	Benzene	5.92E-01	6.76E-05
VEH_AL3	8	106990	1,3-Butadiene	1.32E-01	1.50E-05
VEH_AL3	8	100414	Ethylbenzene	2.52E-01	2.87E-05
VEH_AL3	8	50000	Formaldehyde	3.79E-01	4.32E-05
VEH_AL3	8	110543	Hexane	3.83E-01	4.38E-05
VEH_AL3	8	67561	Methanol	2.88E-02	3.28E-06
VEH_AL3	8	78933	Methyl Ethyl Ketone	4.79E-03	5.47E-07
VEH_AL3	8	91203	Naphthalene	1.20E-02	1.37E-06
VEH_AL3	8	115071	Propylene	7.33E-01	8.37E-05
VEH_AL3	8	100425	Styrene	2.88E-02	3.28E-06
VEH_AL3	8	108883	Toluene	1.38E+00	1.58E-04
VEH_AL3	8	1330207	Xylenes	1.15E+00	1.31E-04
VEH_BL1	9	75070	Acetaldehyde	1.36E-01	1.55E-05
VEH_BL1	9	107028	Acrolein	6.31E-02	7.21E-06
VEH_BL1	9	71432	Benzene	1.20E+00	1.37E-04
VEH_BL1	9	106990	1,3-Butadiene	2.67E-01	3.05E-05
VEH_BL1	9	100414	Ethylbenzene	5.10E-01	5.82E-05
VEH_BL1	9	50000	Formaldehyde	7.67E-01	8.76E-05
VEH_BL1	9	110543	Hexane	7.77E-01	8.87E-05
VEH_BL1	9	67561	Methanol	5.83E-02	6.65E-06
VEH_BL1	9	78933	Methyl Ethyl Ketone	9.72E-03	1.11E-06
VEH_BL1	9	91203	Naphthalene	2.43E-02	2.77E-06
VEH_BL1	9	115071	Propylene	1.49E+00	1.70E-04
VEH_BL1	9	100425	Styrene	5.83E-02	6.65E-06
VEH_BL1	9	108883	Toluene	2.80E+00	3.19E-04
VEH_BL1	9	1330207	Xylenes	2.33E+00	2.66E-04
VEH_BL2	10	75070	Acetaldehyde	9.90E-02	1.13E-05
VEH_BL2	10	107028	Acrolein	4.60E-02	5.25E-06
VEH_BL2	10	71432	Benzene	8.74E-01	9.97E-05
VEH_BL2	10	106990	1,3-Butadiene	1.95E-01	2.22E-05
VEH_BL2	10	100414	Ethylbenzene	3.71E-01	4.24E-05
VEH_BL2	10	50000	Formaldehyde	5.59E-01	6.38E-05
VEH_BL2	10	110543	Hexane	5.66E-01	6.46E-05
VEH_BL2	10	67561	Methanol	4.24E-02	4.84E-06
VEH_BL2	10	78933	Methyl Ethyl Ketone	7.07E-03	8.07E-07
VEH_BL2	10	91203	Naphthalene	1.77E-02	2.02E-06
VEH_BL2	10	115071	Propylene	1.08E+00	1.24E-04
VEH_BL2	10	100425	Styrene	4.24E-02	4.84E-06
VEH_BL2	10	108883	Toluene	2.04E+00	2.33E-04
VEH_BL2	10	1330207	Xylenes	1.70E+00	1.94E-04
VEH_BL3	11	75070	Acetaldehyde	6.71E-02	7.66E-06
VEH_BL3	11	107028	Acrolein	3.12E-02	3.56E-06
VEH_BL3	11	71432	Benzene	5.92E-01	6.76E-05
VEH_BL3	11	106990	1,3-Butadiene	1.32E-01	1.50E-05
VEH_BL3	11	100414	Ethylbenzene	2.52E-01	2.87E-05
VEH_BL3	11	50000	Formaldehyde	3.79E-01	4.32E-05

VEH_BL3	11	110543	Hexane	3.83E-01	4.38E-05
VEH_BL3	11	67561	Methanol	2.88E-02	3.28E-06
VEH_BL3	11	78933	Methyl Ethyl Ketone	4.79E-03	5.47E-07
VEH_BL3	11	91203	Naphthalene	1.20E-02	1.37E-06
VEH_BL3	11	115071	Propylene	7.33E-01	8.37E-05
VEH_BL3	11	100425	Styrene	2.88E-02	3.28E-06
VEH_BL3	11	108883	Toluene	1.38E+00	1.58E-04
VEH_BL3	11	1330207	Xylenes	1.15E+00	1.31E-04

HRA Model Inputs: Code Compliant Alternative (Alt B)

SRC ID	SRC No.	CAS No.	Pollutant	Operations - Last Mile	
				lb/yr	lb/hr
TOLAN1	1	9901	DieselExhPM	8.24E-02	0.00E+00
OAKD1	2	9901	DieselExhPM	8.24E-02	0.00E+00
OAKD2	3	9901	DieselExhPM	8.24E-02	0.00E+00
INDU1	4	9901	DieselExhPM	8.24E-02	0.00E+00
TOLAN2	5	9901	DieselExhPM	8.24E-02	0.00E+00
TOLAN3	6	9901	DieselExhPM	8.24E-02	0.00E+00
TOLAN4	7	9901	DieselExhPM	1.09E-02	0.00E+00
JERR1	8	9901	DieselExhPM	8.24E-02	0.00E+00
RANK1	9	9901	DieselExhPM	1.09E-02	0.00E+00
JERR2	10	9901	DieselExhPM	1.09E-02	0.00E+00
BARNE1	11	9901	DieselExhPM	1.09E-02	0.00E+00
NEWC1	12	9901	DieselExhPM	1.09E-02	0.00E+00
MCKI1	13	9901	DieselExhPM	1.09E-02	0.00E+00
TOLANP	14	9901	DieselExhPM	1.09E-02	0.00E+00
UPTON1	15	9901	DieselExhPM	1.09E-02	0.00E+00
HUDSO1	16	9901	DieselExhPM	1.09E-02	0.00E+00
INNES1	17	9901	DieselExhPM	1.09E-02	0.00E+00
INNES2	18	9901	DieselExhPM	1.09E-02	0.00E+00
MILTO1	19	9901	DieselExhPM	1.09E-02	0.00E+00
MILTO2	20	9901	DieselExhPM	1.09E-02	0.00E+00
JERR3	21	9901	DieselExhPM	1.09E-02	0.00E+00
JERR4	22	9901	DieselExhPM	1.09E-02	0.00E+00
JERR5	23	9901	DieselExhPM	1.09E-02	0.00E+00
JERR6	24	9901	DieselExhPM	1.09E-02	0.00E+00
KIRK1	25	9901	DieselExhPM	1.09E-02	0.00E+00
KIRK2	26	9901	DieselExhPM	1.09E-02	0.00E+00
RANK2	27	9901	DieselExhPM	1.09E-02	0.00E+00
MCKI2	28	9901	DieselExhPM	1.09E-02	0.00E+00
MCKI3	29	9901	DieselExhPM	1.09E-02	0.00E+00
NEWC2	30	9901	DieselExhPM	1.09E-02	0.00E+00
NEWC3	31	9901	DieselExhPM	1.09E-02	0.00E+00
OAKD3	32	9901	DieselExhPM	8.24E-02	0.00E+00
OAKD4	33	9901	DieselExhPM	8.24E-02	0.00E+00
PALO1	34	9901	DieselExhPM	1.09E-02	0.00E+00
PALO2	35	9901	DieselExhPM	1.09E-02	0.00E+00
PALO3	36	9901	DieselExhPM	1.09E-02	0.00E+00
OAKD5	37	9901	DieselExhPM	1.09E-02	0.00E+00
QUIN1	38	9901	DieselExhPM	1.09E-02	0.00E+00
QUIN2	39	9901	DieselExhPM	1.09E-02	0.00E+00
RANK3	40	9901	DieselExhPM	1.09E-02	0.00E+00
RANK4	41	9901	DieselExhPM	1.09E-02	0.00E+00
RANK5	42	9901	DieselExhPM	1.09E-02	0.00E+00
PALO4	43	9901	DieselExhPM	1.09E-02	0.00E+00
DORM1	44	9901	DieselExhPM	1.09E-02	0.00E+00
APPA1	45	9901	DieselExhPM	1.09E-02	0.00E+00

SELB1	46	9901	DieselExhPM	1.09E-02	0.00E+00
SELB2	47	9901	DieselExhPM	1.09E-02	0.00E+00
SELB3	48	9901	DieselExhPM	8.24E-02	0.00E+00
SELB4	49	9901	DieselExhPM	1.09E-02	0.00E+00
SELB5	50	9901	DieselExhPM	1.09E-02	0.00E+00
SELB6	51	9901	DieselExhPM	1.09E-02	0.00E+00
SELB7	52	9901	DieselExhPM	1.09E-02	0.00E+00
SELB8	53	9901	DieselExhPM	1.09E-02	0.00E+00
BAYSH1	54	9901	DieselExhPM	8.24E-02	0.00E+00
INDUS1	55	9901	DieselExhPM	8.24E-02	0.00E+00
BAYSH2	56	9901	DieselExhPM	8.24E-02	0.00E+00
BAYSH3	57	9901	DieselExhPM	8.24E-02	0.00E+00
BARN2	58	9901	DieselExhPM	1.09E-02	0.00E+00
LOOM1	59	9901	DieselExhPM	1.09E-02	0.00E+00
LOOM2	60	9901	DieselExhPM	1.09E-02	0.00E+00
ELMIR	61	9901	DieselExhPM	1.09E-02	0.00E+00
COA	62	9901	DieselExhPM	1.09E-02	0.00E+00
BOUT	63	9901	DieselExhPM	1.09E-02	0.00E+00
SANB	64	9901	DieselExhPM	1.09E-02	0.00E+00
ALEM	65	9901	DieselExhPM	8.24E-02	0.00E+00
PUTN1	66	9901	DieselExhPM	1.09E-02	0.00E+00
COURT1	67	9901	DieselExhPM	1.09E-02	0.00E+00
TOMP1	68	9901	DieselExhPM	1.09E-02	0.00E+00
BRAD1	69	9901	DieselExhPM	1.09E-02	0.00E+00
BRAD2	70	9901	DieselExhPM	1.09E-02	0.00E+00
FRAN1	71	9901	DieselExhPM	1.09E-02	0.00E+00
HOLL1	72	9901	DieselExhPM	1.09E-02	0.00E+00
POTR1	73	9901	DieselExhPM	8.24E-02	0.00E+00
CESAR1	74	9901	DieselExhPM	8.24E-02	0.00E+00
BAYSH5	75	9901	DieselExhPM	8.24E-02	0.00E+00
BAYSH6	76	9901	DieselExhPM	8.24E-02	0.00E+00
PERA1	77	9901	DieselExhPM	1.09E-02	0.00E+00
YORK1	78	9901	DieselExhPM	1.09E-02	0.00E+00
RHODE1	79	9901	DieselExhPM	1.09E-02	0.00E+00
KANSAS	80	9901	DieselExhPM	1.09E-02	0.00E+00
VERMT	81	9901	DieselExhPM	1.09E-02	0.00E+00
SANBR	82	9901	DieselExhPM	1.09E-02	0.00E+00
S26S	83	9901	DieselExhPM	1.09E-02	0.00E+00
S24S	84	9901	DieselExhPM	1.09E-02	0.00E+00
BARN3	85	9901	DieselExhPM	1.09E-02	0.00E+00
MARIN1	86	9901	DieselExhPM	1.09E-02	0.00E+00
CESAR2	87	9901	DieselExhPM	1.09E-02	0.00E+00
S25S	88	9901	DieselExhPM	1.09E-02	0.00E+00
QUESA1	89	9901	DieselExhPM	1.09E-02	0.00E+00
REVE1	90	9901	DieselExhPM	1.09E-02	0.00E+00
GAVEN1	91	9901	DieselExhPM	1.09E-02	0.00E+00
TOLAN1	1	75070	Acetaldehyde	3.97E-03	4.53E-07

TOLAN1	1	107028	Acrolein	1.84E-03	2.10E-07
TOLAN1	1	71432	Benzene	3.50E-02	4.00E-06
TOLAN1	1	106990	1,3-Butadiene	7.80E-03	8.90E-07
TOLAN1	1	100414	Ethylbenzene	1.49E-02	1.70E-06
TOLAN1	1	50000	Formaldehyde	2.24E-02	2.56E-06
TOLAN1	1	110543	Hexane	2.27E-02	2.59E-06
TOLAN1	1	67561	Methanol	1.70E-03	1.94E-07
TOLAN1	1	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
TOLAN1	1	91203	Naphthalene	7.09E-04	8.09E-08
TOLAN1	1	115071	Propylene	4.34E-02	4.95E-06
TOLAN1	1	100425	Styrene	1.70E-03	1.94E-07
TOLAN1	1	108883	Toluene	8.17E-02	9.32E-06
TOLAN1	1	1330207	Xylenes	6.81E-02	7.77E-06
OAKD1	2	75070	Acetaldehyde	3.97E-03	4.53E-07
OAKD1	2	107028	Acrolein	1.84E-03	2.10E-07
OAKD1	2	71432	Benzene	3.50E-02	4.00E-06
OAKD1	2	106990	1,3-Butadiene	7.80E-03	8.90E-07
OAKD1	2	100414	Ethylbenzene	1.49E-02	1.70E-06
OAKD1	2	50000	Formaldehyde	2.24E-02	2.56E-06
OAKD1	2	110543	Hexane	2.27E-02	2.59E-06
OAKD1	2	67561	Methanol	1.70E-03	1.94E-07
OAKD1	2	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
OAKD1	2	91203	Naphthalene	7.09E-04	8.09E-08
OAKD1	2	115071	Propylene	4.34E-02	4.95E-06
OAKD1	2	100425	Styrene	1.70E-03	1.94E-07
OAKD1	2	108883	Toluene	8.17E-02	9.32E-06
OAKD1	2	1330207	Xylenes	6.81E-02	7.77E-06
OAKD2	3	75070	Acetaldehyde	3.97E-03	4.53E-07
OAKD2	3	107028	Acrolein	1.84E-03	2.10E-07
OAKD2	3	71432	Benzene	3.50E-02	4.00E-06
OAKD2	3	106990	1,3-Butadiene	7.80E-03	8.90E-07
OAKD2	3	100414	Ethylbenzene	1.49E-02	1.70E-06
OAKD2	3	50000	Formaldehyde	2.24E-02	2.56E-06
OAKD2	3	110543	Hexane	2.27E-02	2.59E-06
OAKD2	3	67561	Methanol	1.70E-03	1.94E-07
OAKD2	3	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
OAKD2	3	91203	Naphthalene	7.09E-04	8.09E-08
OAKD2	3	115071	Propylene	4.34E-02	4.95E-06
OAKD2	3	100425	Styrene	1.70E-03	1.94E-07
OAKD2	3	108883	Toluene	8.17E-02	9.32E-06
OAKD2	3	1330207	Xylenes	6.81E-02	7.77E-06
INDU1	4	75070	Acetaldehyde	3.97E-03	4.53E-07
INDU1	4	107028	Acrolein	1.84E-03	2.10E-07
INDU1	4	71432	Benzene	3.50E-02	4.00E-06
INDU1	4	106990	1,3-Butadiene	7.80E-03	8.90E-07
INDU1	4	100414	Ethylbenzene	1.49E-02	1.70E-06
INDU1	4	50000	Formaldehyde	2.24E-02	2.56E-06

INDU1	4	110543	Hexane	2.27E-02	2.59E-06
INDU1	4	67561	Methanol	1.70E-03	1.94E-07
INDU1	4	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
INDU1	4	91203	Naphthalene	7.09E-04	8.09E-08
INDU1	4	115071	Propylene	4.34E-02	4.95E-06
INDU1	4	100425	Styrene	1.70E-03	1.94E-07
INDU1	4	108883	Toluene	8.17E-02	9.32E-06
INDU1	4	1330207	Xylenes	6.81E-02	7.77E-06
TOLAN2	5	75070	Acetaldehyde	3.97E-03	4.53E-07
TOLAN2	5	107028	Acrolein	1.84E-03	2.10E-07
TOLAN2	5	71432	Benzene	3.50E-02	4.00E-06
TOLAN2	5	106990	1,3-Butadiene	7.80E-03	8.90E-07
TOLAN2	5	100414	Ethylbenzene	1.49E-02	1.70E-06
TOLAN2	5	50000	Formaldehyde	2.24E-02	2.56E-06
TOLAN2	5	110543	Hexane	2.27E-02	2.59E-06
TOLAN2	5	67561	Methanol	1.70E-03	1.94E-07
TOLAN2	5	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
TOLAN2	5	91203	Naphthalene	7.09E-04	8.09E-08
TOLAN2	5	115071	Propylene	4.34E-02	4.95E-06
TOLAN2	5	100425	Styrene	1.70E-03	1.94E-07
TOLAN2	5	108883	Toluene	8.17E-02	9.32E-06
TOLAN2	5	1330207	Xylenes	6.81E-02	7.77E-06
TOLAN3	6	75070	Acetaldehyde	3.97E-03	4.53E-07
TOLAN3	6	107028	Acrolein	1.84E-03	2.10E-07
TOLAN3	6	71432	Benzene	3.50E-02	4.00E-06
TOLAN3	6	106990	1,3-Butadiene	7.80E-03	8.90E-07
TOLAN3	6	100414	Ethylbenzene	1.49E-02	1.70E-06
TOLAN3	6	50000	Formaldehyde	2.24E-02	2.56E-06
TOLAN3	6	110543	Hexane	2.27E-02	2.59E-06
TOLAN3	6	67561	Methanol	1.70E-03	1.94E-07
TOLAN3	6	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
TOLAN3	6	91203	Naphthalene	7.09E-04	8.09E-08
TOLAN3	6	115071	Propylene	4.34E-02	4.95E-06
TOLAN3	6	100425	Styrene	1.70E-03	1.94E-07
TOLAN3	6	108883	Toluene	8.17E-02	9.32E-06
TOLAN3	6	1330207	Xylenes	6.81E-02	7.77E-06
TOLAN4	7	75070	Acetaldehyde	5.24E-04	5.98E-08
TOLAN4	7	107028	Acrolein	2.43E-04	2.78E-08
TOLAN4	7	71432	Benzene	4.62E-03	5.28E-07
TOLAN4	7	106990	1,3-Butadiene	1.03E-03	1.17E-07
TOLAN4	7	100414	Ethylbenzene	1.96E-03	2.24E-07
TOLAN4	7	50000	Formaldehyde	2.96E-03	3.37E-07
TOLAN4	7	110543	Hexane	2.99E-03	3.42E-07
TOLAN4	7	67561	Methanol	2.25E-04	2.56E-08
TOLAN4	7	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
TOLAN4	7	91203	Naphthalene	9.35E-05	1.07E-08
TOLAN4	7	115071	Propylene	5.72E-03	6.54E-07

TOLAN4	7	100425	Styrene	2.25E-04	2.56E-08
TOLAN4	7	108883	Toluene	1.08E-02	1.23E-06
TOLAN4	7	1330207	Xylenes	8.98E-03	1.03E-06
JERR1	8	75070	Acetaldehyde	3.97E-03	4.53E-07
JERR1	8	107028	Acrolein	1.84E-03	2.10E-07
JERR1	8	71432	Benzene	3.50E-02	4.00E-06
JERR1	8	106990	1,3-Butadiene	7.80E-03	8.90E-07
JERR1	8	100414	Ethylbenzene	1.49E-02	1.70E-06
JERR1	8	50000	Formaldehyde	2.24E-02	2.56E-06
JERR1	8	110543	Hexane	2.27E-02	2.59E-06
JERR1	8	67561	Methanol	1.70E-03	1.94E-07
JERR1	8	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
JERR1	8	91203	Naphthalene	7.09E-04	8.09E-08
JERR1	8	115071	Propylene	4.34E-02	4.95E-06
JERR1	8	100425	Styrene	1.70E-03	1.94E-07
JERR1	8	108883	Toluene	8.17E-02	9.32E-06
JERR1	8	1330207	Xylenes	6.81E-02	7.77E-06
RANK1	9	75070	Acetaldehyde	5.24E-04	5.98E-08
RANK1	9	107028	Acrolein	2.43E-04	2.78E-08
RANK1	9	71432	Benzene	4.62E-03	5.28E-07
RANK1	9	106990	1,3-Butadiene	1.03E-03	1.17E-07
RANK1	9	100414	Ethylbenzene	1.96E-03	2.24E-07
RANK1	9	50000	Formaldehyde	2.96E-03	3.37E-07
RANK1	9	110543	Hexane	2.99E-03	3.42E-07
RANK1	9	67561	Methanol	2.25E-04	2.56E-08
RANK1	9	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
RANK1	9	91203	Naphthalene	9.35E-05	1.07E-08
RANK1	9	115071	Propylene	5.72E-03	6.54E-07
RANK1	9	100425	Styrene	2.25E-04	2.56E-08
RANK1	9	108883	Toluene	1.08E-02	1.23E-06
RANK1	9	1330207	Xylenes	8.98E-03	1.03E-06
JERR2	10	75070	Acetaldehyde	5.24E-04	5.98E-08
JERR2	10	107028	Acrolein	2.43E-04	2.78E-08
JERR2	10	71432	Benzene	4.62E-03	5.28E-07
JERR2	10	106990	1,3-Butadiene	1.03E-03	1.17E-07
JERR2	10	100414	Ethylbenzene	1.96E-03	2.24E-07
JERR2	10	50000	Formaldehyde	2.96E-03	3.37E-07
JERR2	10	110543	Hexane	2.99E-03	3.42E-07
JERR2	10	67561	Methanol	2.25E-04	2.56E-08
JERR2	10	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
JERR2	10	91203	Naphthalene	9.35E-05	1.07E-08
JERR2	10	115071	Propylene	5.72E-03	6.54E-07
JERR2	10	100425	Styrene	2.25E-04	2.56E-08
JERR2	10	108883	Toluene	1.08E-02	1.23E-06
JERR2	10	1330207	Xylenes	8.98E-03	1.03E-06
BARNE1	11	75070	Acetaldehyde	5.24E-04	5.98E-08
BARNE1	11	107028	Acrolein	2.43E-04	2.78E-08

BARNE1	11	71432	Benzene	4.62E-03	5.28E-07
BARNE1	11	106990	1,3-Butadiene	1.03E-03	1.17E-07
BARNE1	11	100414	Ethylbenzene	1.96E-03	2.24E-07
BARNE1	11	50000	Formaldehyde	2.96E-03	3.37E-07
BARNE1	11	110543	Hexane	2.99E-03	3.42E-07
BARNE1	11	67561	Methanol	2.25E-04	2.56E-08
BARNE1	11	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
BARNE1	11	91203	Naphthalene	9.35E-05	1.07E-08
BARNE1	11	115071	Propylene	5.72E-03	6.54E-07
BARNE1	11	100425	Styrene	2.25E-04	2.56E-08
BARNE1	11	108883	Toluene	1.08E-02	1.23E-06
BARNE1	11	1330207	Xylenes	8.98E-03	1.03E-06
NEWC1	12	75070	Acetaldehyde	5.24E-04	5.98E-08
NEWC1	12	107028	Acrolein	2.43E-04	2.78E-08
NEWC1	12	71432	Benzene	4.62E-03	5.28E-07
NEWC1	12	106990	1,3-Butadiene	1.03E-03	1.17E-07
NEWC1	12	100414	Ethylbenzene	1.96E-03	2.24E-07
NEWC1	12	50000	Formaldehyde	2.96E-03	3.37E-07
NEWC1	12	110543	Hexane	2.99E-03	3.42E-07
NEWC1	12	67561	Methanol	2.25E-04	2.56E-08
NEWC1	12	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
NEWC1	12	91203	Naphthalene	9.35E-05	1.07E-08
NEWC1	12	115071	Propylene	5.72E-03	6.54E-07
NEWC1	12	100425	Styrene	2.25E-04	2.56E-08
NEWC1	12	108883	Toluene	1.08E-02	1.23E-06
NEWC1	12	1330207	Xylenes	8.98E-03	1.03E-06
MCKI1	13	75070	Acetaldehyde	5.24E-04	5.98E-08
MCKI1	13	107028	Acrolein	2.43E-04	2.78E-08
MCKI1	13	71432	Benzene	4.62E-03	5.28E-07
MCKI1	13	106990	1,3-Butadiene	1.03E-03	1.17E-07
MCKI1	13	100414	Ethylbenzene	1.96E-03	2.24E-07
MCKI1	13	50000	Formaldehyde	2.96E-03	3.37E-07
MCKI1	13	110543	Hexane	2.99E-03	3.42E-07
MCKI1	13	67561	Methanol	2.25E-04	2.56E-08
MCKI1	13	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
MCKI1	13	91203	Naphthalene	9.35E-05	1.07E-08
MCKI1	13	115071	Propylene	5.72E-03	6.54E-07
MCKI1	13	100425	Styrene	2.25E-04	2.56E-08
MCKI1	13	108883	Toluene	1.08E-02	1.23E-06
MCKI1	13	1330207	Xylenes	8.98E-03	1.03E-06
TOLANP	14	75070	Acetaldehyde	5.24E-04	5.98E-08
TOLANP	14	107028	Acrolein	2.43E-04	2.78E-08
TOLANP	14	71432	Benzene	4.62E-03	5.28E-07
TOLANP	14	106990	1,3-Butadiene	1.03E-03	1.17E-07
TOLANP	14	100414	Ethylbenzene	1.96E-03	2.24E-07
TOLANP	14	50000	Formaldehyde	2.96E-03	3.37E-07
TOLANP	14	110543	Hexane	2.99E-03	3.42E-07

TOLANP	14	67561	Methanol	2.25E-04	2.56E-08
TOLANP	14	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
TOLANP	14	91203	Naphthalene	9.35E-05	1.07E-08
TOLANP	14	115071	Propylene	5.72E-03	6.54E-07
TOLANP	14	100425	Styrene	2.25E-04	2.56E-08
TOLANP	14	108883	Toluene	1.08E-02	1.23E-06
TOLANP	14	1330207	Xylenes	8.98E-03	1.03E-06
UPTON1	15	75070	Acetaldehyde	5.24E-04	5.98E-08
UPTON1	15	107028	Acrolein	2.43E-04	2.78E-08
UPTON1	15	71432	Benzene	4.62E-03	5.28E-07
UPTON1	15	106990	1,3-Butadiene	1.03E-03	1.17E-07
UPTON1	15	100414	Ethylbenzene	1.96E-03	2.24E-07
UPTON1	15	50000	Formaldehyde	2.96E-03	3.37E-07
UPTON1	15	110543	Hexane	2.99E-03	3.42E-07
UPTON1	15	67561	Methanol	2.25E-04	2.56E-08
UPTON1	15	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
UPTON1	15	91203	Naphthalene	9.35E-05	1.07E-08
UPTON1	15	115071	Propylene	5.72E-03	6.54E-07
UPTON1	15	100425	Styrene	2.25E-04	2.56E-08
UPTON1	15	108883	Toluene	1.08E-02	1.23E-06
UPTON1	15	1330207	Xylenes	8.98E-03	1.03E-06
HUDSO1	16	75070	Acetaldehyde	5.24E-04	5.98E-08
HUDSO1	16	107028	Acrolein	2.43E-04	2.78E-08
HUDSO1	16	71432	Benzene	4.62E-03	5.28E-07
HUDSO1	16	106990	1,3-Butadiene	1.03E-03	1.17E-07
HUDSO1	16	100414	Ethylbenzene	1.96E-03	2.24E-07
HUDSO1	16	50000	Formaldehyde	2.96E-03	3.37E-07
HUDSO1	16	110543	Hexane	2.99E-03	3.42E-07
HUDSO1	16	67561	Methanol	2.25E-04	2.56E-08
HUDSO1	16	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
HUDSO1	16	91203	Naphthalene	9.35E-05	1.07E-08
HUDSO1	16	115071	Propylene	5.72E-03	6.54E-07
HUDSO1	16	100425	Styrene	2.25E-04	2.56E-08
HUDSO1	16	108883	Toluene	1.08E-02	1.23E-06
HUDSO1	16	1330207	Xylenes	8.98E-03	1.03E-06
INNES1	17	75070	Acetaldehyde	5.24E-04	5.98E-08
INNES1	17	107028	Acrolein	2.43E-04	2.78E-08
INNES1	17	71432	Benzene	4.62E-03	5.28E-07
INNES1	17	106990	1,3-Butadiene	1.03E-03	1.17E-07
INNES1	17	100414	Ethylbenzene	1.96E-03	2.24E-07
INNES1	17	50000	Formaldehyde	2.96E-03	3.37E-07
INNES1	17	110543	Hexane	2.99E-03	3.42E-07
INNES1	17	67561	Methanol	2.25E-04	2.56E-08
INNES1	17	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
INNES1	17	91203	Naphthalene	9.35E-05	1.07E-08
INNES1	17	115071	Propylene	5.72E-03	6.54E-07
INNES1	17	100425	Styrene	2.25E-04	2.56E-08

INNES1	17	108883	Toluene	1.08E-02	1.23E-06
INNES1	17	1330207	Xylenes	8.98E-03	1.03E-06
INNES2	18	75070	Acetaldehyde	5.24E-04	5.98E-08
INNES2	18	107028	Acrolein	2.43E-04	2.78E-08
INNES2	18	71432	Benzene	4.62E-03	5.28E-07
INNES2	18	106990	1,3-Butadiene	1.03E-03	1.17E-07
INNES2	18	100414	Ethylbenzene	1.96E-03	2.24E-07
INNES2	18	50000	Formaldehyde	2.96E-03	3.37E-07
INNES2	18	110543	Hexane	2.99E-03	3.42E-07
INNES2	18	67561	Methanol	2.25E-04	2.56E-08
INNES2	18	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
INNES2	18	91203	Naphthalene	9.35E-05	1.07E-08
INNES2	18	115071	Propylene	5.72E-03	6.54E-07
INNES2	18	100425	Styrene	2.25E-04	2.56E-08
INNES2	18	108883	Toluene	1.08E-02	1.23E-06
INNES2	18	1330207	Xylenes	8.98E-03	1.03E-06
MILTO1	19	75070	Acetaldehyde	5.24E-04	5.98E-08
MILTO1	19	107028	Acrolein	2.43E-04	2.78E-08
MILTO1	19	71432	Benzene	4.62E-03	5.28E-07
MILTO1	19	106990	1,3-Butadiene	1.03E-03	1.17E-07
MILTO1	19	100414	Ethylbenzene	1.96E-03	2.24E-07
MILTO1	19	50000	Formaldehyde	2.96E-03	3.37E-07
MILTO1	19	110543	Hexane	2.99E-03	3.42E-07
MILTO1	19	67561	Methanol	2.25E-04	2.56E-08
MILTO1	19	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
MILTO1	19	91203	Naphthalene	9.35E-05	1.07E-08
MILTO1	19	115071	Propylene	5.72E-03	6.54E-07
MILTO1	19	100425	Styrene	2.25E-04	2.56E-08
MILTO1	19	108883	Toluene	1.08E-02	1.23E-06
MILTO1	19	1330207	Xylenes	8.98E-03	1.03E-06
MILTO2	20	75070	Acetaldehyde	5.24E-04	5.98E-08
MILTO2	20	107028	Acrolein	2.43E-04	2.78E-08
MILTO2	20	71432	Benzene	4.62E-03	5.28E-07
MILTO2	20	106990	1,3-Butadiene	1.03E-03	1.17E-07
MILTO2	20	100414	Ethylbenzene	1.96E-03	2.24E-07
MILTO2	20	50000	Formaldehyde	2.96E-03	3.37E-07
MILTO2	20	110543	Hexane	2.99E-03	3.42E-07
MILTO2	20	67561	Methanol	2.25E-04	2.56E-08
MILTO2	20	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
MILTO2	20	91203	Naphthalene	9.35E-05	1.07E-08
MILTO2	20	115071	Propylene	5.72E-03	6.54E-07
MILTO2	20	100425	Styrene	2.25E-04	2.56E-08
MILTO2	20	108883	Toluene	1.08E-02	1.23E-06
MILTO2	20	1330207	Xylenes	8.98E-03	1.03E-06
JERR3	21	75070	Acetaldehyde	5.24E-04	5.98E-08
JERR3	21	107028	Acrolein	2.43E-04	2.78E-08
JERR3	21	71432	Benzene	4.62E-03	5.28E-07

JERR3	21	106990	1,3-Butadiene	1.03E-03	1.17E-07
JERR3	21	100414	Ethylbenzene	1.96E-03	2.24E-07
JERR3	21	50000	Formaldehyde	2.96E-03	3.37E-07
JERR3	21	110543	Hexane	2.99E-03	3.42E-07
JERR3	21	67561	Methanol	2.25E-04	2.56E-08
JERR3	21	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
JERR3	21	91203	Naphthalene	9.35E-05	1.07E-08
JERR3	21	115071	Propylene	5.72E-03	6.54E-07
JERR3	21	100425	Styrene	2.25E-04	2.56E-08
JERR3	21	108883	Toluene	1.08E-02	1.23E-06
JERR3	21	1330207	Xylenes	8.98E-03	1.03E-06
JERR4	22	75070	Acetaldehyde	5.24E-04	5.98E-08
JERR4	22	107028	Acrolein	2.43E-04	2.78E-08
JERR4	22	71432	Benzene	4.62E-03	5.28E-07
JERR4	22	106990	1,3-Butadiene	1.03E-03	1.17E-07
JERR4	22	100414	Ethylbenzene	1.96E-03	2.24E-07
JERR4	22	50000	Formaldehyde	2.96E-03	3.37E-07
JERR4	22	110543	Hexane	2.99E-03	3.42E-07
JERR4	22	67561	Methanol	2.25E-04	2.56E-08
JERR4	22	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
JERR4	22	91203	Naphthalene	9.35E-05	1.07E-08
JERR4	22	115071	Propylene	5.72E-03	6.54E-07
JERR4	22	100425	Styrene	2.25E-04	2.56E-08
JERR4	22	108883	Toluene	1.08E-02	1.23E-06
JERR4	22	1330207	Xylenes	8.98E-03	1.03E-06
JERR5	23	75070	Acetaldehyde	5.24E-04	5.98E-08
JERR5	23	107028	Acrolein	2.43E-04	2.78E-08
JERR5	23	71432	Benzene	4.62E-03	5.28E-07
JERR5	23	106990	1,3-Butadiene	1.03E-03	1.17E-07
JERR5	23	100414	Ethylbenzene	1.96E-03	2.24E-07
JERR5	23	50000	Formaldehyde	2.96E-03	3.37E-07
JERR5	23	110543	Hexane	2.99E-03	3.42E-07
JERR5	23	67561	Methanol	2.25E-04	2.56E-08
JERR5	23	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
JERR5	23	91203	Naphthalene	9.35E-05	1.07E-08
JERR5	23	115071	Propylene	5.72E-03	6.54E-07
JERR5	23	100425	Styrene	2.25E-04	2.56E-08
JERR5	23	108883	Toluene	1.08E-02	1.23E-06
JERR5	23	1330207	Xylenes	8.98E-03	1.03E-06
JERR6	24	75070	Acetaldehyde	5.24E-04	5.98E-08
JERR6	24	107028	Acrolein	2.43E-04	2.78E-08
JERR6	24	71432	Benzene	4.62E-03	5.28E-07
JERR6	24	106990	1,3-Butadiene	1.03E-03	1.17E-07
JERR6	24	100414	Ethylbenzene	1.96E-03	2.24E-07
JERR6	24	50000	Formaldehyde	2.96E-03	3.37E-07
JERR6	24	110543	Hexane	2.99E-03	3.42E-07
JERR6	24	67561	Methanol	2.25E-04	2.56E-08

JERR6	24	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
JERR6	24	91203	Naphthalene	9.35E-05	1.07E-08
JERR6	24	115071	Propylene	5.72E-03	6.54E-07
JERR6	24	100425	Styrene	2.25E-04	2.56E-08
JERR6	24	108883	Toluene	1.08E-02	1.23E-06
JERR6	24	1330207	Xylenes	8.98E-03	1.03E-06
KIRK1	25	75070	Acetaldehyde	5.24E-04	5.98E-08
KIRK1	25	107028	Acrolein	2.43E-04	2.78E-08
KIRK1	25	71432	Benzene	4.62E-03	5.28E-07
KIRK1	25	106990	1,3-Butadiene	1.03E-03	1.17E-07
KIRK1	25	100414	Ethylbenzene	1.96E-03	2.24E-07
KIRK1	25	50000	Formaldehyde	2.96E-03	3.37E-07
KIRK1	25	110543	Hexane	2.99E-03	3.42E-07
KIRK1	25	67561	Methanol	2.25E-04	2.56E-08
KIRK1	25	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
KIRK1	25	91203	Naphthalene	9.35E-05	1.07E-08
KIRK1	25	115071	Propylene	5.72E-03	6.54E-07
KIRK1	25	100425	Styrene	2.25E-04	2.56E-08
KIRK1	25	108883	Toluene	1.08E-02	1.23E-06
KIRK1	25	1330207	Xylenes	8.98E-03	1.03E-06
KIRK2	26	75070	Acetaldehyde	5.24E-04	5.98E-08
KIRK2	26	107028	Acrolein	2.43E-04	2.78E-08
KIRK2	26	71432	Benzene	4.62E-03	5.28E-07
KIRK2	26	106990	1,3-Butadiene	1.03E-03	1.17E-07
KIRK2	26	100414	Ethylbenzene	1.96E-03	2.24E-07
KIRK2	26	50000	Formaldehyde	2.96E-03	3.37E-07
KIRK2	26	110543	Hexane	2.99E-03	3.42E-07
KIRK2	26	67561	Methanol	2.25E-04	2.56E-08
KIRK2	26	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
KIRK2	26	91203	Naphthalene	9.35E-05	1.07E-08
KIRK2	26	115071	Propylene	5.72E-03	6.54E-07
KIRK2	26	100425	Styrene	2.25E-04	2.56E-08
KIRK2	26	108883	Toluene	1.08E-02	1.23E-06
KIRK2	26	1330207	Xylenes	8.98E-03	1.03E-06
RANK2	27	75070	Acetaldehyde	5.24E-04	5.98E-08
RANK2	27	107028	Acrolein	2.43E-04	2.78E-08
RANK2	27	71432	Benzene	4.62E-03	5.28E-07
RANK2	27	106990	1,3-Butadiene	1.03E-03	1.17E-07
RANK2	27	100414	Ethylbenzene	1.96E-03	2.24E-07
RANK2	27	50000	Formaldehyde	2.96E-03	3.37E-07
RANK2	27	110543	Hexane	2.99E-03	3.42E-07
RANK2	27	67561	Methanol	2.25E-04	2.56E-08
RANK2	27	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
RANK2	27	91203	Naphthalene	9.35E-05	1.07E-08
RANK2	27	115071	Propylene	5.72E-03	6.54E-07
RANK2	27	100425	Styrene	2.25E-04	2.56E-08
RANK2	27	108883	Toluene	1.08E-02	1.23E-06

RANK2	27	1330207	Xylenes	8.98E-03	1.03E-06
MCKI2	28	75070	Acetaldehyde	5.24E-04	5.98E-08
MCKI2	28	107028	Acrolein	2.43E-04	2.78E-08
MCKI2	28	71432	Benzene	4.62E-03	5.28E-07
MCKI2	28	106990	1,3-Butadiene	1.03E-03	1.17E-07
MCKI2	28	100414	Ethylbenzene	1.96E-03	2.24E-07
MCKI2	28	50000	Formaldehyde	2.96E-03	3.37E-07
MCKI2	28	110543	Hexane	2.99E-03	3.42E-07
MCKI2	28	67561	Methanol	2.25E-04	2.56E-08
MCKI2	28	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
MCKI2	28	91203	Naphthalene	9.35E-05	1.07E-08
MCKI2	28	115071	Propylene	5.72E-03	6.54E-07
MCKI2	28	100425	Styrene	2.25E-04	2.56E-08
MCKI2	28	108883	Toluene	1.08E-02	1.23E-06
MCKI2	28	1330207	Xylenes	8.98E-03	1.03E-06
MCKI3	29	75070	Acetaldehyde	5.24E-04	5.98E-08
MCKI3	29	107028	Acrolein	2.43E-04	2.78E-08
MCKI3	29	71432	Benzene	4.62E-03	5.28E-07
MCKI3	29	106990	1,3-Butadiene	1.03E-03	1.17E-07
MCKI3	29	100414	Ethylbenzene	1.96E-03	2.24E-07
MCKI3	29	50000	Formaldehyde	2.96E-03	3.37E-07
MCKI3	29	110543	Hexane	2.99E-03	3.42E-07
MCKI3	29	67561	Methanol	2.25E-04	2.56E-08
MCKI3	29	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
MCKI3	29	91203	Naphthalene	9.35E-05	1.07E-08
MCKI3	29	115071	Propylene	5.72E-03	6.54E-07
MCKI3	29	100425	Styrene	2.25E-04	2.56E-08
MCKI3	29	108883	Toluene	1.08E-02	1.23E-06
MCKI3	29	1330207	Xylenes	8.98E-03	1.03E-06
NEWC2	30	75070	Acetaldehyde	5.24E-04	5.98E-08
NEWC2	30	107028	Acrolein	2.43E-04	2.78E-08
NEWC2	30	71432	Benzene	4.62E-03	5.28E-07
NEWC2	30	106990	1,3-Butadiene	1.03E-03	1.17E-07
NEWC2	30	100414	Ethylbenzene	1.96E-03	2.24E-07
NEWC2	30	50000	Formaldehyde	2.96E-03	3.37E-07
NEWC2	30	110543	Hexane	2.99E-03	3.42E-07
NEWC2	30	67561	Methanol	2.25E-04	2.56E-08
NEWC2	30	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
NEWC2	30	91203	Naphthalene	9.35E-05	1.07E-08
NEWC2	30	115071	Propylene	5.72E-03	6.54E-07
NEWC2	30	100425	Styrene	2.25E-04	2.56E-08
NEWC2	30	108883	Toluene	1.08E-02	1.23E-06
NEWC2	30	1330207	Xylenes	8.98E-03	1.03E-06
NEWC3	31	75070	Acetaldehyde	5.24E-04	5.98E-08
NEWC3	31	107028	Acrolein	2.43E-04	2.78E-08
NEWC3	31	71432	Benzene	4.62E-03	5.28E-07
NEWC3	31	106990	1,3-Butadiene	1.03E-03	1.17E-07

NEWC3	31	100414	Ethylbenzene	1.96E-03	2.24E-07
NEWC3	31	50000	Formaldehyde	2.96E-03	3.37E-07
NEWC3	31	110543	Hexane	2.99E-03	3.42E-07
NEWC3	31	67561	Methanol	2.25E-04	2.56E-08
NEWC3	31	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
NEWC3	31	91203	Naphthalene	9.35E-05	1.07E-08
NEWC3	31	115071	Propylene	5.72E-03	6.54E-07
NEWC3	31	100425	Styrene	2.25E-04	2.56E-08
NEWC3	31	108883	Toluene	1.08E-02	1.23E-06
NEWC3	31	1330207	Xylenes	8.98E-03	1.03E-06
OAKD3	32	75070	Acetaldehyde	3.97E-03	4.53E-07
OAKD3	32	107028	Acrolein	1.84E-03	2.10E-07
OAKD3	32	71432	Benzene	3.50E-02	4.00E-06
OAKD3	32	106990	1,3-Butadiene	7.80E-03	8.90E-07
OAKD3	32	100414	Ethylbenzene	1.49E-02	1.70E-06
OAKD3	32	50000	Formaldehyde	2.24E-02	2.56E-06
OAKD3	32	110543	Hexane	2.27E-02	2.59E-06
OAKD3	32	67561	Methanol	1.70E-03	1.94E-07
OAKD3	32	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
OAKD3	32	91203	Naphthalene	7.09E-04	8.09E-08
OAKD3	32	115071	Propylene	4.34E-02	4.95E-06
OAKD3	32	100425	Styrene	1.70E-03	1.94E-07
OAKD3	32	108883	Toluene	8.17E-02	9.32E-06
OAKD3	32	1330207	Xylenes	6.81E-02	7.77E-06
OAKD4	33	75070	Acetaldehyde	3.97E-03	4.53E-07
OAKD4	33	107028	Acrolein	1.84E-03	2.10E-07
OAKD4	33	71432	Benzene	3.50E-02	4.00E-06
OAKD4	33	106990	1,3-Butadiene	7.80E-03	8.90E-07
OAKD4	33	100414	Ethylbenzene	1.49E-02	1.70E-06
OAKD4	33	50000	Formaldehyde	2.24E-02	2.56E-06
OAKD4	33	110543	Hexane	2.27E-02	2.59E-06
OAKD4	33	67561	Methanol	1.70E-03	1.94E-07
OAKD4	33	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
OAKD4	33	91203	Naphthalene	7.09E-04	8.09E-08
OAKD4	33	115071	Propylene	4.34E-02	4.95E-06
OAKD4	33	100425	Styrene	1.70E-03	1.94E-07
OAKD4	33	108883	Toluene	8.17E-02	9.32E-06
OAKD4	33	1330207	Xylenes	6.81E-02	7.77E-06
PALO1	34	75070	Acetaldehyde	5.24E-04	5.98E-08
PALO1	34	107028	Acrolein	2.43E-04	2.78E-08
PALO1	34	71432	Benzene	4.62E-03	5.28E-07
PALO1	34	106990	1,3-Butadiene	1.03E-03	1.17E-07
PALO1	34	100414	Ethylbenzene	1.96E-03	2.24E-07
PALO1	34	50000	Formaldehyde	2.96E-03	3.37E-07
PALO1	34	110543	Hexane	2.99E-03	3.42E-07
PALO1	34	67561	Methanol	2.25E-04	2.56E-08
PALO1	34	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09

PALO1	34	91203	Naphthalene	9.35E-05	1.07E-08
PALO1	34	115071	Propylene	5.72E-03	6.54E-07
PALO1	34	100425	Styrene	2.25E-04	2.56E-08
PALO1	34	108883	Toluene	1.08E-02	1.23E-06
PALO1	34	1330207	Xylenes	8.98E-03	1.03E-06
PALO2	35	75070	Acetaldehyde	5.24E-04	5.98E-08
PALO2	35	107028	Acrolein	2.43E-04	2.78E-08
PALO2	35	71432	Benzene	4.62E-03	5.28E-07
PALO2	35	106990	1,3-Butadiene	1.03E-03	1.17E-07
PALO2	35	100414	Ethylbenzene	1.96E-03	2.24E-07
PALO2	35	50000	Formaldehyde	2.96E-03	3.37E-07
PALO2	35	110543	Hexane	2.99E-03	3.42E-07
PALO2	35	67561	Methanol	2.25E-04	2.56E-08
PALO2	35	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
PALO2	35	91203	Naphthalene	9.35E-05	1.07E-08
PALO2	35	115071	Propylene	5.72E-03	6.54E-07
PALO2	35	100425	Styrene	2.25E-04	2.56E-08
PALO2	35	108883	Toluene	1.08E-02	1.23E-06
PALO2	35	1330207	Xylenes	8.98E-03	1.03E-06
PALO3	36	75070	Acetaldehyde	5.24E-04	5.98E-08
PALO3	36	107028	Acrolein	2.43E-04	2.78E-08
PALO3	36	71432	Benzene	4.62E-03	5.28E-07
PALO3	36	106990	1,3-Butadiene	1.03E-03	1.17E-07
PALO3	36	100414	Ethylbenzene	1.96E-03	2.24E-07
PALO3	36	50000	Formaldehyde	2.96E-03	3.37E-07
PALO3	36	110543	Hexane	2.99E-03	3.42E-07
PALO3	36	67561	Methanol	2.25E-04	2.56E-08
PALO3	36	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
PALO3	36	91203	Naphthalene	9.35E-05	1.07E-08
PALO3	36	115071	Propylene	5.72E-03	6.54E-07
PALO3	36	100425	Styrene	2.25E-04	2.56E-08
PALO3	36	108883	Toluene	1.08E-02	1.23E-06
PALO3	36	1330207	Xylenes	8.98E-03	1.03E-06
OAKD5	37	75070	Acetaldehyde	5.24E-04	5.98E-08
OAKD5	37	107028	Acrolein	2.43E-04	2.78E-08
OAKD5	37	71432	Benzene	4.62E-03	5.28E-07
OAKD5	37	106990	1,3-Butadiene	1.03E-03	1.17E-07
OAKD5	37	100414	Ethylbenzene	1.96E-03	2.24E-07
OAKD5	37	50000	Formaldehyde	2.96E-03	3.37E-07
OAKD5	37	110543	Hexane	2.99E-03	3.42E-07
OAKD5	37	67561	Methanol	2.25E-04	2.56E-08
OAKD5	37	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
OAKD5	37	91203	Naphthalene	9.35E-05	1.07E-08
OAKD5	37	115071	Propylene	5.72E-03	6.54E-07
OAKD5	37	100425	Styrene	2.25E-04	2.56E-08
OAKD5	37	108883	Toluene	1.08E-02	1.23E-06
OAKD5	37	1330207	Xylenes	8.98E-03	1.03E-06

QUIN1	38	75070	Acetaldehyde	5.24E-04	5.98E-08
QUIN1	38	107028	Acrolein	2.43E-04	2.78E-08
QUIN1	38	71432	Benzene	4.62E-03	5.28E-07
QUIN1	38	106990	1,3-Butadiene	1.03E-03	1.17E-07
QUIN1	38	100414	Ethylbenzene	1.96E-03	2.24E-07
QUIN1	38	50000	Formaldehyde	2.96E-03	3.37E-07
QUIN1	38	110543	Hexane	2.99E-03	3.42E-07
QUIN1	38	67561	Methanol	2.25E-04	2.56E-08
QUIN1	38	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
QUIN1	38	91203	Naphthalene	9.35E-05	1.07E-08
QUIN1	38	115071	Propylene	5.72E-03	6.54E-07
QUIN1	38	100425	Styrene	2.25E-04	2.56E-08
QUIN1	38	108883	Toluene	1.08E-02	1.23E-06
QUIN1	38	1330207	Xylenes	8.98E-03	1.03E-06
QUIN2	39	75070	Acetaldehyde	5.24E-04	5.98E-08
QUIN2	39	107028	Acrolein	2.43E-04	2.78E-08
QUIN2	39	71432	Benzene	4.62E-03	5.28E-07
QUIN2	39	106990	1,3-Butadiene	1.03E-03	1.17E-07
QUIN2	39	100414	Ethylbenzene	1.96E-03	2.24E-07
QUIN2	39	50000	Formaldehyde	2.96E-03	3.37E-07
QUIN2	39	110543	Hexane	2.99E-03	3.42E-07
QUIN2	39	67561	Methanol	2.25E-04	2.56E-08
QUIN2	39	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
QUIN2	39	91203	Naphthalene	9.35E-05	1.07E-08
QUIN2	39	115071	Propylene	5.72E-03	6.54E-07
QUIN2	39	100425	Styrene	2.25E-04	2.56E-08
QUIN2	39	108883	Toluene	1.08E-02	1.23E-06
QUIN2	39	1330207	Xylenes	8.98E-03	1.03E-06
RANK3	40	75070	Acetaldehyde	5.24E-04	5.98E-08
RANK3	40	107028	Acrolein	2.43E-04	2.78E-08
RANK3	40	71432	Benzene	4.62E-03	5.28E-07
RANK3	40	106990	1,3-Butadiene	1.03E-03	1.17E-07
RANK3	40	100414	Ethylbenzene	1.96E-03	2.24E-07
RANK3	40	50000	Formaldehyde	2.96E-03	3.37E-07
RANK3	40	110543	Hexane	2.99E-03	3.42E-07
RANK3	40	67561	Methanol	2.25E-04	2.56E-08
RANK3	40	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
RANK3	40	91203	Naphthalene	9.35E-05	1.07E-08
RANK3	40	115071	Propylene	5.72E-03	6.54E-07
RANK3	40	100425	Styrene	2.25E-04	2.56E-08
RANK3	40	108883	Toluene	1.08E-02	1.23E-06
RANK3	40	1330207	Xylenes	8.98E-03	1.03E-06
RANK4	41	75070	Acetaldehyde	5.24E-04	5.98E-08
RANK4	41	107028	Acrolein	2.43E-04	2.78E-08
RANK4	41	71432	Benzene	4.62E-03	5.28E-07
RANK4	41	106990	1,3-Butadiene	1.03E-03	1.17E-07
RANK4	41	100414	Ethylbenzene	1.96E-03	2.24E-07

RANK4	41	50000	Formaldehyde	2.96E-03	3.37E-07
RANK4	41	110543	Hexane	2.99E-03	3.42E-07
RANK4	41	67561	Methanol	2.25E-04	2.56E-08
RANK4	41	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
RANK4	41	91203	Naphthalene	9.35E-05	1.07E-08
RANK4	41	115071	Propylene	5.72E-03	6.54E-07
RANK4	41	100425	Styrene	2.25E-04	2.56E-08
RANK4	41	108883	Toluene	1.08E-02	1.23E-06
RANK4	41	1330207	Xylenes	8.98E-03	1.03E-06
RANK5	42	75070	Acetaldehyde	5.24E-04	5.98E-08
RANK5	42	107028	Acrolein	2.43E-04	2.78E-08
RANK5	42	71432	Benzene	4.62E-03	5.28E-07
RANK5	42	106990	1,3-Butadiene	1.03E-03	1.17E-07
RANK5	42	100414	Ethylbenzene	1.96E-03	2.24E-07
RANK5	42	50000	Formaldehyde	2.96E-03	3.37E-07
RANK5	42	110543	Hexane	2.99E-03	3.42E-07
RANK5	42	67561	Methanol	2.25E-04	2.56E-08
RANK5	42	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
RANK5	42	91203	Naphthalene	9.35E-05	1.07E-08
RANK5	42	115071	Propylene	5.72E-03	6.54E-07
RANK5	42	100425	Styrene	2.25E-04	2.56E-08
RANK5	42	108883	Toluene	1.08E-02	1.23E-06
RANK5	42	1330207	Xylenes	8.98E-03	1.03E-06
PALO4	43	75070	Acetaldehyde	5.24E-04	5.98E-08
PALO4	43	107028	Acrolein	2.43E-04	2.78E-08
PALO4	43	71432	Benzene	4.62E-03	5.28E-07
PALO4	43	106990	1,3-Butadiene	1.03E-03	1.17E-07
PALO4	43	100414	Ethylbenzene	1.96E-03	2.24E-07
PALO4	43	50000	Formaldehyde	2.96E-03	3.37E-07
PALO4	43	110543	Hexane	2.99E-03	3.42E-07
PALO4	43	67561	Methanol	2.25E-04	2.56E-08
PALO4	43	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
PALO4	43	91203	Naphthalene	9.35E-05	1.07E-08
PALO4	43	115071	Propylene	5.72E-03	6.54E-07
PALO4	43	100425	Styrene	2.25E-04	2.56E-08
PALO4	43	108883	Toluene	1.08E-02	1.23E-06
PALO4	43	1330207	Xylenes	8.98E-03	1.03E-06
DORM1	44	75070	Acetaldehyde	5.24E-04	5.98E-08
DORM1	44	107028	Acrolein	2.43E-04	2.78E-08
DORM1	44	71432	Benzene	4.62E-03	5.28E-07
DORM1	44	106990	1,3-Butadiene	1.03E-03	1.17E-07
DORM1	44	100414	Ethylbenzene	1.96E-03	2.24E-07
DORM1	44	50000	Formaldehyde	2.96E-03	3.37E-07
DORM1	44	110543	Hexane	2.99E-03	3.42E-07
DORM1	44	67561	Methanol	2.25E-04	2.56E-08
DORM1	44	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
DORM1	44	91203	Naphthalene	9.35E-05	1.07E-08

DORM1	44	115071	Propylene	5.72E-03	6.54E-07
DORM1	44	100425	Styrene	2.25E-04	2.56E-08
DORM1	44	108883	Toluene	1.08E-02	1.23E-06
DORM1	44	1330207	Xylenes	8.98E-03	1.03E-06
APPA1	45	75070	Acetaldehyde	5.24E-04	5.98E-08
APPA1	45	107028	Acrolein	2.43E-04	2.78E-08
APPA1	45	71432	Benzene	4.62E-03	5.28E-07
APPA1	45	106990	1,3-Butadiene	1.03E-03	1.17E-07
APPA1	45	100414	Ethylbenzene	1.96E-03	2.24E-07
APPA1	45	50000	Formaldehyde	2.96E-03	3.37E-07
APPA1	45	110543	Hexane	2.99E-03	3.42E-07
APPA1	45	67561	Methanol	2.25E-04	2.56E-08
APPA1	45	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
APPA1	45	91203	Naphthalene	9.35E-05	1.07E-08
APPA1	45	115071	Propylene	5.72E-03	6.54E-07
APPA1	45	100425	Styrene	2.25E-04	2.56E-08
APPA1	45	108883	Toluene	1.08E-02	1.23E-06
APPA1	45	1330207	Xylenes	8.98E-03	1.03E-06
SELB1	46	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB1	46	107028	Acrolein	2.43E-04	2.78E-08
SELB1	46	71432	Benzene	4.62E-03	5.28E-07
SELB1	46	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB1	46	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB1	46	50000	Formaldehyde	2.96E-03	3.37E-07
SELB1	46	110543	Hexane	2.99E-03	3.42E-07
SELB1	46	67561	Methanol	2.25E-04	2.56E-08
SELB1	46	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB1	46	91203	Naphthalene	9.35E-05	1.07E-08
SELB1	46	115071	Propylene	5.72E-03	6.54E-07
SELB1	46	100425	Styrene	2.25E-04	2.56E-08
SELB1	46	108883	Toluene	1.08E-02	1.23E-06
SELB1	46	1330207	Xylenes	8.98E-03	1.03E-06
SELB2	47	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB2	47	107028	Acrolein	2.43E-04	2.78E-08
SELB2	47	71432	Benzene	4.62E-03	5.28E-07
SELB2	47	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB2	47	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB2	47	50000	Formaldehyde	2.96E-03	3.37E-07
SELB2	47	110543	Hexane	2.99E-03	3.42E-07
SELB2	47	67561	Methanol	2.25E-04	2.56E-08
SELB2	47	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB2	47	91203	Naphthalene	9.35E-05	1.07E-08
SELB2	47	115071	Propylene	5.72E-03	6.54E-07
SELB2	47	100425	Styrene	2.25E-04	2.56E-08
SELB2	47	108883	Toluene	1.08E-02	1.23E-06
SELB2	47	1330207	Xylenes	8.98E-03	1.03E-06
SELB3	48	75070	Acetaldehyde	3.97E-03	4.53E-07

SELB3	48	107028	Acrolein	1.84E-03	2.10E-07
SELB3	48	71432	Benzene	3.50E-02	4.00E-06
SELB3	48	106990	1,3-Butadiene	7.80E-03	8.90E-07
SELB3	48	100414	Ethylbenzene	1.49E-02	1.70E-06
SELB3	48	50000	Formaldehyde	2.24E-02	2.56E-06
SELB3	48	110543	Hexane	2.27E-02	2.59E-06
SELB3	48	67561	Methanol	1.70E-03	1.94E-07
SELB3	48	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
SELB3	48	91203	Naphthalene	7.09E-04	8.09E-08
SELB3	48	115071	Propylene	4.34E-02	4.95E-06
SELB3	48	100425	Styrene	1.70E-03	1.94E-07
SELB3	48	108883	Toluene	8.17E-02	9.32E-06
SELB3	48	1330207	Xylenes	6.81E-02	7.77E-06
SELB4	49	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB4	49	107028	Acrolein	2.43E-04	2.78E-08
SELB4	49	71432	Benzene	4.62E-03	5.28E-07
SELB4	49	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB4	49	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB4	49	50000	Formaldehyde	2.96E-03	3.37E-07
SELB4	49	110543	Hexane	2.99E-03	3.42E-07
SELB4	49	67561	Methanol	2.25E-04	2.56E-08
SELB4	49	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB4	49	91203	Naphthalene	9.35E-05	1.07E-08
SELB4	49	115071	Propylene	5.72E-03	6.54E-07
SELB4	49	100425	Styrene	2.25E-04	2.56E-08
SELB4	49	108883	Toluene	1.08E-02	1.23E-06
SELB4	49	1330207	Xylenes	8.98E-03	1.03E-06
SELB5	50	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB5	50	107028	Acrolein	2.43E-04	2.78E-08
SELB5	50	71432	Benzene	4.62E-03	5.28E-07
SELB5	50	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB5	50	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB5	50	50000	Formaldehyde	2.96E-03	3.37E-07
SELB5	50	110543	Hexane	2.99E-03	3.42E-07
SELB5	50	67561	Methanol	2.25E-04	2.56E-08
SELB5	50	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB5	50	91203	Naphthalene	9.35E-05	1.07E-08
SELB5	50	115071	Propylene	5.72E-03	6.54E-07
SELB5	50	100425	Styrene	2.25E-04	2.56E-08
SELB5	50	108883	Toluene	1.08E-02	1.23E-06
SELB5	50	1330207	Xylenes	8.98E-03	1.03E-06
SELB6	51	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB6	51	107028	Acrolein	2.43E-04	2.78E-08
SELB6	51	71432	Benzene	4.62E-03	5.28E-07
SELB6	51	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB6	51	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB6	51	50000	Formaldehyde	2.96E-03	3.37E-07

SELB6	51	110543	Hexane	2.99E-03	3.42E-07
SELB6	51	67561	Methanol	2.25E-04	2.56E-08
SELB6	51	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB6	51	91203	Naphthalene	9.35E-05	1.07E-08
SELB6	51	115071	Propylene	5.72E-03	6.54E-07
SELB6	51	100425	Styrene	2.25E-04	2.56E-08
SELB6	51	108883	Toluene	1.08E-02	1.23E-06
SELB6	51	1330207	Xylenes	8.98E-03	1.03E-06
SELB7	52	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB7	52	107028	Acrolein	2.43E-04	2.78E-08
SELB7	52	71432	Benzene	4.62E-03	5.28E-07
SELB7	52	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB7	52	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB7	52	50000	Formaldehyde	2.96E-03	3.37E-07
SELB7	52	110543	Hexane	2.99E-03	3.42E-07
SELB7	52	67561	Methanol	2.25E-04	2.56E-08
SELB7	52	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB7	52	91203	Naphthalene	9.35E-05	1.07E-08
SELB7	52	115071	Propylene	5.72E-03	6.54E-07
SELB7	52	100425	Styrene	2.25E-04	2.56E-08
SELB7	52	108883	Toluene	1.08E-02	1.23E-06
SELB7	52	1330207	Xylenes	8.98E-03	1.03E-06
SELB8	53	75070	Acetaldehyde	5.24E-04	5.98E-08
SELB8	53	107028	Acrolein	2.43E-04	2.78E-08
SELB8	53	71432	Benzene	4.62E-03	5.28E-07
SELB8	53	106990	1,3-Butadiene	1.03E-03	1.17E-07
SELB8	53	100414	Ethylbenzene	1.96E-03	2.24E-07
SELB8	53	50000	Formaldehyde	2.96E-03	3.37E-07
SELB8	53	110543	Hexane	2.99E-03	3.42E-07
SELB8	53	67561	Methanol	2.25E-04	2.56E-08
SELB8	53	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SELB8	53	91203	Naphthalene	9.35E-05	1.07E-08
SELB8	53	115071	Propylene	5.72E-03	6.54E-07
SELB8	53	100425	Styrene	2.25E-04	2.56E-08
SELB8	53	108883	Toluene	1.08E-02	1.23E-06
SELB8	53	1330207	Xylenes	8.98E-03	1.03E-06
BAYSH1	54	75070	Acetaldehyde	3.97E-03	4.53E-07
BAYSH1	54	107028	Acrolein	1.84E-03	2.10E-07
BAYSH1	54	71432	Benzene	3.50E-02	4.00E-06
BAYSH1	54	106990	1,3-Butadiene	7.80E-03	8.90E-07
BAYSH1	54	100414	Ethylbenzene	1.49E-02	1.70E-06
BAYSH1	54	50000	Formaldehyde	2.24E-02	2.56E-06
BAYSH1	54	110543	Hexane	2.27E-02	2.59E-06
BAYSH1	54	67561	Methanol	1.70E-03	1.94E-07
BAYSH1	54	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
BAYSH1	54	91203	Naphthalene	7.09E-04	8.09E-08
BAYSH1	54	115071	Propylene	4.34E-02	4.95E-06

BAYSH1	54	100425	Styrene	1.70E-03	1.94E-07
BAYSH1	54	108883	Toluene	8.17E-02	9.32E-06
BAYSH1	54	1330207	Xylenes	6.81E-02	7.77E-06
INDUS1	55	75070	Acetaldehyde	3.97E-03	4.53E-07
INDUS1	55	107028	Acrolein	1.84E-03	2.10E-07
INDUS1	55	71432	Benzene	3.50E-02	4.00E-06
INDUS1	55	106990	1,3-Butadiene	7.80E-03	8.90E-07
INDUS1	55	100414	Ethylbenzene	1.49E-02	1.70E-06
INDUS1	55	50000	Formaldehyde	2.24E-02	2.56E-06
INDUS1	55	110543	Hexane	2.27E-02	2.59E-06
INDUS1	55	67561	Methanol	1.70E-03	1.94E-07
INDUS1	55	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
INDUS1	55	91203	Naphthalene	7.09E-04	8.09E-08
INDUS1	55	115071	Propylene	4.34E-02	4.95E-06
INDUS1	55	100425	Styrene	1.70E-03	1.94E-07
INDUS1	55	108883	Toluene	8.17E-02	9.32E-06
INDUS1	55	1330207	Xylenes	6.81E-02	7.77E-06
BAYSH2	56	75070	Acetaldehyde	3.97E-03	4.53E-07
BAYSH2	56	107028	Acrolein	1.84E-03	2.10E-07
BAYSH2	56	71432	Benzene	3.50E-02	4.00E-06
BAYSH2	56	106990	1,3-Butadiene	7.80E-03	8.90E-07
BAYSH2	56	100414	Ethylbenzene	1.49E-02	1.70E-06
BAYSH2	56	50000	Formaldehyde	2.24E-02	2.56E-06
BAYSH2	56	110543	Hexane	2.27E-02	2.59E-06
BAYSH2	56	67561	Methanol	1.70E-03	1.94E-07
BAYSH2	56	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
BAYSH2	56	91203	Naphthalene	7.09E-04	8.09E-08
BAYSH2	56	115071	Propylene	4.34E-02	4.95E-06
BAYSH2	56	100425	Styrene	1.70E-03	1.94E-07
BAYSH2	56	108883	Toluene	8.17E-02	9.32E-06
BAYSH2	56	1330207	Xylenes	6.81E-02	7.77E-06
BAYSH3	57	75070	Acetaldehyde	3.97E-03	4.53E-07
BAYSH3	57	107028	Acrolein	1.84E-03	2.10E-07
BAYSH3	57	71432	Benzene	3.50E-02	4.00E-06
BAYSH3	57	106990	1,3-Butadiene	7.80E-03	8.90E-07
BAYSH3	57	100414	Ethylbenzene	1.49E-02	1.70E-06
BAYSH3	57	50000	Formaldehyde	2.24E-02	2.56E-06
BAYSH3	57	110543	Hexane	2.27E-02	2.59E-06
BAYSH3	57	67561	Methanol	1.70E-03	1.94E-07
BAYSH3	57	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
BAYSH3	57	91203	Naphthalene	7.09E-04	8.09E-08
BAYSH3	57	115071	Propylene	4.34E-02	4.95E-06
BAYSH3	57	100425	Styrene	1.70E-03	1.94E-07
BAYSH3	57	108883	Toluene	8.17E-02	9.32E-06
BAYSH3	57	1330207	Xylenes	6.81E-02	7.77E-06
BARN2	58	75070	Acetaldehyde	5.24E-04	5.98E-08
BARN2	58	107028	Acrolein	2.43E-04	2.78E-08

BARN2	58	71432	Benzene	4.62E-03	5.28E-07
BARN2	58	106990	1,3-Butadiene	1.03E-03	1.17E-07
BARN2	58	100414	Ethylbenzene	1.96E-03	2.24E-07
BARN2	58	50000	Formaldehyde	2.96E-03	3.37E-07
BARN2	58	110543	Hexane	2.99E-03	3.42E-07
BARN2	58	67561	Methanol	2.25E-04	2.56E-08
BARN2	58	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
BARN2	58	91203	Naphthalene	9.35E-05	1.07E-08
BARN2	58	115071	Propylene	5.72E-03	6.54E-07
BARN2	58	100425	Styrene	2.25E-04	2.56E-08
BARN2	58	108883	Toluene	1.08E-02	1.23E-06
BARN2	58	1330207	Xylenes	8.98E-03	1.03E-06
LOOM1	59	75070	Acetaldehyde	5.24E-04	5.98E-08
LOOM1	59	107028	Acrolein	2.43E-04	2.78E-08
LOOM1	59	71432	Benzene	4.62E-03	5.28E-07
LOOM1	59	106990	1,3-Butadiene	1.03E-03	1.17E-07
LOOM1	59	100414	Ethylbenzene	1.96E-03	2.24E-07
LOOM1	59	50000	Formaldehyde	2.96E-03	3.37E-07
LOOM1	59	110543	Hexane	2.99E-03	3.42E-07
LOOM1	59	67561	Methanol	2.25E-04	2.56E-08
LOOM1	59	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
LOOM1	59	91203	Naphthalene	9.35E-05	1.07E-08
LOOM1	59	115071	Propylene	5.72E-03	6.54E-07
LOOM1	59	100425	Styrene	2.25E-04	2.56E-08
LOOM1	59	108883	Toluene	1.08E-02	1.23E-06
LOOM1	59	1330207	Xylenes	8.98E-03	1.03E-06
LOOM2	60	75070	Acetaldehyde	5.24E-04	5.98E-08
LOOM2	60	107028	Acrolein	2.43E-04	2.78E-08
LOOM2	60	71432	Benzene	4.62E-03	5.28E-07
LOOM2	60	106990	1,3-Butadiene	1.03E-03	1.17E-07
LOOM2	60	100414	Ethylbenzene	1.96E-03	2.24E-07
LOOM2	60	50000	Formaldehyde	2.96E-03	3.37E-07
LOOM2	60	110543	Hexane	2.99E-03	3.42E-07
LOOM2	60	67561	Methanol	2.25E-04	2.56E-08
LOOM2	60	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
LOOM2	60	91203	Naphthalene	9.35E-05	1.07E-08
LOOM2	60	115071	Propylene	5.72E-03	6.54E-07
LOOM2	60	100425	Styrene	2.25E-04	2.56E-08
LOOM2	60	108883	Toluene	1.08E-02	1.23E-06
LOOM2	60	1330207	Xylenes	8.98E-03	1.03E-06
ELMIR	61	75070	Acetaldehyde	5.24E-04	5.98E-08
ELMIR	61	107028	Acrolein	2.43E-04	2.78E-08
ELMIR	61	71432	Benzene	4.62E-03	5.28E-07
ELMIR	61	106990	1,3-Butadiene	1.03E-03	1.17E-07
ELMIR	61	100414	Ethylbenzene	1.96E-03	2.24E-07
ELMIR	61	50000	Formaldehyde	2.96E-03	3.37E-07
ELMIR	61	110543	Hexane	2.99E-03	3.42E-07

ELMIR	61	67561	Methanol	2.25E-04	2.56E-08
ELMIR	61	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
ELMIR	61	91203	Naphthalene	9.35E-05	1.07E-08
ELMIR	61	115071	Propylene	5.72E-03	6.54E-07
ELMIR	61	100425	Styrene	2.25E-04	2.56E-08
ELMIR	61	108883	Toluene	1.08E-02	1.23E-06
ELMIR	61	1330207	Xylenes	8.98E-03	1.03E-06
COA	62	75070	Acetaldehyde	5.24E-04	5.98E-08
COA	62	107028	Acrolein	2.43E-04	2.78E-08
COA	62	71432	Benzene	4.62E-03	5.28E-07
COA	62	106990	1,3-Butadiene	1.03E-03	1.17E-07
COA	62	100414	Ethylbenzene	1.96E-03	2.24E-07
COA	62	50000	Formaldehyde	2.96E-03	3.37E-07
COA	62	110543	Hexane	2.99E-03	3.42E-07
COA	62	67561	Methanol	2.25E-04	2.56E-08
COA	62	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
COA	62	91203	Naphthalene	9.35E-05	1.07E-08
COA	62	115071	Propylene	5.72E-03	6.54E-07
COA	62	100425	Styrene	2.25E-04	2.56E-08
COA	62	108883	Toluene	1.08E-02	1.23E-06
COA	62	1330207	Xylenes	8.98E-03	1.03E-06
BOUT	63	75070	Acetaldehyde	5.24E-04	5.98E-08
BOUT	63	107028	Acrolein	2.43E-04	2.78E-08
BOUT	63	71432	Benzene	4.62E-03	5.28E-07
BOUT	63	106990	1,3-Butadiene	1.03E-03	1.17E-07
BOUT	63	100414	Ethylbenzene	1.96E-03	2.24E-07
BOUT	63	50000	Formaldehyde	2.96E-03	3.37E-07
BOUT	63	110543	Hexane	2.99E-03	3.42E-07
BOUT	63	67561	Methanol	2.25E-04	2.56E-08
BOUT	63	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
BOUT	63	91203	Naphthalene	9.35E-05	1.07E-08
BOUT	63	115071	Propylene	5.72E-03	6.54E-07
BOUT	63	100425	Styrene	2.25E-04	2.56E-08
BOUT	63	108883	Toluene	1.08E-02	1.23E-06
BOUT	63	1330207	Xylenes	8.98E-03	1.03E-06
SANB	64	75070	Acetaldehyde	5.24E-04	5.98E-08
SANB	64	107028	Acrolein	2.43E-04	2.78E-08
SANB	64	71432	Benzene	4.62E-03	5.28E-07
SANB	64	106990	1,3-Butadiene	1.03E-03	1.17E-07
SANB	64	100414	Ethylbenzene	1.96E-03	2.24E-07
SANB	64	50000	Formaldehyde	2.96E-03	3.37E-07
SANB	64	110543	Hexane	2.99E-03	3.42E-07
SANB	64	67561	Methanol	2.25E-04	2.56E-08
SANB	64	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SANB	64	91203	Naphthalene	9.35E-05	1.07E-08
SANB	64	115071	Propylene	5.72E-03	6.54E-07
SANB	64	100425	Styrene	2.25E-04	2.56E-08

SANB	64	108883	Toluene	1.08E-02	1.23E-06
SANB	64	1330207	Xylenes	8.98E-03	1.03E-06
ALEM	65	75070	Acetaldehyde	3.97E-03	4.53E-07
ALEM	65	107028	Acrolein	1.84E-03	2.10E-07
ALEM	65	71432	Benzene	3.50E-02	4.00E-06
ALEM	65	106990	1,3-Butadiene	7.80E-03	8.90E-07
ALEM	65	100414	Ethylbenzene	1.49E-02	1.70E-06
ALEM	65	50000	Formaldehyde	2.24E-02	2.56E-06
ALEM	65	110543	Hexane	2.27E-02	2.59E-06
ALEM	65	67561	Methanol	1.70E-03	1.94E-07
ALEM	65	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
ALEM	65	91203	Naphthalene	7.09E-04	8.09E-08
ALEM	65	115071	Propylene	4.34E-02	4.95E-06
ALEM	65	100425	Styrene	1.70E-03	1.94E-07
ALEM	65	108883	Toluene	8.17E-02	9.32E-06
ALEM	65	1330207	Xylenes	6.81E-02	7.77E-06
PUTN1	66	75070	Acetaldehyde	5.24E-04	5.98E-08
PUTN1	66	107028	Acrolein	2.43E-04	2.78E-08
PUTN1	66	71432	Benzene	4.62E-03	5.28E-07
PUTN1	66	106990	1,3-Butadiene	1.03E-03	1.17E-07
PUTN1	66	100414	Ethylbenzene	1.96E-03	2.24E-07
PUTN1	66	50000	Formaldehyde	2.96E-03	3.37E-07
PUTN1	66	110543	Hexane	2.99E-03	3.42E-07
PUTN1	66	67561	Methanol	2.25E-04	2.56E-08
PUTN1	66	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
PUTN1	66	91203	Naphthalene	9.35E-05	1.07E-08
PUTN1	66	115071	Propylene	5.72E-03	6.54E-07
PUTN1	66	100425	Styrene	2.25E-04	2.56E-08
PUTN1	66	108883	Toluene	1.08E-02	1.23E-06
PUTN1	66	1330207	Xylenes	8.98E-03	1.03E-06
COURT1	67	75070	Acetaldehyde	5.24E-04	5.98E-08
COURT1	67	107028	Acrolein	2.43E-04	2.78E-08
COURT1	67	71432	Benzene	4.62E-03	5.28E-07
COURT1	67	106990	1,3-Butadiene	1.03E-03	1.17E-07
COURT1	67	100414	Ethylbenzene	1.96E-03	2.24E-07
COURT1	67	50000	Formaldehyde	2.96E-03	3.37E-07
COURT1	67	110543	Hexane	2.99E-03	3.42E-07
COURT1	67	67561	Methanol	2.25E-04	2.56E-08
COURT1	67	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
COURT1	67	91203	Naphthalene	9.35E-05	1.07E-08
COURT1	67	115071	Propylene	5.72E-03	6.54E-07
COURT1	67	100425	Styrene	2.25E-04	2.56E-08
COURT1	67	108883	Toluene	1.08E-02	1.23E-06
COURT1	67	1330207	Xylenes	8.98E-03	1.03E-06
TOMP1	68	75070	Acetaldehyde	5.24E-04	5.98E-08
TOMP1	68	107028	Acrolein	2.43E-04	2.78E-08
TOMP1	68	71432	Benzene	4.62E-03	5.28E-07

TOMP1	68	106990	1,3-Butadiene	1.03E-03	1.17E-07
TOMP1	68	100414	Ethylbenzene	1.96E-03	2.24E-07
TOMP1	68	50000	Formaldehyde	2.96E-03	3.37E-07
TOMP1	68	110543	Hexane	2.99E-03	3.42E-07
TOMP1	68	67561	Methanol	2.25E-04	2.56E-08
TOMP1	68	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
TOMP1	68	91203	Naphthalene	9.35E-05	1.07E-08
TOMP1	68	115071	Propylene	5.72E-03	6.54E-07
TOMP1	68	100425	Styrene	2.25E-04	2.56E-08
TOMP1	68	108883	Toluene	1.08E-02	1.23E-06
TOMP1	68	1330207	Xylenes	8.98E-03	1.03E-06
BRAD1	69	75070	Acetaldehyde	5.24E-04	5.98E-08
BRAD1	69	107028	Acrolein	2.43E-04	2.78E-08
BRAD1	69	71432	Benzene	4.62E-03	5.28E-07
BRAD1	69	106990	1,3-Butadiene	1.03E-03	1.17E-07
BRAD1	69	100414	Ethylbenzene	1.96E-03	2.24E-07
BRAD1	69	50000	Formaldehyde	2.96E-03	3.37E-07
BRAD1	69	110543	Hexane	2.99E-03	3.42E-07
BRAD1	69	67561	Methanol	2.25E-04	2.56E-08
BRAD1	69	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
BRAD1	69	91203	Naphthalene	9.35E-05	1.07E-08
BRAD1	69	115071	Propylene	5.72E-03	6.54E-07
BRAD1	69	100425	Styrene	2.25E-04	2.56E-08
BRAD1	69	108883	Toluene	1.08E-02	1.23E-06
BRAD1	69	1330207	Xylenes	8.98E-03	1.03E-06
BRAD2	70	75070	Acetaldehyde	5.24E-04	5.98E-08
BRAD2	70	107028	Acrolein	2.43E-04	2.78E-08
BRAD2	70	71432	Benzene	4.62E-03	5.28E-07
BRAD2	70	106990	1,3-Butadiene	1.03E-03	1.17E-07
BRAD2	70	100414	Ethylbenzene	1.96E-03	2.24E-07
BRAD2	70	50000	Formaldehyde	2.96E-03	3.37E-07
BRAD2	70	110543	Hexane	2.99E-03	3.42E-07
BRAD2	70	67561	Methanol	2.25E-04	2.56E-08
BRAD2	70	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
BRAD2	70	91203	Naphthalene	9.35E-05	1.07E-08
BRAD2	70	115071	Propylene	5.72E-03	6.54E-07
BRAD2	70	100425	Styrene	2.25E-04	2.56E-08
BRAD2	70	108883	Toluene	1.08E-02	1.23E-06
BRAD2	70	1330207	Xylenes	8.98E-03	1.03E-06
FRAN1	71	75070	Acetaldehyde	5.24E-04	5.98E-08
FRAN1	71	107028	Acrolein	2.43E-04	2.78E-08
FRAN1	71	71432	Benzene	4.62E-03	5.28E-07
FRAN1	71	106990	1,3-Butadiene	1.03E-03	1.17E-07
FRAN1	71	100414	Ethylbenzene	1.96E-03	2.24E-07
FRAN1	71	50000	Formaldehyde	2.96E-03	3.37E-07
FRAN1	71	110543	Hexane	2.99E-03	3.42E-07
FRAN1	71	67561	Methanol	2.25E-04	2.56E-08

FRAN1	71	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
FRAN1	71	91203	Naphthalene	9.35E-05	1.07E-08
FRAN1	71	115071	Propylene	5.72E-03	6.54E-07
FRAN1	71	100425	Styrene	2.25E-04	2.56E-08
FRAN1	71	108883	Toluene	1.08E-02	1.23E-06
FRAN1	71	1330207	Xylenes	8.98E-03	1.03E-06
HOLL1	72	75070	Acetaldehyde	5.24E-04	5.98E-08
HOLL1	72	107028	Acrolein	2.43E-04	2.78E-08
HOLL1	72	71432	Benzene	4.62E-03	5.28E-07
HOLL1	72	106990	1,3-Butadiene	1.03E-03	1.17E-07
HOLL1	72	100414	Ethylbenzene	1.96E-03	2.24E-07
HOLL1	72	50000	Formaldehyde	2.96E-03	3.37E-07
HOLL1	72	110543	Hexane	2.99E-03	3.42E-07
HOLL1	72	67561	Methanol	2.25E-04	2.56E-08
HOLL1	72	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
HOLL1	72	91203	Naphthalene	9.35E-05	1.07E-08
HOLL1	72	115071	Propylene	5.72E-03	6.54E-07
HOLL1	72	100425	Styrene	2.25E-04	2.56E-08
HOLL1	72	108883	Toluene	1.08E-02	1.23E-06
HOLL1	72	1330207	Xylenes	8.98E-03	1.03E-06
POTR1	73	75070	Acetaldehyde	3.97E-03	4.53E-07
POTR1	73	107028	Acrolein	1.84E-03	2.10E-07
POTR1	73	71432	Benzene	3.50E-02	4.00E-06
POTR1	73	106990	1,3-Butadiene	7.80E-03	8.90E-07
POTR1	73	100414	Ethylbenzene	1.49E-02	1.70E-06
POTR1	73	50000	Formaldehyde	2.24E-02	2.56E-06
POTR1	73	110543	Hexane	2.27E-02	2.59E-06
POTR1	73	67561	Methanol	1.70E-03	1.94E-07
POTR1	73	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
POTR1	73	91203	Naphthalene	7.09E-04	8.09E-08
POTR1	73	115071	Propylene	4.34E-02	4.95E-06
POTR1	73	100425	Styrene	1.70E-03	1.94E-07
POTR1	73	108883	Toluene	8.17E-02	9.32E-06
POTR1	73	1330207	Xylenes	6.81E-02	7.77E-06
CESAR1	74	75070	Acetaldehyde	3.97E-03	4.53E-07
CESAR1	74	107028	Acrolein	1.84E-03	2.10E-07
CESAR1	74	71432	Benzene	3.50E-02	4.00E-06
CESAR1	74	106990	1,3-Butadiene	7.80E-03	8.90E-07
CESAR1	74	100414	Ethylbenzene	1.49E-02	1.70E-06
CESAR1	74	50000	Formaldehyde	2.24E-02	2.56E-06
CESAR1	74	110543	Hexane	2.27E-02	2.59E-06
CESAR1	74	67561	Methanol	1.70E-03	1.94E-07
CESAR1	74	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
CESAR1	74	91203	Naphthalene	7.09E-04	8.09E-08
CESAR1	74	115071	Propylene	4.34E-02	4.95E-06
CESAR1	74	100425	Styrene	1.70E-03	1.94E-07
CESAR1	74	108883	Toluene	8.17E-02	9.32E-06

CESAR1	74	1330207	Xylenes	6.81E-02	7.77E-06
BAYSH5	75	75070	Acetaldehyde	3.97E-03	4.53E-07
BAYSH5	75	107028	Acrolein	1.84E-03	2.10E-07
BAYSH5	75	71432	Benzene	3.50E-02	4.00E-06
BAYSH5	75	106990	1,3-Butadiene	7.80E-03	8.90E-07
BAYSH5	75	100414	Ethylbenzene	1.49E-02	1.70E-06
BAYSH5	75	50000	Formaldehyde	2.24E-02	2.56E-06
BAYSH5	75	110543	Hexane	2.27E-02	2.59E-06
BAYSH5	75	67561	Methanol	1.70E-03	1.94E-07
BAYSH5	75	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
BAYSH5	75	91203	Naphthalene	7.09E-04	8.09E-08
BAYSH5	75	115071	Propylene	4.34E-02	4.95E-06
BAYSH5	75	100425	Styrene	1.70E-03	1.94E-07
BAYSH5	75	108883	Toluene	8.17E-02	9.32E-06
BAYSH5	75	1330207	Xylenes	6.81E-02	7.77E-06
BAYSH6	76	75070	Acetaldehyde	3.97E-03	4.53E-07
BAYSH6	76	107028	Acrolein	1.84E-03	2.10E-07
BAYSH6	76	71432	Benzene	3.50E-02	4.00E-06
BAYSH6	76	106990	1,3-Butadiene	7.80E-03	8.90E-07
BAYSH6	76	100414	Ethylbenzene	1.49E-02	1.70E-06
BAYSH6	76	50000	Formaldehyde	2.24E-02	2.56E-06
BAYSH6	76	110543	Hexane	2.27E-02	2.59E-06
BAYSH6	76	67561	Methanol	1.70E-03	1.94E-07
BAYSH6	76	78933	Methyl Ethyl Ketone	2.84E-04	3.24E-08
BAYSH6	76	91203	Naphthalene	7.09E-04	8.09E-08
BAYSH6	76	115071	Propylene	4.34E-02	4.95E-06
BAYSH6	76	100425	Styrene	1.70E-03	1.94E-07
BAYSH6	76	108883	Toluene	8.17E-02	9.32E-06
BAYSH6	76	1330207	Xylenes	6.81E-02	7.77E-06
PERA1	77	75070	Acetaldehyde	5.24E-04	5.98E-08
PERA1	77	107028	Acrolein	2.43E-04	2.78E-08
PERA1	77	71432	Benzene	4.62E-03	5.28E-07
PERA1	77	106990	1,3-Butadiene	1.03E-03	1.17E-07
PERA1	77	100414	Ethylbenzene	1.96E-03	2.24E-07
PERA1	77	50000	Formaldehyde	2.96E-03	3.37E-07
PERA1	77	110543	Hexane	2.99E-03	3.42E-07
PERA1	77	67561	Methanol	2.25E-04	2.56E-08
PERA1	77	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
PERA1	77	91203	Naphthalene	9.35E-05	1.07E-08
PERA1	77	115071	Propylene	5.72E-03	6.54E-07
PERA1	77	100425	Styrene	2.25E-04	2.56E-08
PERA1	77	108883	Toluene	1.08E-02	1.23E-06
PERA1	77	1330207	Xylenes	8.98E-03	1.03E-06
YORK1	78	75070	Acetaldehyde	5.24E-04	5.98E-08
YORK1	78	107028	Acrolein	2.43E-04	2.78E-08
YORK1	78	71432	Benzene	4.62E-03	5.28E-07
YORK1	78	106990	1,3-Butadiene	1.03E-03	1.17E-07

YORK1	78	100414	Ethylbenzene	1.96E-03	2.24E-07
YORK1	78	50000	Formaldehyde	2.96E-03	3.37E-07
YORK1	78	110543	Hexane	2.99E-03	3.42E-07
YORK1	78	67561	Methanol	2.25E-04	2.56E-08
YORK1	78	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
YORK1	78	91203	Naphthalene	9.35E-05	1.07E-08
YORK1	78	115071	Propylene	5.72E-03	6.54E-07
YORK1	78	100425	Styrene	2.25E-04	2.56E-08
YORK1	78	108883	Toluene	1.08E-02	1.23E-06
YORK1	78	1330207	Xylenes	8.98E-03	1.03E-06
RHODE1	79	75070	Acetaldehyde	5.24E-04	5.98E-08
RHODE1	79	107028	Acrolein	2.43E-04	2.78E-08
RHODE1	79	71432	Benzene	4.62E-03	5.28E-07
RHODE1	79	106990	1,3-Butadiene	1.03E-03	1.17E-07
RHODE1	79	100414	Ethylbenzene	1.96E-03	2.24E-07
RHODE1	79	50000	Formaldehyde	2.96E-03	3.37E-07
RHODE1	79	110543	Hexane	2.99E-03	3.42E-07
RHODE1	79	67561	Methanol	2.25E-04	2.56E-08
RHODE1	79	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
RHODE1	79	91203	Naphthalene	9.35E-05	1.07E-08
RHODE1	79	115071	Propylene	5.72E-03	6.54E-07
RHODE1	79	100425	Styrene	2.25E-04	2.56E-08
RHODE1	79	108883	Toluene	1.08E-02	1.23E-06
RHODE1	79	1330207	Xylenes	8.98E-03	1.03E-06
KANSAS	80	75070	Acetaldehyde	5.24E-04	5.98E-08
KANSAS	80	107028	Acrolein	2.43E-04	2.78E-08
KANSAS	80	71432	Benzene	4.62E-03	5.28E-07
KANSAS	80	106990	1,3-Butadiene	1.03E-03	1.17E-07
KANSAS	80	100414	Ethylbenzene	1.96E-03	2.24E-07
KANSAS	80	50000	Formaldehyde	2.96E-03	3.37E-07
KANSAS	80	110543	Hexane	2.99E-03	3.42E-07
KANSAS	80	67561	Methanol	2.25E-04	2.56E-08
KANSAS	80	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
KANSAS	80	91203	Naphthalene	9.35E-05	1.07E-08
KANSAS	80	115071	Propylene	5.72E-03	6.54E-07
KANSAS	80	100425	Styrene	2.25E-04	2.56E-08
KANSAS	80	108883	Toluene	1.08E-02	1.23E-06
KANSAS	80	1330207	Xylenes	8.98E-03	1.03E-06
VERMT	81	75070	Acetaldehyde	5.24E-04	5.98E-08
VERMT	81	107028	Acrolein	2.43E-04	2.78E-08
VERMT	81	71432	Benzene	4.62E-03	5.28E-07
VERMT	81	106990	1,3-Butadiene	1.03E-03	1.17E-07
VERMT	81	100414	Ethylbenzene	1.96E-03	2.24E-07
VERMT	81	50000	Formaldehyde	2.96E-03	3.37E-07
VERMT	81	110543	Hexane	2.99E-03	3.42E-07
VERMT	81	67561	Methanol	2.25E-04	2.56E-08
VERMT	81	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09

VERMT	81	91203	Naphthalene	9.35E-05	1.07E-08
VERMT	81	115071	Propylene	5.72E-03	6.54E-07
VERMT	81	100425	Styrene	2.25E-04	2.56E-08
VERMT	81	108883	Toluene	1.08E-02	1.23E-06
VERMT	81	1330207	Xylenes	8.98E-03	1.03E-06
SANBR	82	75070	Acetaldehyde	5.24E-04	5.98E-08
SANBR	82	107028	Acrolein	2.43E-04	2.78E-08
SANBR	82	71432	Benzene	4.62E-03	5.28E-07
SANBR	82	106990	1,3-Butadiene	1.03E-03	1.17E-07
SANBR	82	100414	Ethylbenzene	1.96E-03	2.24E-07
SANBR	82	50000	Formaldehyde	2.96E-03	3.37E-07
SANBR	82	110543	Hexane	2.99E-03	3.42E-07
SANBR	82	67561	Methanol	2.25E-04	2.56E-08
SANBR	82	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
SANBR	82	91203	Naphthalene	9.35E-05	1.07E-08
SANBR	82	115071	Propylene	5.72E-03	6.54E-07
SANBR	82	100425	Styrene	2.25E-04	2.56E-08
SANBR	82	108883	Toluene	1.08E-02	1.23E-06
SANBR	82	1330207	Xylenes	8.98E-03	1.03E-06
S26S	83	75070	Acetaldehyde	5.24E-04	5.98E-08
S26S	83	107028	Acrolein	2.43E-04	2.78E-08
S26S	83	71432	Benzene	4.62E-03	5.28E-07
S26S	83	106990	1,3-Butadiene	1.03E-03	1.17E-07
S26S	83	100414	Ethylbenzene	1.96E-03	2.24E-07
S26S	83	50000	Formaldehyde	2.96E-03	3.37E-07
S26S	83	110543	Hexane	2.99E-03	3.42E-07
S26S	83	67561	Methanol	2.25E-04	2.56E-08
S26S	83	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
S26S	83	91203	Naphthalene	9.35E-05	1.07E-08
S26S	83	115071	Propylene	5.72E-03	6.54E-07
S26S	83	100425	Styrene	2.25E-04	2.56E-08
S26S	83	108883	Toluene	1.08E-02	1.23E-06
S26S	83	1330207	Xylenes	8.98E-03	1.03E-06
S24S	84	75070	Acetaldehyde	5.24E-04	5.98E-08
S24S	84	107028	Acrolein	2.43E-04	2.78E-08
S24S	84	71432	Benzene	4.62E-03	5.28E-07
S24S	84	106990	1,3-Butadiene	1.03E-03	1.17E-07
S24S	84	100414	Ethylbenzene	1.96E-03	2.24E-07
S24S	84	50000	Formaldehyde	2.96E-03	3.37E-07
S24S	84	110543	Hexane	2.99E-03	3.42E-07
S24S	84	67561	Methanol	2.25E-04	2.56E-08
S24S	84	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
S24S	84	91203	Naphthalene	9.35E-05	1.07E-08
S24S	84	115071	Propylene	5.72E-03	6.54E-07
S24S	84	100425	Styrene	2.25E-04	2.56E-08
S24S	84	108883	Toluene	1.08E-02	1.23E-06
S24S	84	1330207	Xylenes	8.98E-03	1.03E-06

BARN3	85	75070	Acetaldehyde	5.24E-04	5.98E-08
BARN3	85	107028	Acrolein	2.43E-04	2.78E-08
BARN3	85	71432	Benzene	4.62E-03	5.28E-07
BARN3	85	106990	1,3-Butadiene	1.03E-03	1.17E-07
BARN3	85	100414	Ethylbenzene	1.96E-03	2.24E-07
BARN3	85	50000	Formaldehyde	2.96E-03	3.37E-07
BARN3	85	110543	Hexane	2.99E-03	3.42E-07
BARN3	85	67561	Methanol	2.25E-04	2.56E-08
BARN3	85	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
BARN3	85	91203	Naphthalene	9.35E-05	1.07E-08
BARN3	85	115071	Propylene	5.72E-03	6.54E-07
BARN3	85	100425	Styrene	2.25E-04	2.56E-08
BARN3	85	108883	Toluene	1.08E-02	1.23E-06
BARN3	85	1330207	Xylenes	8.98E-03	1.03E-06
MARIN1	86	75070	Acetaldehyde	5.24E-04	5.98E-08
MARIN1	86	107028	Acrolein	2.43E-04	2.78E-08
MARIN1	86	71432	Benzene	4.62E-03	5.28E-07
MARIN1	86	106990	1,3-Butadiene	1.03E-03	1.17E-07
MARIN1	86	100414	Ethylbenzene	1.96E-03	2.24E-07
MARIN1	86	50000	Formaldehyde	2.96E-03	3.37E-07
MARIN1	86	110543	Hexane	2.99E-03	3.42E-07
MARIN1	86	67561	Methanol	2.25E-04	2.56E-08
MARIN1	86	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
MARIN1	86	91203	Naphthalene	9.35E-05	1.07E-08
MARIN1	86	115071	Propylene	5.72E-03	6.54E-07
MARIN1	86	100425	Styrene	2.25E-04	2.56E-08
MARIN1	86	108883	Toluene	1.08E-02	1.23E-06
MARIN1	86	1330207	Xylenes	8.98E-03	1.03E-06
CESAR2	87	75070	Acetaldehyde	5.24E-04	5.98E-08
CESAR2	87	107028	Acrolein	2.43E-04	2.78E-08
CESAR2	87	71432	Benzene	4.62E-03	5.28E-07
CESAR2	87	106990	1,3-Butadiene	1.03E-03	1.17E-07
CESAR2	87	100414	Ethylbenzene	1.96E-03	2.24E-07
CESAR2	87	50000	Formaldehyde	2.96E-03	3.37E-07
CESAR2	87	110543	Hexane	2.99E-03	3.42E-07
CESAR2	87	67561	Methanol	2.25E-04	2.56E-08
CESAR2	87	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
CESAR2	87	91203	Naphthalene	9.35E-05	1.07E-08
CESAR2	87	115071	Propylene	5.72E-03	6.54E-07
CESAR2	87	100425	Styrene	2.25E-04	2.56E-08
CESAR2	87	108883	Toluene	1.08E-02	1.23E-06
CESAR2	87	1330207	Xylenes	8.98E-03	1.03E-06
S25S	88	75070	Acetaldehyde	5.24E-04	5.98E-08
S25S	88	107028	Acrolein	2.43E-04	2.78E-08
S25S	88	71432	Benzene	4.62E-03	5.28E-07
S25S	88	106990	1,3-Butadiene	1.03E-03	1.17E-07
S25S	88	100414	Ethylbenzene	1.96E-03	2.24E-07

S25S	88	50000	Formaldehyde	2.96E-03	3.37E-07
S25S	88	110543	Hexane	2.99E-03	3.42E-07
S25S	88	67561	Methanol	2.25E-04	2.56E-08
S25S	88	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
S25S	88	91203	Naphthalene	9.35E-05	1.07E-08
S25S	88	115071	Propylene	5.72E-03	6.54E-07
S25S	88	100425	Styrene	2.25E-04	2.56E-08
S25S	88	108883	Toluene	1.08E-02	1.23E-06
S25S	88	1330207	Xylenes	8.98E-03	1.03E-06
QUESA1	89	75070	Acetaldehyde	5.24E-04	5.98E-08
QUESA1	89	107028	Acrolein	2.43E-04	2.78E-08
QUESA1	89	71432	Benzene	4.62E-03	5.28E-07
QUESA1	89	106990	1,3-Butadiene	1.03E-03	1.17E-07
QUESA1	89	100414	Ethylbenzene	1.96E-03	2.24E-07
QUESA1	89	50000	Formaldehyde	2.96E-03	3.37E-07
QUESA1	89	110543	Hexane	2.99E-03	3.42E-07
QUESA1	89	67561	Methanol	2.25E-04	2.56E-08
QUESA1	89	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
QUESA1	89	91203	Naphthalene	9.35E-05	1.07E-08
QUESA1	89	115071	Propylene	5.72E-03	6.54E-07
QUESA1	89	100425	Styrene	2.25E-04	2.56E-08
QUESA1	89	108883	Toluene	1.08E-02	1.23E-06
QUESA1	89	1330207	Xylenes	8.98E-03	1.03E-06
REVE1	90	75070	Acetaldehyde	5.24E-04	5.98E-08
REVE1	90	107028	Acrolein	2.43E-04	2.78E-08
REVE1	90	71432	Benzene	4.62E-03	5.28E-07
REVE1	90	106990	1,3-Butadiene	1.03E-03	1.17E-07
REVE1	90	100414	Ethylbenzene	1.96E-03	2.24E-07
REVE1	90	50000	Formaldehyde	2.96E-03	3.37E-07
REVE1	90	110543	Hexane	2.99E-03	3.42E-07
REVE1	90	67561	Methanol	2.25E-04	2.56E-08
REVE1	90	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
REVE1	90	91203	Naphthalene	9.35E-05	1.07E-08
REVE1	90	115071	Propylene	5.72E-03	6.54E-07
REVE1	90	100425	Styrene	2.25E-04	2.56E-08
REVE1	90	108883	Toluene	1.08E-02	1.23E-06
REVE1	90	1330207	Xylenes	8.98E-03	1.03E-06
GAVEN1	91	75070	Acetaldehyde	5.24E-04	5.98E-08
GAVEN1	91	107028	Acrolein	2.43E-04	2.78E-08
GAVEN1	91	71432	Benzene	4.62E-03	5.28E-07
GAVEN1	91	106990	1,3-Butadiene	1.03E-03	1.17E-07
GAVEN1	91	100414	Ethylbenzene	1.96E-03	2.24E-07
GAVEN1	91	50000	Formaldehyde	2.96E-03	3.37E-07
GAVEN1	91	110543	Hexane	2.99E-03	3.42E-07
GAVEN1	91	67561	Methanol	2.25E-04	2.56E-08
GAVEN1	91	78933	Methyl Ethyl Ketone	3.74E-05	4.27E-09
GAVEN1	91	91203	Naphthalene	9.35E-05	1.07E-08

GAVEN1	91	115071	Propylene	5.72E-03	6.54E-07
GAVEN1	91	100425	Styrene	2.25E-04	2.56E-08
GAVEN1	91	108883	Toluene	1.08E-02	1.23E-06
GAVEN1	91	1330207	Xylenes	8.98E-03	1.03E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

SRC ID	SRC No.	CAS No.	Pollutant	Operations - Trucks	
				lb/yr	lb/hr
TOLAN1	1	9901	DieselExhPM	3.48E-02	0.00E+00
OAKD1	2	9901	DieselExhPM	2.09E-01	0.00E+00
INDUS1	3	9901	DieselExhPM	2.09E-01	0.00E+00
TOLAN2	4	9901	DieselExhPM	1.39E-01	0.00E+00
TOLAN3	5	9901	DieselExhPM	2.78E-01	0.00E+00
JERR1	6	9901	DieselExhPM	2.78E-01	0.00E+00
BAYSH1	7	9901	DieselExhPM	3.48E-02	0.00E+00
INDUS2	8	9901	DieselExhPM	3.48E-02	0.00E+00
INDUS3	9	9901	DieselExhPM	2.09E-01	0.00E+00
BAYSH2	10	9901	DieselExhPM	1.74E-01	0.00E+00
BAYSH3	11	9901	DieselExhPM	2.78E-01	0.00E+00
BAYSH4	12	9901	DieselExhPM	1.74E-01	0.00E+00
KIRK1	13	9901	DieselExhPM	1.39E-01	0.00E+00
KIRK2	14	9901	DieselExhPM	1.04E-01	0.00E+00
RANK2	15	9901	DieselExhPM	1.04E-01	0.00E+00
MCKI2	16	9901	DieselExhPM	1.04E-01	0.00E+00
MCKI3	17	9901	DieselExhPM	1.39E-01	0.00E+00
SELB3	18	9901	DieselExhPM	3.83E-01	0.00E+00
SELB4	19	9901	DieselExhPM	3.83E-01	0.00E+00
SELB5	20	9901	DieselExhPM	4.87E-01	0.00E+00
OAKD2	21	9901	DieselExhPM	1.74E-01	0.00E+00
INDU1	22	9901	DieselExhPM	2.09E-01	0.00E+00
TOLAN1	1	75070	Acetaldehyde	6.74E-04	7.69E-08
TOLAN1	1	107028	Acrolein	3.13E-04	3.57E-08
TOLAN1	1	71432	Benzene	5.94E-03	6.78E-07
TOLAN1	1	106990	1,3-Butadiene	1.32E-03	1.51E-07
TOLAN1	1	100414	Ethylbenzene	2.53E-03	2.88E-07
TOLAN1	1	50000	Formaldehyde	3.80E-03	4.34E-07
TOLAN1	1	110543	Hexane	3.85E-03	4.39E-07
TOLAN1	1	67561	Methanol	2.89E-04	3.30E-08
TOLAN1	1	78933	Methyl Ethyl Ketor	4.81E-05	5.49E-09
TOLAN1	1	91203	Naphthalene	1.20E-04	1.37E-08
TOLAN1	1	115071	Propylene	7.36E-03	8.40E-07
TOLAN1	1	100425	Styrene	2.89E-04	3.30E-08
TOLAN1	1	108883	Toluene	1.39E-02	1.58E-06
TOLAN1	1	1330207	Xylenes	1.15E-02	1.32E-06
OAKD1	2	75070	Acetaldehyde	4.04E-03	4.61E-07
OAKD1	2	107028	Acrolein	1.88E-03	2.14E-07
OAKD1	2	71432	Benzene	3.56E-02	4.07E-06
OAKD1	2	106990	1,3-Butadiene	7.94E-03	9.06E-07
OAKD1	2	100414	Ethylbenzene	1.52E-02	1.73E-06
OAKD1	2	50000	Formaldehyde	2.28E-02	2.60E-06
OAKD1	2	110543	Hexane	2.31E-02	2.64E-06
OAKD1	2	67561	Methanol	1.73E-03	1.98E-07
OAKD1	2	78933	Methyl Ethyl Ketor	2.89E-04	3.30E-08

OAKD1	2	91203	Naphthalene	7.22E-04	8.24E-08
OAKD1	2	115071	Propylene	4.42E-02	5.04E-06
OAKD1	2	100425	Styrene	1.73E-03	1.98E-07
OAKD1	2	108883	Toluene	8.31E-02	9.49E-06
OAKD1	2	1330207	Xylenes	6.93E-02	7.91E-06
INDUS1	3	75070	Acetaldehyde	4.04E-03	4.61E-07
INDUS1	3	107028	Acrolein	1.88E-03	2.14E-07
INDUS1	3	71432	Benzene	3.56E-02	4.07E-06
INDUS1	3	106990	1,3-Butadiene	7.94E-03	9.06E-07
INDUS1	3	100414	Ethylbenzene	1.52E-02	1.73E-06
INDUS1	3	50000	Formaldehyde	2.28E-02	2.60E-06
INDUS1	3	110543	Hexane	2.31E-02	2.64E-06
INDUS1	3	67561	Methanol	1.73E-03	1.98E-07
INDUS1	3	78933	Methyl Ethyl Ketor	2.89E-04	3.30E-08
INDUS1	3	91203	Naphthalene	7.22E-04	8.24E-08
INDUS1	3	115071	Propylene	4.42E-02	5.04E-06
INDUS1	3	100425	Styrene	1.73E-03	1.98E-07
INDUS1	3	108883	Toluene	8.31E-02	9.49E-06
INDUS1	3	1330207	Xylenes	6.93E-02	7.91E-06
TOLAN2	4	75070	Acetaldehyde	2.69E-03	3.08E-07
TOLAN2	4	107028	Acrolein	1.25E-03	1.43E-07
TOLAN2	4	71432	Benzene	2.38E-02	2.71E-06
TOLAN2	4	106990	1,3-Butadiene	5.29E-03	6.04E-07
TOLAN2	4	100414	Ethylbenzene	1.01E-02	1.15E-06
TOLAN2	4	50000	Formaldehyde	1.52E-02	1.74E-06
TOLAN2	4	110543	Hexane	1.54E-02	1.76E-06
TOLAN2	4	67561	Methanol	1.15E-03	1.32E-07
TOLAN2	4	78933	Methyl Ethyl Ketor	1.92E-04	2.20E-08
TOLAN2	4	91203	Naphthalene	4.81E-04	5.49E-08
TOLAN2	4	115071	Propylene	2.94E-02	3.36E-06
TOLAN2	4	100425	Styrene	1.15E-03	1.32E-07
TOLAN2	4	108883	Toluene	5.54E-02	6.33E-06
TOLAN2	4	1330207	Xylenes	4.62E-02	5.27E-06
TOLAN3	5	75070	Acetaldehyde	5.39E-03	6.15E-07
TOLAN3	5	107028	Acrolein	2.50E-03	2.86E-07
TOLAN3	5	71432	Benzene	4.75E-02	5.43E-06
TOLAN3	5	106990	1,3-Butadiene	1.06E-02	1.21E-06
TOLAN3	5	100414	Ethylbenzene	2.02E-02	2.31E-06
TOLAN3	5	50000	Formaldehyde	3.04E-02	3.47E-06
TOLAN3	5	110543	Hexane	3.08E-02	3.51E-06
TOLAN3	5	67561	Methanol	2.31E-03	2.64E-07
TOLAN3	5	78933	Methyl Ethyl Ketor	3.85E-04	4.39E-08
TOLAN3	5	91203	Naphthalene	9.62E-04	1.10E-07
TOLAN3	5	115071	Propylene	5.89E-02	6.72E-06
TOLAN3	5	100425	Styrene	2.31E-03	2.64E-07
TOLAN3	5	108883	Toluene	1.11E-01	1.27E-05
TOLAN3	5	1330207	Xylenes	9.24E-02	1.05E-05

JERR1	6	75070	Acetaldehyde	5.39E-03	6.15E-07
JERR1	6	107028	Acrolein	2.50E-03	2.86E-07
JERR1	6	71432	Benzene	4.75E-02	5.43E-06
JERR1	6	106990	1,3-Butadiene	1.06E-02	1.21E-06
JERR1	6	100414	Ethylbenzene	2.02E-02	2.31E-06
JERR1	6	50000	Formaldehyde	3.04E-02	3.47E-06
JERR1	6	110543	Hexane	3.08E-02	3.51E-06
JERR1	6	67561	Methanol	2.31E-03	2.64E-07
JERR1	6	78933	Methyl Ethyl Ketor	3.85E-04	4.39E-08
JERR1	6	91203	Naphthalene	9.62E-04	1.10E-07
JERR1	6	115071	Propylene	5.89E-02	6.72E-06
JERR1	6	100425	Styrene	2.31E-03	2.64E-07
JERR1	6	108883	Toluene	1.11E-01	1.27E-05
JERR1	6	1330207	Xylenes	9.24E-02	1.05E-05
BAYSH1	7	75070	Acetaldehyde	6.74E-04	7.69E-08
BAYSH1	7	107028	Acrolein	3.13E-04	3.57E-08
BAYSH1	7	71432	Benzene	5.94E-03	6.78E-07
BAYSH1	7	106990	1,3-Butadiene	1.32E-03	1.51E-07
BAYSH1	7	100414	Ethylbenzene	2.53E-03	2.88E-07
BAYSH1	7	50000	Formaldehyde	3.80E-03	4.34E-07
BAYSH1	7	110543	Hexane	3.85E-03	4.39E-07
BAYSH1	7	67561	Methanol	2.89E-04	3.30E-08
BAYSH1	7	78933	Methyl Ethyl Ketor	4.81E-05	5.49E-09
BAYSH1	7	91203	Naphthalene	1.20E-04	1.37E-08
BAYSH1	7	115071	Propylene	7.36E-03	8.40E-07
BAYSH1	7	100425	Styrene	2.89E-04	3.30E-08
BAYSH1	7	108883	Toluene	1.39E-02	1.58E-06
BAYSH1	7	1330207	Xylenes	1.15E-02	1.32E-06
INDUS2	8	75070	Acetaldehyde	6.74E-04	7.69E-08
INDUS2	8	107028	Acrolein	3.13E-04	3.57E-08
INDUS2	8	71432	Benzene	5.94E-03	6.78E-07
INDUS2	8	106990	1,3-Butadiene	1.32E-03	1.51E-07
INDUS2	8	100414	Ethylbenzene	2.53E-03	2.88E-07
INDUS2	8	50000	Formaldehyde	3.80E-03	4.34E-07
INDUS2	8	110543	Hexane	3.85E-03	4.39E-07
INDUS2	8	67561	Methanol	2.89E-04	3.30E-08
INDUS2	8	78933	Methyl Ethyl Ketor	4.81E-05	5.49E-09
INDUS2	8	91203	Naphthalene	1.20E-04	1.37E-08
INDUS2	8	115071	Propylene	7.36E-03	8.40E-07
INDUS2	8	100425	Styrene	2.89E-04	3.30E-08
INDUS2	8	108883	Toluene	1.39E-02	1.58E-06
INDUS2	8	1330207	Xylenes	1.15E-02	1.32E-06
INDUS3	9	75070	Acetaldehyde	4.04E-03	4.61E-07
INDUS3	9	107028	Acrolein	1.88E-03	2.14E-07
INDUS3	9	71432	Benzene	3.56E-02	4.07E-06
INDUS3	9	106990	1,3-Butadiene	7.94E-03	9.06E-07
INDUS3	9	100414	Ethylbenzene	1.52E-02	1.73E-06

INDUS3	9	50000	Formaldehyde	2.28E-02	2.60E-06
INDUS3	9	110543	Hexane	2.31E-02	2.64E-06
INDUS3	9	67561	Methanol	1.73E-03	1.98E-07
INDUS3	9	78933	Methyl Ethyl Ketor	2.89E-04	3.30E-08
INDUS3	9	91203	Naphthalene	7.22E-04	8.24E-08
INDUS3	9	115071	Propylene	4.42E-02	5.04E-06
INDUS3	9	100425	Styrene	1.73E-03	1.98E-07
INDUS3	9	108883	Toluene	8.31E-02	9.49E-06
INDUS3	9	1330207	Xylenes	6.93E-02	7.91E-06
BAYSH2	10	75070	Acetaldehyde	3.37E-03	3.84E-07
BAYSH2	10	107028	Acrolein	1.56E-03	1.78E-07
BAYSH2	10	71432	Benzene	2.97E-02	3.39E-06
BAYSH2	10	106990	1,3-Butadiene	6.62E-03	7.55E-07
BAYSH2	10	100414	Ethylbenzene	1.26E-02	1.44E-06
BAYSH2	10	50000	Formaldehyde	1.90E-02	2.17E-06
BAYSH2	10	110543	Hexane	1.92E-02	2.20E-06
BAYSH2	10	67561	Methanol	1.44E-03	1.65E-07
BAYSH2	10	78933	Methyl Ethyl Ketor	2.41E-04	2.75E-08
BAYSH2	10	91203	Naphthalene	6.01E-04	6.86E-08
BAYSH2	10	115071	Propylene	3.68E-02	4.20E-06
BAYSH2	10	100425	Styrene	1.44E-03	1.65E-07
BAYSH2	10	108883	Toluene	6.93E-02	7.91E-06
BAYSH2	10	1330207	Xylenes	5.77E-02	6.59E-06
BAYSH3	11	75070	Acetaldehyde	5.39E-03	6.15E-07
BAYSH3	11	107028	Acrolein	2.50E-03	2.86E-07
BAYSH3	11	71432	Benzene	4.75E-02	5.43E-06
BAYSH3	11	106990	1,3-Butadiene	1.06E-02	1.21E-06
BAYSH3	11	100414	Ethylbenzene	2.02E-02	2.31E-06
BAYSH3	11	50000	Formaldehyde	3.04E-02	3.47E-06
BAYSH3	11	110543	Hexane	3.08E-02	3.51E-06
BAYSH3	11	67561	Methanol	2.31E-03	2.64E-07
BAYSH3	11	78933	Methyl Ethyl Ketor	3.85E-04	4.39E-08
BAYSH3	11	91203	Naphthalene	9.62E-04	1.10E-07
BAYSH3	11	115071	Propylene	5.89E-02	6.72E-06
BAYSH3	11	100425	Styrene	2.31E-03	2.64E-07
BAYSH3	11	108883	Toluene	1.11E-01	1.27E-05
BAYSH3	11	1330207	Xylenes	9.24E-02	1.05E-05
BAYSH4	12	75070	Acetaldehyde	3.37E-03	3.84E-07
BAYSH4	12	107028	Acrolein	1.56E-03	1.78E-07
BAYSH4	12	71432	Benzene	2.97E-02	3.39E-06
BAYSH4	12	106990	1,3-Butadiene	6.62E-03	7.55E-07
BAYSH4	12	100414	Ethylbenzene	1.26E-02	1.44E-06
BAYSH4	12	50000	Formaldehyde	1.90E-02	2.17E-06
BAYSH4	12	110543	Hexane	1.92E-02	2.20E-06
BAYSH4	12	67561	Methanol	1.44E-03	1.65E-07
BAYSH4	12	78933	Methyl Ethyl Ketor	2.41E-04	2.75E-08
BAYSH4	12	91203	Naphthalene	6.01E-04	6.86E-08

BAYSH4	12	115071	Propylene	3.68E-02	4.20E-06
BAYSH4	12	100425	Styrene	1.44E-03	1.65E-07
BAYSH4	12	108883	Toluene	6.93E-02	7.91E-06
BAYSH4	12	1330207	Xylenes	5.77E-02	6.59E-06
KIRK1	13	75070	Acetaldehyde	2.69E-03	3.08E-07
KIRK1	13	107028	Acrolein	1.25E-03	1.43E-07
KIRK1	13	71432	Benzene	2.38E-02	2.71E-06
KIRK1	13	106990	1,3-Butadiene	5.29E-03	6.04E-07
KIRK1	13	100414	Ethylbenzene	1.01E-02	1.15E-06
KIRK1	13	50000	Formaldehyde	1.52E-02	1.74E-06
KIRK1	13	110543	Hexane	1.54E-02	1.76E-06
KIRK1	13	67561	Methanol	1.15E-03	1.32E-07
KIRK1	13	78933	Methyl Ethyl Ketor	1.92E-04	2.20E-08
KIRK1	13	91203	Naphthalene	4.81E-04	5.49E-08
KIRK1	13	115071	Propylene	2.94E-02	3.36E-06
KIRK1	13	100425	Styrene	1.15E-03	1.32E-07
KIRK1	13	108883	Toluene	5.54E-02	6.33E-06
KIRK1	13	1330207	Xylenes	4.62E-02	5.27E-06
KIRK2	14	75070	Acetaldehyde	2.02E-03	2.31E-07
KIRK2	14	107028	Acrolein	9.38E-04	1.07E-07
KIRK2	14	71432	Benzene	1.78E-02	2.03E-06
KIRK2	14	106990	1,3-Butadiene	3.97E-03	4.53E-07
KIRK2	14	100414	Ethylbenzene	7.58E-03	8.65E-07
KIRK2	14	50000	Formaldehyde	1.14E-02	1.30E-06
KIRK2	14	110543	Hexane	1.15E-02	1.32E-06
KIRK2	14	67561	Methanol	8.66E-04	9.89E-08
KIRK2	14	78933	Methyl Ethyl Ketor	1.44E-04	1.65E-08
KIRK2	14	91203	Naphthalene	3.61E-04	4.12E-08
KIRK2	14	115071	Propylene	2.21E-02	2.52E-06
KIRK2	14	100425	Styrene	8.66E-04	9.89E-08
KIRK2	14	108883	Toluene	4.16E-02	4.75E-06
KIRK2	14	1330207	Xylenes	3.46E-02	3.95E-06
RANK2	15	75070	Acetaldehyde	2.02E-03	2.31E-07
RANK2	15	107028	Acrolein	9.38E-04	1.07E-07
RANK2	15	71432	Benzene	1.78E-02	2.03E-06
RANK2	15	106990	1,3-Butadiene	3.97E-03	4.53E-07
RANK2	15	100414	Ethylbenzene	7.58E-03	8.65E-07
RANK2	15	50000	Formaldehyde	1.14E-02	1.30E-06
RANK2	15	110543	Hexane	1.15E-02	1.32E-06
RANK2	15	67561	Methanol	8.66E-04	9.89E-08
RANK2	15	78933	Methyl Ethyl Ketor	1.44E-04	1.65E-08
RANK2	15	91203	Naphthalene	3.61E-04	4.12E-08
RANK2	15	115071	Propylene	2.21E-02	2.52E-06
RANK2	15	100425	Styrene	8.66E-04	9.89E-08
RANK2	15	108883	Toluene	4.16E-02	4.75E-06
RANK2	15	1330207	Xylenes	3.46E-02	3.95E-06
MCKI2	16	75070	Acetaldehyde	2.02E-03	2.31E-07

MCKI2	16	107028	Acrolein	9.38E-04	1.07E-07
MCKI2	16	71432	Benzene	1.78E-02	2.03E-06
MCKI2	16	106990	1,3-Butadiene	3.97E-03	4.53E-07
MCKI2	16	100414	Ethylbenzene	7.58E-03	8.65E-07
MCKI2	16	50000	Formaldehyde	1.14E-02	1.30E-06
MCKI2	16	110543	Hexane	1.15E-02	1.32E-06
MCKI2	16	67561	Methanol	8.66E-04	9.89E-08
MCKI2	16	78933	Methyl Ethyl Ketor	1.44E-04	1.65E-08
MCKI2	16	91203	Naphthalene	3.61E-04	4.12E-08
MCKI2	16	115071	Propylene	2.21E-02	2.52E-06
MCKI2	16	100425	Styrene	8.66E-04	9.89E-08
MCKI2	16	108883	Toluene	4.16E-02	4.75E-06
MCKI2	16	1330207	Xylenes	3.46E-02	3.95E-06
MCKI3	17	75070	Acetaldehyde	2.69E-03	3.08E-07
MCKI3	17	107028	Acrolein	1.25E-03	1.43E-07
MCKI3	17	71432	Benzene	2.38E-02	2.71E-06
MCKI3	17	106990	1,3-Butadiene	5.29E-03	6.04E-07
MCKI3	17	100414	Ethylbenzene	1.01E-02	1.15E-06
MCKI3	17	50000	Formaldehyde	1.52E-02	1.74E-06
MCKI3	17	110543	Hexane	1.54E-02	1.76E-06
MCKI3	17	67561	Methanol	1.15E-03	1.32E-07
MCKI3	17	78933	Methyl Ethyl Ketor	1.92E-04	2.20E-08
MCKI3	17	91203	Naphthalene	4.81E-04	5.49E-08
MCKI3	17	115071	Propylene	2.94E-02	3.36E-06
MCKI3	17	100425	Styrene	1.15E-03	1.32E-07
MCKI3	17	108883	Toluene	5.54E-02	6.33E-06
MCKI3	17	1330207	Xylenes	4.62E-02	5.27E-06
SELB3	18	75070	Acetaldehyde	7.41E-03	8.46E-07
SELB3	18	107028	Acrolein	3.44E-03	3.93E-07
SELB3	18	71432	Benzene	6.54E-02	7.46E-06
SELB3	18	106990	1,3-Butadiene	1.46E-02	1.66E-06
SELB3	18	100414	Ethylbenzene	2.78E-02	3.17E-06
SELB3	18	50000	Formaldehyde	4.18E-02	4.77E-06
SELB3	18	110543	Hexane	4.23E-02	4.83E-06
SELB3	18	67561	Methanol	3.18E-03	3.62E-07
SELB3	18	78933	Methyl Ethyl Ketor	5.29E-04	6.04E-08
SELB3	18	91203	Naphthalene	1.32E-03	1.51E-07
SELB3	18	115071	Propylene	8.10E-02	9.24E-06
SELB3	18	100425	Styrene	3.18E-03	3.62E-07
SELB3	18	108883	Toluene	1.52E-01	1.74E-05
SELB3	18	1330207	Xylenes	1.27E-01	1.45E-05
SELB4	19	75070	Acetaldehyde	7.41E-03	8.46E-07
SELB4	19	107028	Acrolein	3.44E-03	3.93E-07
SELB4	19	71432	Benzene	6.54E-02	7.46E-06
SELB4	19	106990	1,3-Butadiene	1.46E-02	1.66E-06
SELB4	19	100414	Ethylbenzene	2.78E-02	3.17E-06
SELB4	19	50000	Formaldehyde	4.18E-02	4.77E-06

SELB4	19	110543	Hexane	4.23E-02	4.83E-06
SELB4	19	67561	Methanol	3.18E-03	3.62E-07
SELB4	19	78933	Methyl Ethyl Ketor	5.29E-04	6.04E-08
SELB4	19	91203	Naphthalene	1.32E-03	1.51E-07
SELB4	19	115071	Propylene	8.10E-02	9.24E-06
SELB4	19	100425	Styrene	3.18E-03	3.62E-07
SELB4	19	108883	Toluene	1.52E-01	1.74E-05
SELB4	19	1330207	Xylenes	1.27E-01	1.45E-05
SELB5	20	75070	Acetaldehyde	9.43E-03	1.08E-06
SELB5	20	107028	Acrolein	4.38E-03	5.00E-07
SELB5	20	71432	Benzene	8.32E-02	9.50E-06
SELB5	20	106990	1,3-Butadiene	1.85E-02	2.11E-06
SELB5	20	100414	Ethylbenzene	3.54E-02	4.04E-06
SELB5	20	50000	Formaldehyde	5.32E-02	6.07E-06
SELB5	20	110543	Hexane	5.39E-02	6.15E-06
SELB5	20	67561	Methanol	4.04E-03	4.61E-07
SELB5	20	78933	Methyl Ethyl Ketor	6.74E-04	7.69E-08
SELB5	20	91203	Naphthalene	1.68E-03	1.92E-07
SELB5	20	115071	Propylene	1.03E-01	1.18E-05
SELB5	20	100425	Styrene	4.04E-03	4.61E-07
SELB5	20	108883	Toluene	1.94E-01	2.21E-05
SELB5	20	1330207	Xylenes	1.62E-01	1.85E-05
OAKD2	21	75070	Acetaldehyde	3.37E-03	3.84E-07
OAKD2	21	107028	Acrolein	1.56E-03	1.78E-07
OAKD2	21	71432	Benzene	2.97E-02	3.39E-06
OAKD2	21	106990	1,3-Butadiene	6.62E-03	7.55E-07
OAKD2	21	100414	Ethylbenzene	1.26E-02	1.44E-06
OAKD2	21	50000	Formaldehyde	1.90E-02	2.17E-06
OAKD2	21	110543	Hexane	1.92E-02	2.20E-06
OAKD2	21	67561	Methanol	1.44E-03	1.65E-07
OAKD2	21	78933	Methyl Ethyl Ketor	2.41E-04	2.75E-08
OAKD2	21	91203	Naphthalene	6.01E-04	6.86E-08
OAKD2	21	115071	Propylene	3.68E-02	4.20E-06
OAKD2	21	100425	Styrene	1.44E-03	1.65E-07
OAKD2	21	108883	Toluene	6.93E-02	7.91E-06
OAKD2	21	1330207	Xylenes	5.77E-02	6.59E-06
INDU1	22	75070	Acetaldehyde	4.04E-03	4.61E-07
INDU1	22	107028	Acrolein	1.88E-03	2.14E-07
INDU1	22	71432	Benzene	3.56E-02	4.07E-06
INDU1	22	106990	1,3-Butadiene	7.94E-03	9.06E-07
INDU1	22	100414	Ethylbenzene	1.52E-02	1.73E-06
INDU1	22	50000	Formaldehyde	2.28E-02	2.60E-06
INDU1	22	110543	Hexane	2.31E-02	2.64E-06
INDU1	22	67561	Methanol	1.73E-03	1.98E-07
INDU1	22	78933	Methyl Ethyl Ketor	2.89E-04	3.30E-08
INDU1	22	91203	Naphthalene	7.22E-04	8.24E-08
INDU1	22	115071	Propylene	4.42E-02	5.04E-06

INDU1	22	100425	Styrene	1.73E-03	1.98E-07
INDU1	22	108883	Toluene	8.31E-02	9.49E-06
INDU1	22	1330207	Xylenes	6.93E-02	7.91E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Operations Last Mile Traffic Allocation by Road Segment

Inbound/Outbound Traffic % from TIS Report

					Operations	Operations	Operations
			Total (m)	% Traffic	ROG (t/y)	DPM (t/y)	Total PM2.5 (t/y)
			21784.2	100%	0.0202	0.0012	0.0396
Road	SourceID	Road Type	Length (m)	%	ROG (t/y)	DPM (t/y)	Total PM2.5 (t/y)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	TOLAN1	Primary	155.7	3.51%	0.000708969	4.12031E-05	1.39E-03
Oakdale Ave (West of Toland St and East of Loomis St)	OAKD1	Primary	395	3.51%	0.000708969	4.12031E-05	1.39E-03
Oakdale Ave (East of Toland St and West of Industrial St)	OAKD2	Primary	177.3	3.51%	0.000708969	4.12031E-05	1.39E-03
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	INDU1	Primary	641.5	3.51%	0.000708969	4.12031E-05	1.39E-03
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	TOLAN2	Primary	173	3.51%	0.000708969	4.12031E-05	1.39E-03
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	TOLAN3	Primary	90.8	3.51%	0.000708969	4.12031E-05	1.39E-03
Toland Street (North of Jerrold Ave and South of Galvez Ave)	TOLAN4	Secondary	428.2	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Jerrold Ave (West of Toland St and East of Napolean St)	JERR1	Primary	287.3	3.51%	0.000708969	4.12031E-05	1.39E-03
Rankin St (North of Kirkwood Ave and South of Jerrold Ave)	RANK1	Secondary	70	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Jerrold Ave (West of Rankin St and East of Phelps St)	JERR2	Secondary	293	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Barneveld Ave (North of Oakdale Ave and South of McKinnon Ave)	BARNE1	Secondary	177.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Newcomb Ave (East of Barneveld Ave and West of Toland St)	NEWC1	Secondary	242.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
McKinnon Ave (East of Barneveld Ave and West of Toland St)	MCKI1	Secondary	280.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Toland Place (North of McKinnon Ave and West of Toland St)	TOLANP	Secondary	161.3	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Upton St (North of McKinnon Ave and South of Jerrold Ave)	UPTON1	Secondary	241.2	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Hudson Ave (East of Toland St and West of Selby St)	HUDSO1	Secondary	182.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Innes Ave (East of Milton Ross Ln and West of Selby St)	INNES1	Secondary	134.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Innes Ave (East of Selby St and West of Rankin St)	INNES2	Secondary	157.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Milton Ross Ln (North of Jerrold Ave and South of Innes Ave)	MILTO1	Secondary	63.2	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Milton Ross Ln (North of Kirkwood Ave and South of Jerrold Ave)	MILTO2	Secondary	87.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Jerrold Ave - West Bound (East of Toland St and West of Selby St)	JERR3	Secondary	185.3	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Jerrold Ave - West Bound (East of Selby St and West of Rankin St)	JERR4	Secondary	181.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Jerrold Ave - East Bound (East of Toland St and West of Selby St)	JERR5	Secondary	187.2	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Jerrold Ave - East Bound (East of Selby St and West of Rankin St)	JERR6	Secondary	183.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Kirkwood Ave (East of Milton Ross Ln and West of Selby St)	KIRK1	Secondary	146	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Kirkwood Ave (East of Selby St and West of Rankin St)	KIRK2	Secondary	180.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Rankin St (South of Kirkwood Ave and North of McKinnon Ave)	RANK2	Secondary	178.9	0.46%	9.35445E-05	5.43652E-06	1.83E-04

Average Trip Distance from Emissions Calculations (mi)	3.2253
Length of Roads within Modeling Domain (mi)	3.2253
% of Emissions within Modeling Domain	100%
ROG from Emissions Calculations (tons/yr)	0.0202
DPM from Emissions Calculations (tons/yr)	1.17E-03
Total PM2.5 from Emissions Calculations (tons/yr)	3.96E-02
ROG within Modeling Domain (tons/yr)	0.0202056
DPM within Modeling Domain (tons/yr)	0.0011743
Total PM2.5 within Modeling Domain (tons/yr)	0.0395601

Longest Trip Calc	
Segment	Dist
RHODE1	433.6
S26S	351.7
MARIN1	260.9
BAYSH3	331.9
BAYSH2	267.7
OAKD1	395
OAKD2	177.3
INDU1	641.5
INDUS1	236.7
ALEM	263.8
PUTN1	550.3
COURT1	320
BRAD2	170.6
FRAN1	788.5

HRA Model Inputs: Code Compliant Alternative (Alt B)

McKinnon Ave (East of Selby St and West of Rankin St)	MCKI2	Secondary	186.2	0.46%	9.35445E-05	5.43652E-06	1.83E-04
McKinnon Ave (East of Toland St and West of Selby St)	MCKI3	Secondary	182.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Newcomb Ave (East of Toland St and West of Selby St)	NEWC2	Secondary	183.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Newcomb Ave (East of Selby St and West of Quint St)	NEWC3	Secondary	383.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Oakdale Ave (East of Selby St and West of Rankin St)	OAKD3	Primary	177	3.51%	0.000708969	4.12031E-05	1.39E-03
Oakdale Ave (East of Rankin St and West of Quint St)	OAKD4	Primary	182.1	3.51%	0.000708969	4.12031E-05	1.39E-03
Palou Ave (East of Industrial St and West of Selby St)	PALO1	Secondary	50	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Palou Ave (East of Selby St and West of Rankin St)	PALO2	Secondary	180.1	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Palou Ave (East of Rankin St and West of Silver Ave)	PALO3	Secondary	167.1	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Oakdale Ave (East of Quint St and West of Dunshee St)	OAKD5	Secondary	47	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Qunit St (North of Palou Ave and South of Oakdale Ave)	QUIN1	Secondary	70.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Qunit St (North of Oakdale Ave and South of Newcomb Ave)	QUIN2	Secondary	82.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Rankin St (North of Quesada Ave and South of Palou Ave)	RANK3	Secondary	57.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Rankin St (North of Palou Ave and South of Oakdale Ave)	RANK4	Secondary	76.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Rankin St (North of Oakdale Ave and South of Newcomb)	RANK5	Secondary	74.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Palou Ave (East of Baneveld Ave and West of Industrial St)	PALO4	Secondary	295.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Dorman Ave (North of Barneveld Ave and South of Palou Ave)	DORM1	Secondary	86.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Apparel Way	APPA1	Secondary	129.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of Quesada Ave and South of Palou Ave)	SELB1	Secondary	61	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of Palou Ave and South of Oakdale Ave)	SELB2	Secondary	86.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of Oakdale Ave and South of Newcomb Ave)	SELB3	Primary	83	3.51%	0.000708969	4.12031E-05	1.39E-03
Selby St (North of Newcomb Ave and South of McKinnon Ave)	SELB4	Secondary	86	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of McKinnon Ave and South of Kirkwood Ave)	SELB5	Secondary	168.1	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of Kirkwood Ave and South of Jerrold Ave - West Bound)	SELB6	Secondary	103.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of Jerrold Ave - West Bound and South of Innes Ave)	SELB7	Secondary	60.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Selby St (North of Innes Ave and South of Galvez Ave)	SELB8	Secondary	138.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	BAYSH1	Primary	596	3.51%	0.000708969	4.12031E-05	1.39E-03
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	INDUS1	Primary	236.7	3.51%	0.000708969	4.12031E-05	1.39E-03
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	BAYSH2	Primary	267.7	3.51%	0.000708969	4.12031E-05	1.39E-03
Onramp to US 101 from Bayshore Blvd	BAYSH3	Primary	331.9	3.51%	0.000708969	4.12031E-05	1.39E-03
Barneveld Ave (North of Industrial St and South of Oakdale Ave)	BARN2	Secondary	365.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04

Total Dist (m)	5189.5
Total Dist (mi)	3.2252952

	Segments	Weight
Tota	91	-
Primary	19	67%
Secondary	72	33%

Loomis St (North of Industrial St and South of Oakdale Ave)	LOOM1	Secondary	467.1	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Loomis St (North of Oakdale Ave and South of McKinnon Ave)	LOOM2	Secondary	167.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Elmira St (South of Industrial St)	ELMIR	Secondary	343	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Charter Oak Ave (South of Industrial St)	COA	Secondary	192	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Boutwell St (South of Industrial St)	BOUT	Secondary	192.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
San Bruno Ave (South of Alemany Blvd and North of Hale St)	SANB	Secondary	468.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Alemany Blvd (South of Industrial St and North of Putnam St)	ALEM	Primary	263.8	3.51%	0.000708969	4.12031E-05	1.39E-03
Putnam St (North of Alemany Blvd and South of Cortland Ave)	PUTN1	Secondary	550.3	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Courtland Ave (East of Putnam St and West of Bayshore Blvd)	COURT1	Secondary	320	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Tompkins Ave (East of Putnam St and West of Peralta Ave)	TOMP1	Secondary	158.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Bradford St (South of Cortland Ave) and Jarboe Ave (East of Putnam St)	BRAD1	Secondary	274.1	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Bradford St (South of Powhattan Ave and North of Cortland Ave)	BRAD2	Secondary	170.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Franconia St/Brewster St (North of Powhattan Ave and South of Montcalm St)	FRAN1	Secondary	788.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Holladay Ave (North of Franconia St and South of Peralta Ave)	HOLL1	Secondary	737	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Potrero Ave (South of 24th St and North of Cesar Chavez St)	POTR1	Primary	404.8	3.51%	0.000708969	4.12031E-05	1.39E-03
Cesar Chavez St (East of York St and West of Kansas St)	CESAR1	Primary	538.1	3.51%	0.000708969	4.12031E-05	1.39E-03
East Ramp of Cesar Chavez St onto Bayshore Blvd	BAYSH5	Primary	489.6	3.51%	0.000708969	4.12031E-05	1.39E-03
Bayshore Blvd (South of Potrero Ave and North of Marin St)	BAYSH6	Primary	159.2	3.51%	0.000708969	4.12031E-05	1.39E-03
Peralta Ave (West of Holladay Ave and East of York St)	PERA1	Secondary	171.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
York St (North of Holladay Ave and South of Cesar Chavez St)	YORK1	Secondary	314.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Rhode Island St (North of 26th St and South of 23rd St)	RHODE1	Secondary	433.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Kansas St (North of 26th St and South of 23rd St)	KANSAS	Secondary	430.9	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Vermont St (North of 25th St and South of 23rd St)	VERMT	Secondary	359.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
San Bruno Ave (South of 23rd St and North of Cesar Chavez St)	SANBR	Secondary	549.1	0.46%	9.35445E-05	5.43652E-06	1.83E-04
26th St (North of Cesar Chavez St and West of Blair Terrace	S26S	Secondary	351.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
24th St (East of Potrero Ave and West of Vermont Ave)	S24S	Secondary	250.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Barneveld Ave (North of McKinnon Ave and South of Jerrold Ave)	BARN3	Secondary	269.5	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Marin St (East of Bayshore Blvd and South of Cesar Chavez St)	MARIN1	Secondary	260.9	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Cesar Chavez St (East of Kansas St)	CESAR2	Secondary	146.4	0.46%	9.35445E-05	5.43652E-06	1.83E-04
25th St (East of Potrero Ave and West of Vermont St)	S25S	Secondary	146.2	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Quesada Ave (East of Industrial St and West of Rankin St)	QUESA1	Secondary	168.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04
Revere Ave (East of Industrial St and West of Selby St)	REVE1	Secondary	152.7	0.46%	9.35445E-05	5.43652E-06	1.83E-04

HRA Model Inputs: Code Compliant Alternative (Alt B)

Gaven St (South of San Bruno Ave and North of Merrill St)	GAVEN1	Secondary	211.6	0.46%	9.35445E-05	5.43652E-06	1.83E-04

HRA Model Inputs: Code Compliant Alternative (Alt B)

Operations: Last-Mile Road Segments

Road	Road Width (ft)	Road Width (m)	Base Elevation	SourceID	SourceID Prefix	Line Volume Src Type	Plume Height (m)	Plume Width (m)	Release Height (m) from 2020 CityWide	Initial Lateral Dimension (m)	Initial Vertical Dimension (m) from 2020 CityWide	# Volume Sources	Total Length (m)	g/s per vol (1 g/s)	Total PM2.5 (g/s/vol)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	29.11	8.87	varies - AERMAP	TOLAN1	TOL1	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	10	155.7	0.1000	3.99302E-06
Oakdale Ave (West of Toland St and East of Loomis St)	41.48	12.64	varies - AERMAP	OAKD1	OAK1	Adjacent	4.945	12.64	2.00	varies - based on plume width	2.30	21	395	0.0476	1.90144E-06
Oakdale Ave (East of Toland St and West of Industrial St)	41.48	12.64	varies - AERMAP	OAKD2	OAK2	Adjacent	4.945	12.64	2.00	varies - based on plume width	2.30	10	177.3	0.1000	3.99302E-06
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	52.95	16.14	varies - AERMAP	INDU1	IND1	Adjacent	4.945	16.14	2.00	varies - based on plume width	2.30	29	641.5	0.0345	1.37690E-06
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	29.11	8.87	varies - AERMAP	TOLAN2	TOL2	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	12	173	0.0833	3.32752E-06
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	29.11	8.87	varies - AERMAP	TOLAN3	TOL3	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	6	90.8	0.1667	6.65504E-06
Toland Street (North of Jerrold Ave and South of Galvez Ave)	29.11	8.87	varies - AERMAP	TOLAN4	TOL4	Adjacent	4.945	8.87	2.00	varies - based on plume width	2.30	15	428.2	0.0667	3.51238E-07
Jerrold Ave (West of Toland St and East of Napolean St)	45.96	14.01	varies - AERMAP	JERR1	JER1	Adjacent	4.945	14.01	2.00	varies - based on plume width	2.30	14	287.3	0.0714	2.85216E-06
Rankin St (North of Kirkwood Ave and South of Jerrold Ave)	27.45	8.37	varies - AERMAP	RANK1	RAN1	Adjacent	4.945	8.37	2.00	varies - based on plume width	2.30	5	70	0.2000	1.05371E-06
Jerrold Ave (West of Rankin St and East of Phelps St)	47.93	14.61	varies - AERMAP	JERR2	JER2	Adjacent	4.945	14.61	2.00	varies - based on plume width	2.30	14	293	0.0714	3.76326E-07
Barneveld Ave (North of Oakdale Ave and South of McKinnon Ave)	30.01	9.15	varies - AERMAP	BARNE1	BAR1	Adjacent	4.945	9.15	2.00	varies - based on plume width	2.30	12	177.7	0.0833	4.39048E-07
Newcomb Ave (East of Barneveld Ave and West of Toland St)	21.08	6.43	varies - AERMAP	NEWC1	NEW1	Adjacent	4.945	6.43	2.00	varies - based on plume width	2.30	20	242.5	0.0500	2.63429E-07
McKinnon Ave (East of Barneveld Ave and West of Toland St)	32.72	9.97	varies - AERMAP	MCKI1	MCK1	Adjacent	4.945	9.97	2.00	varies - based on plume width	2.30	18	280.7	0.0556	2.92698E-07
Toland Place (North of McKinnon Ave and West of Toland St)	27.18	8.28	varies - AERMAP	TOLANP	TOLP	Adjacent	4.945	8.28	2.00	varies - based on plume width	2.30	11	161.3	0.0909	4.78961E-07
Upton St (North of McKinnon Ave and South of Jerrold Ave)	19.11	5.82	varies - AERMAP	UPTON1	UPT1	Adjacent	4.945	5.82	2.00	varies - based on plume width	2.30	20	241.2	0.0500	2.63429E-07
Hudson Ave (East of Toland St and West of Selby St)	39.03	11.90	varies - AERMAP	HUDSO1	HUD1	Adjacent	4.945	11.90	2.00	varies - based on plume width	2.30	10	182.7	0.1000	5.26857E-07
Innes Ave (East of Milton Ross Ln and West of Selby St)	38.35	11.69	varies - AERMAP	INNES1	INN1	Adjacent	4.945	11.69	2.00	varies - based on plume width	2.30	8	134.6	0.1250	6.58571E-07
Innes Ave (East of Selby St and West of Rankin St)	38.35	11.69	varies - AERMAP	INNES2	INN2	Adjacent	4.945	11.69	2.00	varies - based on plume width	2.30	9	157.7	0.1111	5.85397E-07
Milton Ross Ln (North of Jerrold Ave and South of Innes Ave)	18.13	5.53	varies - AERMAP	MILTO1	MIL1	Adjacent	4.945	5.53	2.00	varies - based on plume width	2.30	5	63.2	0.2000	1.05371E-06
Milton Ross Ln (North of Kirkwood Ave and South of Jerrold Ave)	18.36	5.60	varies - AERMAP	MILTO2	MIL2	Adjacent	4.945	5.60	2.00	varies - based on plume width	2.30	8	87.7	0.1250	6.58571E-07
Jerrold Ave - West Bound (East of Toland St and West of Selby St)	11.01	3.36	varies - AERMAP	JERR3	JER3	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	20	185.3	0.0500	2.63429E-07
Jerrold Ave - West Bound (East of Selby St and West of Rankin St)	11.01	3.36	varies - AERMAP	JERR4	JER4	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	19	181.7	0.0526	2.77293E-07
Jerrold Ave - East Bound (East of Toland St and West of Selby St)	11.01	3.36	varies - AERMAP	JERR5	JER5	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	20	187.2	0.0500	2.63429E-07
Jerrold Ave - East Bound (East of Selby St and West of Rankin St)	11.01	3.36	varies - AERMAP	JERR6	JER6	Adjacent	4.945	3.36	2.00	varies - based on plume width	2.30	20	183.4	0.0500	2.63429E-07
Kirkwood Ave (East of Milton Ross Ln and West of Selby St)	21.48	6.55	varies - AERMAP	KIRK1	KIR1	Adjacent	4.945	6.55	2.00	varies - based on plume width	2.30	12	146	0.0833	4.39048E-07
Kirkwood Ave (East of Selby St and West of Rankin St)	31.17	9.50	varies - AERMAP	KIRK2	KIR2	Adjacent	4.945	9.50	2.00	varies - based on plume width	2.30	12	180.6	0.0833	4.39048E-07
Rankin St (South of Kirkwood Ave and North of McKinnon Ave)	35.79	10.91	varies - AERMAP	RANK2	RAN2	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	11	178.9	0.0909	4.78961E-07
McKinnon Ave (East of Selby St and West of Rankin St)	28.19	8.59	varies - AERMAP	MCKI2	MCK2	Adjacent	4.945	8.59	2.00	varies - based on plume width	2.30	13	186.2	0.0769	4.05275E-07
McKinnon Ave (East of Toland St and West of Selby St)	26.29	8.01	varies - AERMAP	MCKI3	MCK3	Adjacent	4.945	8.01	2.00	varies - based on plume width	2.30	13	182.5	0.0769	4.05275E-07
Newcomb Ave (East of Toland St and West of Selby St)	14.77	4.50	varies - AERMAP	NEWC2	NEW2	Adjacent	4.945	4.50	2.00	varies - based on plume width	2.30	17	183.7	0.0588	3.09916E-07

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Newcomb Ave (East of Selby St and West of Quint St)	36.11	11.01	varies - AERMAP	NEWC3	NEW3	Adjacent	4.945	11.01	2.00	varies - based on plume width	2.30	23	383.5	0.0435	2.29068E-07
Oakdale Ave (East of Selby St and West of Rankin St)	21.78	6.64	varies - AERMAP	OAKD3	OAK3	Adjacent	4.945	6.64	2.00	varies - based on plume width	2.30	14	177	0.0714	2.85216E-06
Oakdale Ave (East of Rankin St and West of Quint St)	22.23	6.78	varies - AERMAP	OAKD4	OAK4	Adjacent	4.945	6.78	2.00	varies - based on plume width	2.30	14	182.1	0.0714	2.85216E-06
Palou Ave (East of Industrial St and West of Selby St)	33.78	10.30	varies - AERMAP	PALO1	PAL1	Adjacent	4.945	10.30	2.00	varies - based on plume width	2.30	3	50	0.3333	1.75619E-06
Palou Ave (East of Selby St and West of Rankin St)	34.57	10.54	varies - AERMAP	PALO2	PAL2	Adjacent	4.945	10.54	2.00	varies - based on plume width	2.30	11	180.1	0.0909	4.78961E-07
Palou Ave (East of Rankin St and West of Silver Ave)	36.34	11.08	varies - AERMAP	PALO3	PAL3	Adjacent	4.945	11.08	2.00	varies - based on plume width	2.30	10	167.1	0.1000	5.26857E-07
Oakdale Ave (East of Quint St and West of Dunshee St)	24.01	7.32	varies - AERMAP	OAKD5	OAK5	Adjacent	4.945	7.32	2.00	varies - based on plume width	2.30	4	47	0.2500	1.31714E-06
Qunit St (North of Palou Ave and South of Oakdale Ave)	30.60	9.33	varies - AERMAP	QUIN1	QUI1	Adjacent	4.945	9.33	2.00	varies - based on plume width	2.30	5	70.6	0.2000	1.05371E-06
Qunit St (North of Oakdale Ave and South of Newcomb Ave)	30.60	9.33	varies - AERMAP	QUIN2	QUI2	Adjacent	4.945	9.33	2.00	varies - based on plume width	2.30	5	82.5	0.2000	1.05371E-06
Rankin St (North of Quesada Ave and South of Palou Ave)	17.49	5.33	varies - AERMAP	RANK3	RAN3	Adjacent	4.945	5.33	2.00	varies - based on plume width	2.30	5	57.7	0.2000	1.05371E-06
Rankin St (North of Palou Ave and South of Oakdale Ave)	21.83	6.65	varies - AERMAP	RANK4	RAN4	Adjacent	4.945	6.65	2.00	varies - based on plume width	2.30	6	76.6	0.1667	8.78095E-07
Rankin St (North of Oakdale Ave and South of Newcomb)	21.83	6.65	varies - AERMAP	RANK5	RAN5	Adjacent	4.945	6.65	2.00	varies - based on plume width	2.30	6	74.4	0.1667	8.78095E-07
Palou Ave (East of Baneveld Ave and West of Industrial St)	32.31	9.85	varies - AERMAP	PALO4	PAL4	Adjacent	4.945	9.85	2.00	varies - based on plume width	2.30	19	295.6	0.0526	2.77293E-07
Dorman Ave (North of Barneveld Ave and South of Palou Ave)	24.39	7.43	varies - AERMAP	DORM1	DOR1	Adjacent	4.945	7.43	2.00	varies - based on plume width	2.30	6	86.7	0.1667	8.78095E-07
Apparel Way	16.67	5.08	varies - AERMAP	APPA1	APP1	Adjacent	4.945	5.08	2.00	varies - based on plume width	2.30	12	129.6	0.0833	4.39048E-07
Selby St (North of Quesada Ave and South of Palou Ave)	61.65	18.79	varies - AERMAP	SELB1	SEL1	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	2	61	0.5000	2.63429E-06
Selby St (North of Palou Ave and South of Oakdale Ave)	61.65	18.79	varies - AERMAP	SELB2	SEL2	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	3	86.6	0.3333	1.75619E-06
Selby St (North of Oakdale Ave and South of Newcomb Ave)	61.65	18.79	varies - AERMAP	SELB3	SEL3	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	3	83	0.3333	1.33101E-05
Selby St (North of Newcomb Ave and South of McKinnon Ave)	61.65	18.79	varies - AERMAP	SELB4	SEL4	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	3	86	0.3333	1.75619E-06
Selby St (North of McKinnon Ave and South of Kirkwood Ave)	61.65	18.79	varies - AERMAP	SELB5	SEL5	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	7	168.1	0.1429	7.52653E-07
Selby St (North of Kirkwood Ave and South of Jerrold Ave - West Bound)	61.65	18.79	varies - AERMAP	SELB6	SEL6	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	4	103.4	0.2500	1.31714E-06
Selby St (North of Jerrold Ave - West Bound and South of Innes Ave)	61.65	18.79	varies - AERMAP	SELB7	SEL7	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	2	60.6	0.5000	2.63429E-06
Selby St (North of Innes Ave and South of Galvez Ave)	61.65	18.79	varies - AERMAP	SELB8	SEL8	Adjacent	4.945	18.79	2.00	varies - based on plume width	2.30	6	138.5	0.1667	8.78095E-07
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	63	19.07	varies - AERMAP	BAYSH1	BAY1	Adjacent	4.945	19.07	2.00	varies - based on plume width	2.30	24	596	0.0417	1.66376E-06
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	37.50	11.43	varies - AERMAP	INDUS1	IND1	Adjacent	4.945	11.43	2.00	varies - based on plume width	2.30	14	236.7	0.0714	2.85216E-06
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	63	19.07	varies - AERMAP	BAYSH2	BAY2	Adjacent	4.945	19.07	2.00	varies - based on plume width	2.30	11	267.7	0.0909	3.63002E-06
Onramp to US 101 from Bayshore Blvd	42	12.84	varies - AERMAP	BAYSH3	BAY3	Adjacent	4.945	12.84	2.00	varies - based on plume width	2.30	18	331.9	0.0556	2.21835E-06
Barneveld Ave (North of Industrial St and South of Oakdale Ave)	35.81	10.91	varies - AERMAP	BARN2	BAR2	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	22	365.4	0.0455	2.39480E-07
Loomis St (North of Industrial St and South of Oakdale Ave)	35.81	10.91	varies - AERMAP	LOOM1	LOM1	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	28	467.1	0.0357	1.88163E-07
Loomis St (North of Oakdale Ave and South of McKinnon Ave)	35.81	10.91	varies - AERMAP	LOOM2	LOM2	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	10	167.6	0.1000	5.26857E-07
Elmira St (South of Industrial St)	39.22	11.95	varies - AERMAP	ELMIR	ELM	Adjacent	4.945	11.95	2.00	varies - based on plume width	2.30	19	343	0.0526	2.77293E-07
Charter Oak Ave (South of Industrial St)	39.22	11.95	varies - AERMAP	COA	COA	Adjacent	4.945	11.95	2.00	varies - based on plume width	2.30	11	192	0.0909	4.78961E-07
Boutwell St (South of Industrial St)	39.22	11.95	varies - AERMAP	BOUT	BOUT	Adjacent	4.945	11.95	2.00	varies - based on plume width	2.30	11	192.5	0.0909	4.78961E-07

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San Bruno Ave (South of Alemany Blvd and North of Hale St)	43.03	13.12	varies - AERMAP	SANB	SANB	Adjacent	4.945	13.12	2.00	varies - based on plume width	2.30	24	468.4	0.0417	2.19524E-07
Alemany Blvd (South of Industrial St and North of Putnam St)	34.91	10.64	varies - AERMAP	ALEM	ALEM	Adjacent	4.945	10.64	2.00	varies - based on plume width	2.30	16	263.8	0.0625	2.49564E-06
Putnam St (North of Alemany Blvd and South of Cortland Ave)	23.45	7.15	varies - AERMAP	PUTN1	PUT1	Adjacent	4.945	7.15	2.00	varies - based on plume width	2.30	42	550.3	0.0238	1.25442E-07
Courtland Ave (East of Putnam St and West of Bayshore Blvd)	40.50	12.34	varies - AERMAP	COURT1	COR1	Adjacent	4.945	12.34	2.00	varies - based on plume width	2.30	17	320	0.0588	3.09916E-07
Tompkins Ave (East of Putnam St and West of Peralta Ave)	22.57	6.88	varies - AERMAP	TOMP1	TOM1	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	12	158.5	0.0833	4.39048E-07
Bradford St (South of Cortland Ave) and Jarboe Ave (East of Putnam St)	22.57	6.88	varies - AERMAP	BRAD1	BRA1	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	21	274.1	0.0476	2.50884E-07
Bradford St (South of Powhattan Ave and North of Cortland Ave)	22.57	6.88	varies - AERMAP	BRAD2	BRA2	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	13	170.6	0.0769	4.05275E-07
Franconia St/Brewster St (North of Powhattan Ave and South of Montcalm St)	22.57	6.88	varies - AERMAP	FRAN1	FRA1	Adjacent	4.945	6.88	2.00	varies - based on plume width	2.30	61	788.5	0.0164	8.63700E-08
Holladay Ave (North of Franconia St and South of Peralta Ave)	30.04	9.16	varies - AERMAP	HOLL1	HOL1	Adjacent	4.945	9.16	2.00	varies - based on plume width	2.30	49	737	0.0204	1.07522E-07
Potrero Ave (South of 24th St and North of Cesar Chavez St)	83.70	25.51	varies - AERMAP	POTR1	POT1	Adjacent	4.945	25.51	2.00	varies - based on plume width	2.30	13	404.8	0.0769	3.07156E-06
Cesar Chavez St (East of York St and West of Kansas St)	72.04	21.96	varies - AERMAP	CESAR1	CES1	Adjacent	4.945	21.96	2.00	varies - based on plume width	2.30	19	538.1	0.0526	2.10159E-06
East Ramp of Cesar Chavez St onto Bayshore Blvd	29.84	9.10	varies - AERMAP	BAYSH5	BAY5	Adjacent	4.945	9.10	2.00	varies - based on plume width	2.30	32	489.6	0.0313	1.24782E-06
Bayshore Blvd (South of Potrero Ave and North of Marin St)	29.84	9.10	varies - AERMAP	BAYSH6	BAY6	Adjacent	4.945	9.10	2.00	varies - based on plume width	2.30	11	159.2	0.0909	3.63002E-06
Peralta Ave (West of Holladay Ave and East of York St)	38.90	11.86	varies - AERMAP	PERA1	PER1	Adjacent	4.945	11.86	2.00	varies - based on plume width	2.30	10	171.4	0.1000	5.26857E-07
York St (North of Holladay Ave and South of Cesar Chavez St)	29.47	8.98	varies - AERMAP	YORK1	YOR1	Adjacent	4.945	8.98	2.00	varies - based on plume width	2.30	21	314.4	0.0476	2.50884E-07
Rhode Island St (North of 26th St and South of 23rd St)	37.70	11.49	varies - AERMAP	RHODE1	RHO1	Adjacent	4.945	11.49	2.00	varies - based on plume width	2.30	25	433.6	0.0400	2.10743E-07
Kansas St (North of 26th St and South of 23rd St)	37.70	11.49	varies - AERMAP	KANSAS	KANS	Adjacent	4.945	11.49	2.00	varies - based on plume width	2.30	25	430.9	0.0400	2.10743E-07
Vermont St (North of 25th St and South of 23rd St)	37.70	11.49	varies - AERMAP	VERMT	VERM	Adjacent	4.945	11.49	2.00	varies - based on plume width	2.30	21	359.4	0.0476	2.50884E-07
San Bruno Ave (South of 23rd St and North of Cesar Chavez St)	33.01	10.06	varies - AERMAP	SANBR	SAN1	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	34	549.1	0.0294	1.54958E-07
26th St (North of Cesar Chavez St and West of Blair Terrace	33.01	10.06	varies - AERMAP	S26S	S26S	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	22	351.7	0.0455	2.39480E-07
24th St (East of Potrero Ave and West of Vermont Ave)	33.01	10.06	varies - AERMAP	S24S	S24S	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	16	250.6	0.0625	3.29286E-07
Barneveld Ave (North of McKinnon Ave and South of Jerrold Ave)	35.81	10.91	varies - AERMAP	BARN3	BAR3	Adjacent	4.945	10.91	2.00	varies - based on plume width	2.30	16	269.5	0.0625	3.29286E-07
Marin St (East of Bayshore Blvd and South of Cesar Chavez St)	29.90	9.11	varies - AERMAP	MARIN1	MAR1	Adjacent	4.945	9.11	2.00	varies - based on plume width	2.30	17	260.9	0.0588	3.09916E-07
Cesar Chavez St (East of Kansas St)	40.97	12.49	varies - AERMAP	CESAR2	CES2	Adjacent	4.945	12.49	2.00	varies - based on plume width	2.30	8	146.4	0.1250	6.58571E-07
25th St (East of Potrero Ave and West of Vermont St)	33.01	10.06	varies - AERMAP	S25S	S25S	Adjacent	4.945	10.06	2.00	varies - based on plume width	2.30	9	146.2	0.1111	5.85397E-07
Quesada Ave (East of Industrial St and West of Rankin St)	33.87	10.32	varies - AERMAP	QUESA1	QUE1	Adjacent	4.945	10.32	2.00	varies - based on plume width	2.30	10	168.7	0.1000	5.26857E-07
Revere Ave (East of Industrial St and West of Selby St)	33.87	10.32	varies - AERMAP	REVE1	REV1	Adjacent	4.945	10.32	2.00	varies - based on plume width	2.30	9	152.7	0.1111	5.85397E-07
Gaven St (South of San Bruno Ave and North of Merrill St)	26.82	8.17	varies - AERMAP	GAVEN1	GAV1	Adjacent	4.945	8.17	2.00	varies - based on plume width	2.30	15	211.6	0.0667	3.51238E-07

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Oakdale Ave (East of Toland St and West of Industrial St)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Toland Street (North of Jerrold Ave and South of Galvez Ave)	Jerrold Ave (West of Toland St and East of Napolean St)	Rankin St (North of Kirkwood Ave and South of Jerrold Ave)	Jerrold Ave (West of Rankin St and East of Phelps St)	Barneveld Ave (North of Oakdale Ave and South of McKinnon Ave)	Newcomb Ave (East of Barneveld Ave and West of Toland St)	McKinnon Ave (East of Barneveld Ave and West of Toland St)	Toland Place (North of McKinnon Ave and West of Toland St)	Upton St (North of McKinnon Ave and South of Jerrold Ave)	Hudson Ave (East of Toland St and West of Selby St)	Innes Ave (East of Milton Ross Ln and West of Selby St)
	(% of TOG)	TOLAN1	OAKD1	OAKD2	INDU1	TOLAN2	TOLAN3	TOLAN4	JERR1	RANK1	JERR2	BARNE1	NEWC1	MCKI1	TOLANP	UPTON1	HUDSO1	INNES1
Acetaldehyde	0.28%	0.003970226	0.003970226	0.003970226	0.003970226	0.003970226	0.003970226	0.000523849	0.003970226	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849
Acrolein	0.13%	0.001843319	0.001843319	0.001843319	0.001843319	0.001843319	0.001843319	0.000243216	0.001843319	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216
Benzene	2.47%	0.035023069	0.035023069	0.035023069	0.035023069	0.035023069	0.035023069	0.004621099	0.035023069	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099
1,3-Butadiene	0.55%	0.007798659	0.007798659	0.007798659	0.007798659	0.007798659	0.007798659	0.00102899	0.007798659	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899
Ethylbenzene	1.05%	0.014888349	0.014888349	0.014888349	0.014888349	0.014888349	0.014888349	0.001964435	0.014888349	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435
Formaldehyde	1.58%	0.022403421	0.022403421	0.022403421	0.022403421	0.022403421	0.022403421	0.002956007	0.022403421	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007
Hexane	1.60%	0.022687008	0.022687008	0.022687008	0.022687008	0.022687008	0.022687008	0.002993425	0.022687008	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425
Methanol	0.12%	0.001701526	0.001701526	0.001701526	0.001701526	0.001701526	0.001701526	0.000224507	0.001701526	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507
Methyl Ethyl Ketone	0.02%	0.000283588	0.000283588	0.000283588	0.000283588	0.000283588	0.000283588	3.74178E-05	0.000283588	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05
Naphthalene	0.05%	0.000708969	0.000708969	0.000708969	0.000708969	0.000708969	0.000708969	9.35445E-05	0.000708969	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05
Propylene	3.06%	0.043388903	0.043388903	0.043388903	0.043388903	0.043388903	0.043388903	0.005724925	0.043388903	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925
Styrene	0.12%	0.001701526	0.001701526	0.001701526	0.001701526	0.001701526	0.001701526	0.000224507	0.001701526	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507
Toluene	5.76%	0.08167323	0.08167323	0.08167323	0.08167323	0.08167323	0.08167323	0.010776329	0.08167323	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329
Xylenes	4.80%	0.068061025	0.068061025	0.068061025	0.068061025	0.068061025	0.068061025	0.008980274	0.068061025	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274
DPM	ton/yr	4.12E-05	4.12E-05	4.12E-05	4.12E-05	4.12E-05	4.12E-05	5.44E-06	4.12E-05	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06
DPM	lb/yr	8.24E-02	8.24E-02	8.24E-02	8.24E-02	8.24E-02	8.24E-02	1.09E-02	8.24E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02

lb/hr	(% of TOG)	TOLAN1	OAKD1	OAKD2	INDU1	TOLAN2	TOLAN3	TOLAN4	JERR1	RANK1	JERR2	BARNE1	NEWC1	MCKI1	TOLANP	UPTON1	HUDSO1	INNES1
Acetaldehyde	0.28%	4.53222E-07	4.53222E-07	4.53222E-07	4.53222E-07	4.53222E-07	4.53222E-07	5.98002E-08	4.53222E-07	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08
Acrolein	0.13%	2.10425E-07	2.10425E-07	2.10425E-07	2.10425E-07	2.10425E-07	2.10425E-07	2.77644E-08	2.10425E-07	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08
Benzene	2.47%	3.99807E-06	3.99807E-06	3.99807E-06	3.99807E-06	3.99807E-06	3.99807E-06	5.27523E-07	3.99807E-06	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07
1,3-Butadiene	0.55%	8.90258E-07	8.90258E-07	8.90258E-07	8.90258E-07	8.90258E-07	8.90258E-07	1.17465E-07	8.90258E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07
Ethylbenzene	1.05%	1.69958E-06	1.69958E-06	1.69958E-06	1.69958E-06	1.69958E-06	1.69958E-06	2.24251E-07	1.69958E-06	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07
Formaldehyde	1.58%	2.55747E-06	2.55747E-06	2.55747E-06	2.55747E-06	2.55747E-06	2.55747E-06	3.37444E-07	2.55747E-06	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07
Hexane	1.60%	2.58984E-06	2.58984E-06	2.58984E-06	2.58984E-06	2.58984E-06	2.58984E-06	3.41715E-07	2.58984E-06	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07
Methanol	0.12%	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	2.56286E-08	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08
Methyl Ethyl Ketone	0.02%	3.2373E-08	3.2373E-08	3.2373E-08	3.2373E-08	3.2373E-08	3.2373E-08	4.27144E-09	3.2373E-08	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09
Naphthalene	0.05%	8.09325E-08	8.09325E-08	8.09325E-08	8.09325E-08	8.09325E-08	8.09325E-08	1.06786E-08	8.09325E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08
Propylene	3.06%	4.95307E-06	4.95307E-06	4.95307E-06	4.95307E-06	4.95307E-06	4.95307E-06	6.5353E-07	4.95307E-06	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07
Styrene	0.12%	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	2.56286E-08	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08
Toluene	5.76%	9.32343E-06	9.32343E-06	9.32343E-06	9.32343E-06	9.32343E-06	9.32343E-06	1.23017E-06	9.32343E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Innes Ave (East of Selby St and West of Rankin St)	Milton Ross Ln (North of Jerrold Ave and South of Innes Ave)	Milton Ross Ln (North of Kirkwood Ave and South of Jerrold Ave)	Jerrold Ave - West Bound (East of Toland St and West of Selby St)	Jerrold Ave - West Bound (East of Selby St and West of Rankin St)	Jerrold Ave - East Bound (East of Toland St and West of Selby St)	Jerrold Ave - East Bound (East of Selby St and West of Rankin St)	Kirkwood Ave (East of Milton Ross Ln and West of Selby St)	Kirkwood Ave (East of Selby St and West of Rankin St)	Rankin St (South of Kirkwood Ave and North of McKinnon Ave)	McKinnon Ave (East of Selby St and West of Rankin St)	McKinnon Ave (East of Toland St and West of Selby St)	Newcomb Ave (East of Toland St and West of Selby St)	Newcomb Ave (East of Selby St and West of Quint St)	Oakdale Ave (East of Selby St and West of Rankin St)	Oakdale Ave (East of Rankin St and West of Quint St)	Palou Ave (East of Industrial St and West of Selby St)
	(% of TOG)	INNES2	MILTO1	MILTO2	JERR3	JERR4	JERR5	JERR6	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	NEWC2	NEWC3	OAKD3	OAKD4	PALO1
Acetaldehyde	0.28%	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.003970226	0.003970226	0.000523849
Acrolein	0.13%	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.001843319	0.001843319	0.000243216
Benzene	2.47%	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.035023069	0.035023069	0.004621099
1,3-Butadiene	0.55%	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.007798659	0.007798659	0.00102899
Ethylbenzene	1.05%	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.014888349	0.014888349	0.001964435
Formaldehyde	1.58%	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.022403421	0.022403421	0.002956007
Hexane	1.60%	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.022687008	0.022687008	0.002993425
Methanol	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.001701526	0.000224507
Methyl Ethyl Ketone	0.02%	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	0.000283588	0.000283588	3.74178E-05
Naphthalene	0.05%	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	0.000708969	0.000708969	9.35445E-05
Propylene	3.06%	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.043388903	0.043388903	0.005724925
Styrene	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.001701526	0.000224507
Toluene	5.76%	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.08167323	0.08167323	0.010776329
Xylenes	4.80%	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.068061025	0.068061025	0.008980274
DPM	ton/yr	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	4.12E-05	4.12E-05	5.44E-06
DPM	lb/yr	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	8.24E-02	8.24E-02	1.09E-02

lb/hr	(% of TOG)	INNES2	MILTO1	MILTO2	JERR3	JERR4	JERR5	JERR6	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	NEWC2	NEWC3	OAKD3	OAKD4	PALO1
Acetaldehyde	0.28%	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	4.53222E-07	4.53222E-07	5.98002E-08
Acrolein	0.13%	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.10425E-07	2.10425E-07	2.77644E-08
Benzene	2.47%	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	3.99807E-06	3.99807E-06	5.27523E-07
1,3-Butadiene	0.55%	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	8.90258E-07	8.90258E-07	1.17465E-07
Ethylbenzene	1.05%	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	1.69958E-06	1.69958E-06	2.24251E-07
Formaldehyde	1.58%	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	2.55747E-06	2.55747E-06	3.37444E-07
Hexane	1.60%	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	2.58984E-06	2.58984E-06	3.41715E-07
Methanol	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	1.94238E-07	2.56286E-08
Methyl Ethyl Ketone	0.02%	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	3.2373E-08	3.2373E-08	4.27144E-09
Naphthalene	0.05%	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	8.09325E-08	8.09325E-08	1.06786E-08
Propylene	3.06%	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	4.95307E-06	4.95307E-06	6.5353E-07
Styrene	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	1.94238E-07	2.56286E-08
Toluene	5.76%	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	9.32343E-06	9.32343E-06	1.23017E-06
Xylenes	4.80%	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	7.76952E-06	7.76952E-06	1.02515E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Palou Ave (East of Selby St and West of Rankin St)	Palou Ave (East of Rankin St and West of Silver Ave)	Oakdale Ave (East of Quint St and West of Dunshee St)	Qunit St (North of Palou Ave and South of Oakdale Ave)	Qunit St (North of Oakdale Ave and South of Newcomb Ave)	Rankin St (North of Quesada Ave and South of Palou Ave)	Rankin St (North of Palou Ave and South of Oakdale Ave)	Rankin St (North of Oakdale Ave and South of Newcomb)	Palou Ave (East of Baneveld Ave and West of Industrial St)	Dorman Ave (North of Barneveld Ave and South of Palou Ave)	Apparel Way	Selby St (North of Quesada Ave and South of Palou Ave)	Selby St (North of Palou Ave and South of Oakdale Ave)	Selby St (North of Oakdale Ave and South of Newcomb Ave)	Selby St (North of Newcomb Ave and South of McKinnon Ave)	Selby St (North of McKinnon Ave and South of Kirkwood Ave)	Selby St (North of Kirkwood Ave and South of Jerrold Ave - West Bound)
	(% of TOG)	PALO2	PALO3	OAKD5	QUIN1	QUIN2	RANK3	RANK4	RANK5	PALO4	DORM1	APPA1	SELB1	SELB2	SELB3	SELB4	SELB5	SELB6
Acetaldehyde	0.28%	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.003970226	0.000523849	0.000523849	0.000523849
Acrolein	0.13%	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.001843319	0.000243216	0.000243216	0.000243216
Benzene	2.47%	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.035023069	0.004621099	0.004621099	0.004621099
1,3-Butadiene	0.55%	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00798659	0.00102899	0.00102899	0.00102899
Ethylbenzene	1.05%	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.014888349	0.001964435	0.001964435	0.001964435
Formaldehyde	1.58%	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.022403421	0.002956007	0.002956007	0.002956007
Hexane	1.60%	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.022687008	0.002993425	0.002993425	0.002993425
Methanol	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.000224507	0.000224507	0.000224507
Methyl Ethyl Ketone	0.02%	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	0.000283588	3.74178E-05	3.74178E-05	3.74178E-05
Naphthalene	0.05%	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	0.000708969	9.35445E-05	9.35445E-05	9.35445E-05
Propylene	3.06%	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.043388903	0.005724925	0.005724925	0.005724925
Styrene	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.000224507	0.000224507	0.000224507
Toluene	5.76%	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.08167323	0.010776329	0.010776329	0.010776329
Xylenes	4.80%	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.068061025	0.008980274	0.008980274	0.008980274
DPM	ton/yr	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	4.12E-05	5.44E-06	5.44E-06	5.44E-06
DPM	lb/yr	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	8.24E-02	1.09E-02	1.09E-02	1.09E-02

lb/hr	(% of TOG)	PALO2	PALO3	OAKD5	QUIN1	QUIN2	RANK3	RANK4	RANK5	PALO4	DORM1	APPA1	SELB1	SELB2	SELB3	SELB4	SELB5	SELB6
Acetaldehyde	0.28%	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	4.53222E-07	5.98002E-08	5.98002E-08	5.98002E-08
Acrolein	0.13%	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.10425E-07	2.77644E-08	2.77644E-08	2.77644E-08
Benzene	2.47%	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	3.99807E-06	5.27523E-07	5.27523E-07	5.27523E-07
1,3-Butadiene	0.55%	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	8.90258E-07	1.17465E-07	1.17465E-07	1.17465E-07
Ethylbenzene	1.05%	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	1.69958E-06	2.24251E-07	2.24251E-07	2.24251E-07
Formaldehyde	1.58%	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	2.55747E-06	3.37444E-07	3.37444E-07	3.37444E-07
Hexane	1.60%	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	2.58984E-06	3.41715E-07	3.41715E-07	3.41715E-07
Methanol	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08
Methyl Ethyl Ketone	0.02%	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	3.2373E-08	4.27144E-09	4.27144E-09	4.27144E-09
Naphthalene	0.05%	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	8.09325E-08	1.06786E-08	1.06786E-08	1.06786E-08
Propylene	3.06%	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	4.95307E-06	6.5353E-07	6.5353E-07	6.5353E-07
Styrene	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08
Toluene	5.76%	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	9.32343E-06	1.23017E-06	1.23017E-06	1.23017E-06
Xylenes	4.80%	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	7.76952E-06	1.02515E-06	1.02515E-06	1.02515E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Selby St (North of Jerrold Ave - West Bound and South of Innes Ave)	Selby St (North of Innes Ave and South of Galvez Ave)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Industrial Street (South Bayshore Blvd onto Alemany Blvd)	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Barneveld Ave (North of Industrial St and South of Oakdale Ave)	Loomis St (North of Industrial St and South of Oakdale Ave)	Loomis St (North of Oakdale Ave and South of McKinnon Ave)	Elmira St (South of Industrial St)	Charter Oak Ave (South of Industrial St)	Boutwell St (South of Industrial St)	San Bruno Ave (South of Alemany Blvd and North of Hale St)	Alemany Blvd (South of Industrial St and North of Putnam St)	Putnam St (North of Alemany Blvd and South of Cortland Ave)	Courtland Ave (East of Putnam St and West of Bayshore Blvd)	Tompkins Ave (East of Putnam St and West of Peralta Ave)
	(% of TOG)	SELB7	SELB8	BAYSH1	INDUS1	BAYSH2	BAYSH3	BARN2	LOOM1	LOOM2	ELMIR	COA	BOUT	SANB	ALEM	PUTN1	COURT1	TOMP1
Acetaldehyde	0.28%	0.000523849	0.000523849	0.003970226	0.003970226	0.003970226	0.003970226	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.003970226	0.000523849	0.000523849	0.000523849
Acrolein	0.13%	0.000243216	0.000243216	0.001843319	0.001843319	0.001843319	0.001843319	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.001843319	0.000243216	0.000243216	0.000243216
Benzene	2.47%	0.004621099	0.004621099	0.035023069	0.035023069	0.035023069	0.035023069	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.035023069	0.004621099	0.004621099	0.004621099
1,3-Butadiene	0.55%	0.00102899	0.00102899	0.007798659	0.007798659	0.007798659	0.007798659	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.007798659	0.00102899	0.00102899	0.00102899
Ethylbenzene	1.05%	0.001964435	0.001964435	0.014888349	0.014888349	0.014888349	0.014888349	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.014888349	0.001964435	0.001964435	0.001964435
Formaldehyde	1.58%	0.002956007	0.002956007	0.022403421	0.022403421	0.022403421	0.022403421	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.022403421	0.002956007	0.002956007	0.002956007
Hexane	1.60%	0.002993425	0.002993425	0.022687008	0.022687008	0.022687008	0.022687008	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.022687008	0.002993425	0.002993425	0.002993425
Methanol	0.12%	0.000224507	0.000224507	0.001701526	0.001701526	0.001701526	0.001701526	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.000224507	0.000224507	0.000224507
Methyl Ethyl Ketone	0.02%	3.74178E-05	3.74178E-05	0.000283588	0.000283588	0.000283588	0.000283588	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	0.000283588	3.74178E-05	3.74178E-05	3.74178E-05
Naphthalene	0.05%	9.35445E-05	9.35445E-05	0.000708969	0.000708969	0.000708969	0.000708969	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	0.000708969	9.35445E-05	9.35445E-05	9.35445E-05
Propylene	3.06%	0.005724925	0.005724925	0.043388903	0.043388903	0.043388903	0.043388903	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.043388903	0.005724925	0.005724925	0.005724925
Styrene	0.12%	0.000224507	0.000224507	0.001701526	0.001701526	0.001701526	0.001701526	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.000224507	0.000224507	0.000224507
Toluene	5.76%	0.010776329	0.010776329	0.08167323	0.08167323	0.08167323	0.08167323	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.08167323	0.010776329	0.010776329	0.010776329
Xylenes	4.80%	0.008980274	0.008980274	0.068061025	0.068061025	0.068061025	0.068061025	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.068061025	0.008980274	0.008980274	0.008980274
DPM	ton/yr	5.44E-06	5.44E-06	4.12E-05	4.12E-05	4.12E-05	4.12E-05	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	4.12E-05	5.44E-06	5.44E-06	5.44E-06
DPM	lb/yr	1.09E-02	1.09E-02	8.24E-02	8.24E-02	8.24E-02	8.24E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	8.24E-02	1.09E-02	1.09E-02	1.09E-02

lb/hr	(% of TOG)	SELB7	SELB8	BAYSH1	INDUS1	BAYSH2	BAYSH3	BARN2	LOOM1	LOOM2	ELMIR	COA	BOUT	SANB	ALEM	PUTN1	COURT1	TOMP1
Acetaldehyde	0.28%	5.98002E-08	5.98002E-08	4.53222E-07	4.53222E-07	4.53222E-07	4.53222E-07	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	4.53222E-07	5.98002E-08	5.98002E-08	5.98002E-08
Acrolein	0.13%	2.77644E-08	2.77644E-08	2.10425E-07	2.10425E-07	2.10425E-07	2.10425E-07	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.10425E-07	2.77644E-08	2.77644E-08	2.77644E-08
Benzene	2.47%	5.27523E-07	5.27523E-07	3.99807E-06	3.99807E-06	3.99807E-06	3.99807E-06	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	3.99807E-06	5.27523E-07	5.27523E-07	5.27523E-07
1,3-Butadiene	0.55%	1.17465E-07	1.17465E-07	8.90258E-07	8.90258E-07	8.90258E-07	8.90258E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	8.90258E-07	1.17465E-07	1.17465E-07	1.17465E-07
Ethylbenzene	1.05%	2.24251E-07	2.24251E-07	1.69958E-06	1.69958E-06	1.69958E-06	1.69958E-06	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	1.69958E-06	2.24251E-07	2.24251E-07	2.24251E-07
Formaldehyde	1.58%	3.37444E-07	3.37444E-07	2.55747E-06	2.55747E-06	2.55747E-06	2.55747E-06	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	2.55747E-06	3.37444E-07	3.37444E-07	3.37444E-07
Hexane	1.60%	3.41715E-07	3.41715E-07	2.58984E-06	2.58984E-06	2.58984E-06	2.58984E-06	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	2.58984E-06	3.41715E-07	3.41715E-07	3.41715E-07
Methanol	0.12%	2.56286E-08	2.56286E-08	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08
Methyl Ethyl Ketone	0.02%	4.27144E-09	4.27144E-09	3.2373E-08	3.2373E-08	3.2373E-08	3.2373E-08	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	3.2373E-08	4.27144E-09	4.27144E-09	4.27144E-09
Naphthalene	0.05%	1.06786E-08	1.06786E-08	8.09325E-08	8.09325E-08	8.09325E-08	8.09325E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	8.09325E-08	1.06786E-08	1.06786E-08	1.06786E-08
Propylene	3.06%	6.5353E-07	6.5353E-07	4.95307E-06	4.95307E-06	4.95307E-06	4.95307E-06	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	4.95307E-06	6.5353E-07	6.5353E-07	6.5353E-07
Styrene	0.12%	2.56286E-08	2.56286E-08	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08
Toluene	5.76%	1.23017E-06	1.23017E-06	9.32343E-06	9.32343E-06	9.32343E-06	9.32343E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	9.32343E-06	1.23017E-06	1.23017E-06	1.23017E-06
Xylenes	4.80%	1.02515E-06	1.02515E-06	7.76952E-06	7.76952E-06	7.76952E-06	7.76952E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	7.76952E-06	1.02515E-06	1.02515E-06	1.02515E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Bradford St (South of Cortland Ave) and Jarboe Ave (East of Putnam St)	Bradford St (South of Powhattan Ave and North of Cortland Ave)	Franconia St/Brewster St (North of Powhattan Ave and South of Montcalm St)	Holladay Ave (North of Franconia St and South of Peralta Ave)	Potrero Ave (South of 24th St and North of Cesar Chavez St)	Cesar Chavez St (East of York St and West of Kansas St)	East Ramp of Cesar Chavez St onto Bayshore Blvd	Bayshore Blvd (South of Potrero Ave and North of Marin St)	Peralta Ave (West of Holladay Ave and East of York St)	York St (North of Holladay Ave and South of Cesar Chavez St)	Rhode Island St (North of 26th St and South of 23rd St)	Kansas St (North of 26th St and South of 23rd St)	Vermont St (North of 25th St and South of 23rd St)	San Bruno Ave (South of 23rd St and North of Cesar Chavez St)	26th St (North of Cesar Chavez St and West of Blair Terrace	24th St (East of Potrero Ave and West of Vermont Ave)	Barneveld Ave (North of McKinnon Ave and South of Jerrold Ave)
	(% of TOG)	BRAD1	BRAD2	FRAN1	HOLL1	POTR1	CESAR1	BAYSH5	BAYSH6	PERA1	YORK1	RHODE1	KANSAS	VERMT	SANBR	S26S	S24S	BARN3
Acetaldehyde	0.28%	0.000523849	0.000523849	0.000523849	0.000523849	0.003970226	0.003970226	0.003970226	0.003970226	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849
Acrolein	0.13%	0.000243216	0.000243216	0.000243216	0.000243216	0.001843319	0.001843319	0.001843319	0.001843319	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216
Benzene	2.47%	0.004621099	0.004621099	0.004621099	0.004621099	0.035023069	0.035023069	0.035023069	0.035023069	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099
1,3-Butadiene	0.55%	0.00102899	0.00102899	0.00102899	0.00102899	0.007798659	0.007798659	0.007798659	0.007798659	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899
Ethylbenzene	1.05%	0.001964435	0.001964435	0.001964435	0.001964435	0.014888349	0.014888349	0.014888349	0.014888349	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435
Formaldehyde	1.58%	0.002956007	0.002956007	0.002956007	0.002956007	0.022403421	0.022403421	0.022403421	0.022403421	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007
Hexane	1.60%	0.002993425	0.002993425	0.002993425	0.002993425	0.022687008	0.022687008	0.022687008	0.022687008	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425
Methanol	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.001701526	0.001701526	0.001701526	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507
Methyl Ethyl Ketone	0.02%	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	0.000283588	0.000283588	0.000283588	0.000283588	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05
Naphthalene	0.05%	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	0.000708969	0.000708969	0.000708969	0.000708969	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05
Propylene	3.06%	0.005724925	0.005724925	0.005724925	0.005724925	0.043388903	0.043388903	0.043388903	0.043388903	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925
Styrene	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.001701526	0.001701526	0.001701526	0.001701526	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507
Toluene	5.76%	0.010776329	0.010776329	0.010776329	0.010776329	0.08167323	0.08167323	0.08167323	0.08167323	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329
Xylenes	4.80%	0.008980274	0.008980274	0.008980274	0.008980274	0.068061025	0.068061025	0.068061025	0.068061025	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274
DPM	ton/yr	5.44E-06	5.44E-06	5.44E-06	5.44E-06	4.12E-05	4.12E-05	4.12E-05	4.12E-05	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06
DPM	lb/yr	1.09E-02	1.09E-02	1.09E-02	1.09E-02	8.24E-02	8.24E-02	8.24E-02	8.24E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02

lb/hr	(% of TOG)	BRAD1	BRAD2	FRAN1	HOLL1	POTR1	CESAR1	BAYSH5	BAYSH6	PERA1	YORK1	RHODE1	KANSAS	VERMT	SANBR	S26S	S24S	BARN3
Acetaldehyde	0.28%	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	4.53222E-07	4.53222E-07	4.53222E-07	4.53222E-07	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08
Acrolein	0.13%	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.10425E-07	2.10425E-07	2.10425E-07	2.10425E-07	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08
Benzene	2.47%	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	3.99807E-06	3.99807E-06	3.99807E-06	3.99807E-06	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07
1,3-Butadiene	0.55%	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	8.90258E-07	8.90258E-07	8.90258E-07	8.90258E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07
Ethylbenzene	1.05%	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	1.69958E-06	1.69958E-06	1.69958E-06	1.69958E-06	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07
Formaldehyde	1.58%	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	2.55747E-06	2.55747E-06	2.55747E-06	2.55747E-06	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07
Hexane	1.60%	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	2.58984E-06	2.58984E-06	2.58984E-06	2.58984E-06	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07
Methanol	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08
Methyl Ethyl Ketone	0.02%	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	3.2373E-08	3.2373E-08	3.2373E-08	3.2373E-08	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09
Naphthalene	0.05%	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	8.09325E-08	8.09325E-08	8.09325E-08	8.09325E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08
Propylene	3.06%	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	4.95307E-06	4.95307E-06	4.95307E-06	4.95307E-06	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07
Styrene	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	1.94238E-07	1.94238E-07	1.94238E-07	1.94238E-07	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08
Toluene	5.76%	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	9.32343E-06	9.32343E-06	9.32343E-06	9.32343E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06
Xylenes	4.80%	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	7.76952E-06	7.76952E-06	7.76952E-06	7.76952E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Marin St (East of Bayshore Blvd and South of Cesar Chavez St)	Cesar Chavez St (East of Kansas St)	25th St (East of Potrero Ave and West of Vermont St)	Quesada Ave (East of Industrial St and West of Rankin St)	Revere Ave (East of Industrial St and West of Selby St)	Gaven St (South of San Bruno Ave and North of Merrill St)
	(% of TOG)	MARIN1	CESAR2	S25S	QUESA1	REVE1	GAVEN1
Acetaldehyde	0.28%	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849	0.000523849
Acrolein	0.13%	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216	0.000243216
Benzene	2.47%	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099	0.004621099
1,3-Butadiene	0.55%	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899	0.00102899
Ethylbenzene	1.05%	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435	0.001964435
Formaldehyde	1.58%	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007	0.002956007
Hexane	1.60%	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425	0.002993425
Methanol	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507
Methyl Ethyl Ketone	0.02%	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05	3.74178E-05
Naphthalene	0.05%	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05	9.35445E-05
Propylene	3.06%	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925	0.005724925
Styrene	0.12%	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507	0.000224507
Toluene	5.76%	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329	0.010776329
Xylenes	4.80%	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274	0.008980274
DPM	ton/yr	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06	5.44E-06
DPM	lb/yr	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02

lb/hr	(% of TOG)	MARIN1	CESAR2	S25S	QUESA1	REVE1	GAVEN1
Acetaldehyde	0.28%	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08	5.98002E-08
Acrolein	0.13%	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08	2.77644E-08
Benzene	2.47%	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07	5.27523E-07
1,3-Butadiene	0.55%	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07	1.17465E-07
Ethylbenzene	1.05%	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07	2.24251E-07
Formaldehyde	1.58%	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07	3.37444E-07
Hexane	1.60%	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07	3.41715E-07
Methanol	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08

Methyl Ethyl Ketone	0.02%	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09	4.27144E-09
Naphthalene	0.05%	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08	1.06786E-08
Propylene	3.06%	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07	6.5353E-07
Styrene	0.12%	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08	2.56286E-08
Toluene	5.76%	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06	1.23017E-06
Xylenes	4.80%	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06	1.02515E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

On-Site Emergency Generator Emissions

		Emissions (lb/day)	Emissions (tons/year)
Equipment Type	No.	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust
400KV Backup Generator	2	0.211183793	0.005279595

		Emissions (lb/day)	Emissions (tons/year)	Emissions (lbs/year)	Annual Emissions (g/s)
Equipment Type	Model ID	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust
400KV Backup Generator	Gen A1	1.06E-01	2.64E-03	5.28E+00	7.59380E-05
200KV Backup Generator	Gen A2	0.00E+00	0.00E+00	0.00E+00	0.00000E+00
200KV Backup Generator	Gen A3	0.00E+00	0.00E+00	0.00E+00	0.00000E+00
400KV Backup Generator	Gen B1	1.06E-01	2.64E-03	5.28E+00	7.59380E-05
200KV Backup Generator	Gen B2	0.00E+00	0.00E+00	0.00E+00	0.00000E+00
200KV Backup Generator	Gen B3	0.00E+00	0.00E+00	0.00E+00	0.00000E+00

tons/yr assumes 264 days & 12 hrs day per year

On-Site Makerspace Emissions

Emissions = Total (Building A + B)		Emissions (lb/day)	Emissions (tons/year)	Emissions (lbs/year)	Annual Emissions (g/s)
Description	Model ID	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Exhaust
Makerspace	MKSPACE	0.683671307	0.090244612	1.80E+02	2.59603E-03

Annual Emissions (g/s) per building (used in model)

$PM_{2.5}$ Exhaust	
3.24504E-04	<-- 4 exhaust vents per building

Description	Model ID	Pollutant ID	TAC	lb/hr	lb/yr
Makerspace	MKSPACE	71432	Benzene	8.33E-05	2.64E-01
Makerspace	MKSPACE	50000	Formaldehyde	9.80E-04	3.11E+00
Makerspace	MKSPACE	1115	Glycol Ethers	1.47E-02	4.65E+01
Makerspace	MKSPACE	67630	Isopropyl Alcoh	5.87E-03	1.86E+01
Makerspace	MKSPACE	108883	Toluene	7.08E-05	2.24E-01
Makerspace	MKSPACE	100414	Ethyl Benzene	1.85E-05	5.86E-02
Makerspace	MKSPACE	95476	o-Xylene	8.29E-05	2.63E-01
Makerspace	MKSPACE	108383	m-Xylene	1.20E-04	3.80E-01
Makerspace	MKSPACE	108907	Chlorobenzn	1.41E-05	4.46E-02
Makerspace	MKSPACE	91203	Naphthalene	1.85E-05	5.86E-02

HRA Model Inputs: Code Compliant Alternative (Alt B)

Operations Truck (Delivery) Traffic Allocation by Road Segment

Inbound/Outbound Traffic % from TIS Report		Total (m)	Total Traffic	% Traffic	Operations ROG (t/y)	Operations DPM (t/y)	Operations Total PM2.5 (t/y)
		6699.1	6.15	100%	0.0148	0.0021	0.0288
Road	SourceID	Length (m)	Total	%	ROG (t/y)	DPM (t/y)	Total PM2.5 (t/y)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	TOLAN1	155.7	5%	0.81%	0.000120274	1.74047E-05	2.34E-04
Oakdale Ave (West of Toland St and East of Loomis St)	OAKD1	395	30%	4.88%	0.000721642	0.000104428	1.40E-03
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	INDUS1	236.7	30%	4.88%	0.000721642	0.000104428	1.40E-03
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	TOLAN2	173	20%	3.25%	0.000481095	6.9619E-05	9.35E-04
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	TOLAN3	90.8	40%	6.50%	0.000962189	0.000139238	1.87E-03
Jerrold Ave (East of Bayshore Blvd and West of Toland Street)	JERR1	535.1	40%	6.50%	0.000962189	0.000139238	1.87E-03
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	BAYSH1	596	5%	0.81%	0.000120274	1.74047E-05	2.34E-04
Off-ramp of US 101 onto Industrial St	INDUS2	172.7	5%	0.81%	0.000120274	1.74047E-05	2.34E-04
Onramp to US 101 from Industrial St	INDUS3	408.3	30%	4.88%	0.000721642	0.000104428	1.40E-03
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	BAYSH2	267.7	25%	4.07%	0.000601368	8.70237E-05	1.17E-03
Onramp to US 101 from Bayshore Blvd	BAYSH3	779.8	40%	6.50%	0.000962189	0.000139238	1.87E-03
Off-ramp of US 101 onto Bayshore Blvd	BAYSH4	851.7	25%	4.07%	0.000601368	8.70237E-05	1.17E-03
Kirkwood Ave (East of Toland Street and West of Selby Street)	KIRK1	146	20%	3.25%	0.000481095	6.9619E-05	9.35E-04
Kirkwood Ave (East Selby Street and West of Rankin Street)	KIRK2	181.3	15%	2.44%	0.000360821	5.22142E-05	7.01E-04
Rankin Street (South of Kirkwood Ave and North of McKinnon Ave)	RANK2	178.9	15%	2.44%	0.000360821	5.22142E-05	7.01E-04
McKinnon Ave (East of Selby Street and West of Rankin Street)	MCKI2	186.2	15%	2.44%	0.000360821	5.22142E-05	7.01E-04
McKinnon Ave (East of Toland Street and West of Selby Street)	MCKI3	182.5	20%	3.25%	0.000481095	6.9619E-05	9.35E-04
Selby Street (North of Oakdale Ave and South of Newcomb Ave)	SELB3	83	55%	8.94%	0.00132301	0.000191452	2.57E-03
Selby Street (North of Newcomb Ave and South of McKinnon Ave)	SELB4	86	55%	8.94%	0.00132301	0.000191452	2.57E-03
Selby Street (North of McKinnon Ave and South of Kirkwood Ave)	SELB5	168.1	70%	11.38%	0.001683831	0.000243666	3.27E-03
Oakdale Ave (West of Toland St and East of Selby Street)	OAKD2	177.3	25%	4.07%	0.000601368	8.70237E-05	1.17E-03
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	INDU1	647.3	30%	4.88%	0.000721642	0.000104428	1.40E-03

Average Trip Distance from Emissions Calculations (mi)	1.3427
Length of Roads within Modeling Domain (mi)	1.3427
% of Emissions within Modeling Domain	100%
ROG from Emissions Calculations (tons/yr)	0.0148
DPM from Emissions Calculations (tons/yr)	2.14E-03
Total PM2.5 from Emissions Calculations (tons/yr)	2.88E-02
ROG within Modeling Domain (tons/yr)	0.01479366
DPM within Modeling Domain (tons/yr)	0.00214078
Total PM2.5 within Modeling Domain (tons/yr)	0.02875725

Longest Trip Calc	
Segment	Dist
MCKI2	186.2
MCKI3	182.5
TOLAN1	155.7
OAKD1	395
BAYSH1	596
INDUS1	236.7
INDUS3	408.3
Total Dist (m)	2160.4
Total Dist (mi)	1.34269733

HRA Model Inputs: Code Compliant Alternative (Alt B)

Operations: Truck Transport Road Segments (To/From Gateway Ctr & Highway)

Road	Road Width (ft)	Road Width (m)	Base Elevation	SourceID	Line Volume Src Type	Release Height (m) from 2020 CityWide	Initial Lateral Dimension (m)	Initial Vertical Dimension (m) from 2020 CityWide	# Volume Sources	Total Length (m)	g/s per vol (1 g/s)	Total PM2.5 (g/s/vol)
Toland Street (South of McKinnon Ave and North of Oakdale Ave)	29.11	8.87	varies - AERMAP	TOLAN1	Adjacent	2.00	varies - based on plume width	2.30	10	155.7	1.0000E-01	6.72560E-07
Oakdale Ave (West of Toland St and East of Loomis St)	41.48	12.64	varies - AERMAP	OAKD1	Adjacent	2.00	varies - based on plume width	2.30	21	395	4.7619E-02	1.92160E-06
Industrial Street (South Bayshore Blvd onto Alemany Blvd)	37.50	11.43	varies - AERMAP	INDUS1	Adjacent	2.00	varies - based on plume width	2.30	14	236.7	7.1429E-02	2.88240E-06
Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	29.11	8.87	varies - AERMAP	TOLAN2	Adjacent	2.00	varies - based on plume width	2.30	12	173	8.3333E-02	2.24187E-06
Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	29.11	8.87	varies - AERMAP	TOLAN3	Adjacent	2.00	varies - based on plume width	2.30	6	90.8	1.6667E-01	8.96747E-06
Jerrold Ave (East of Bayshore Blvd and West of Toland Street)	45.96	14.01	varies - AERMAP	JERR1	Adjacent	2.00	varies - based on plume width	2.30	27	535.1	3.7037E-02	1.99277E-06
Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	63	19.07	varies - AERMAP	BAYSH1	Adjacent	2.00	varies - based on plume width	2.30	24	596	4.1667E-02	2.80233E-07
Off-ramp of US 101 onto Industrial St	44	13.37	varies - AERMAP	INDUS2	Adjacent	2.00	varies - based on plume width	2.30	9	172.7	1.1111E-01	7.47289E-07
Onramp to US 101 from Industrial St	30	9.16	varies - AERMAP	INDUS3	Adjacent	2.00	varies - based on plume width	2.30	27	408.3	3.7037E-02	1.49458E-06
Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	63	19.07	varies - AERMAP	BAYSH2	Adjacent	2.00	varies - based on plume width	2.30	11	267.7	9.0909E-02	3.05709E-06
Onramp to US 101 from Bayshore Blvd	42	12.84	varies - AERMAP	BAYSH3	Adjacent	2.00	varies - based on plume width	2.30	41	779.8	2.4390E-02	1.31231E-06
Off-ramp of US 101 onto Bayshore Blvd	21	6.27	varies - AERMAP	BAYSH4	Adjacent	2.00	varies - based on plume width	2.30	69	851.7	1.4493E-02	4.87362E-07
Kirkwood Ave (East of Toland Street and West of Selby Street)	21	6.55	varies - AERMAP	KIRK1	Adjacent	2.00	varies - based on plume width	2.30	12	146	8.3333E-02	2.24187E-06
Kirkwood Ave (East Selby Street and West of Rankin Street)	31	9.50	varies - AERMAP	KIRK2	Adjacent	2.00	varies - based on plume width	2.30	14	181.3	7.1429E-02	1.44120E-06
Rankin Street (South of Kirkwood Ave and North of McKinnon Ave)	36	10.91	varies - AERMAP	RANK2	Adjacent	2.00	varies - based on plume width	2.30	11	178.9	9.0909E-02	1.83425E-06
McKinnon Ave (East of Selby Street and West of Rankin Street)	28	8.59	varies - AERMAP	MCKI2	Adjacent	2.00	varies - based on plume width	2.30	13	186.2	7.6923E-02	1.55206E-06
McKinnon Ave (East of Toland Street and West of Selby Street)	26	8.01	varies - AERMAP	MCKI3	Adjacent	2.00	varies - based on plume width	2.30	13	182.5	7.6923E-02	2.06942E-06
Selby Street (North of Oakdale Ave and South of Newcomb Ave)	62	18.79	varies - AERMAP	SELB3	Adjacent	2.00	varies - based on plume width	2.30	3	83	3.3333E-01	2.46605E-05
Selby Street (North of Newcomb Ave and South of McKinnon Ave)	62	18.79	varies - AERMAP	SELB4	Adjacent	2.00	varies - based on plume width	2.30	3	86	3.3333E-01	2.46605E-05
Selby Street (North of McKinnon Ave and South of Kirkwood Ave)	62	18.79	varies - AERMAP	SELB5	Adjacent	2.00	varies - based on plume width	2.30	7	168.1	1.4286E-01	1.34512E-05
Oakdale Ave (West of Toland St and East of Selby Street)	41	12.64	varies - AERMAP	OAKD2	Adjacent	2.00	varies - based on plume width	2.30	10	177.3	1.0000E-01	3.36280E-06
Industrial Street (South of Oakdale Ave and North of Quesada Ave)	53	16.14	varies - AERMAP	INDU1	Adjacent	2.00	varies - based on plume width	2.30	29	647.3	3.4483E-02	1.39150E-06

HRA Model Inputs: Code Compliant Alternative (Alt B)

Toxic Compounds (lb/yr)	EMFAC Gasoline TOG Speciation	Toland Street (South of McKinnon Ave and North of Oakdale Ave)	Oakdale Ave (West of Toland St and East of Loomis St)	Industrial Street (South Bayshore Blvd onto Alemany Blvd)	Toland Street (North of McKinnon Ave and South of Kirkwood Ave)	Toland Street (North of Kirkwood Ave and South of Jerrold Ave)	Jerrold Ave (East of Bayshore Blvd and West of Toland Street)	Bayshore Blvd (South of Oakdale Ave and North of Industrial St)	Off-ramp of US 101 onto Industrial St	Onramp to US 101 from Industrial St	Bayshore Blvd (North of Oakdale Ave and South of US 101 offramp to Bayshore Blvd)	Onramp to US 101 from Bayshore Blvd	Off-ramp of US 101 onto Bayshore Blvd	Kirkwood Ave (East of Toland Street and West of Selby Street)	Kirkwood Ave (East Selby Street and West of Rankin Street)	Rankin Street (South of Kirkwood Ave and North of McKinnon Ave)	McKinnon Ave (East of Selby Street and West of Rankin Street)	McKinnon Ave (East of Toland Street and West of Selby Street)	Selby Street (North of Oakdale Ave and South of Newcomb Ave)	Selby Street (North of Newcomb Ave and South of McKinnon Ave)	Selby Street (North of McKinnon Ave and South of Kirkwood Ave)	Oakdale Ave (West of Toland St and East of Selby Street)	Industrial Street (South of Oakdale Ave and North of Quesada Ave)
	(% of TOG)	TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	JERR1	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	SELB3	SELB4	SELB5	OAKD2	INDU1
Acetaldehyde	0.28%	0.00067353	0.0040412	0.0040412	0.00269413	0.00538826	0.00538826	0.00067353	0.00067353	0.0040412	0.00336766	0.00538826	0.00336766	0.00269413	0.0020206	0.0020206	0.0020206	0.00269413	0.00740886	0.00740886	0.00942946	0.00336766	0.0040412
Acrolein	0.13%	0.00031271	0.00187627	0.00187627	0.00125085	0.00250169	0.00250169	0.00031271	0.00031271	0.00187627	0.00156356	0.00250169	0.00156356	0.00125085	0.00093813	0.00093813	0.00093813	0.00125085	0.00343983	0.00343983	0.00437796	0.00156356	0.00187627
Benzene	2.47%	0.00594152	0.03564912	0.03564912	0.02376608	0.04753216	0.04753216	0.00594152	0.00594152	0.03564912	0.0297076	0.04753216	0.0297076	0.02376608	0.01782456	0.01782456	0.01782456	0.02376608	0.06535671	0.06535671	0.08318127	0.0297076	0.03564912
1,3-Butadiene	0.55%	0.00132301	0.00793806	0.00793806	0.00529204	0.01058408	0.01058408	0.00132301	0.00132301	0.00793806	0.00661505	0.01058408	0.00661505	0.00529204	0.00396903	0.00396903	0.00396903	0.00529204	0.01455311	0.01455311	0.01852215	0.00661505	0.00793806
Ethylbenzene	1.05%	0.00252575	0.01515448	0.01515448	0.01010299	0.02020598	0.02020598	0.00252575	0.00252575	0.01515448	0.01262874	0.02020598	0.01262874	0.01010299	0.00757724	0.00757724	0.00757724	0.01010299	0.02778322	0.02778322	0.03536046	0.01262874	0.01515448
Formaldehyde	1.58%	0.00380065	0.02280389	0.02280389	0.01520259	0.03040518	0.03040518	0.00380065	0.00380065	0.02280389	0.01900324	0.03040518	0.01900324	0.01520259	0.01140194	0.01140194	0.01140194	0.01520259	0.04180713	0.04180713	0.05320907	0.01900324	0.02280389
Hexane	1.60%	0.00384876	0.02309255	0.02309255	0.01539503	0.03079006	0.03079006	0.00384876	0.00384876	0.02309255	0.01924379	0.03079006	0.01924379	0.01539503	0.01154627	0.01154627	0.01154627	0.01539503	0.04233633	0.04233633	0.05388261	0.01924379	0.02309255
Methanol	0.12%	0.00028866	0.00173194	0.00173194	0.00115463	0.00230925	0.00230925	0.00028866	0.00028866	0.00173194	0.00144328	0.00230925	0.00144328	0.00115463	0.00086597	0.00086597	0.00086597	0.00115463	0.00317522	0.00317522	0.0040412	0.00144328	0.00173194
Methyl Ethyl Ketone	0.02%	4.8109E-05	0.00028866	0.00028866	0.00019244	0.00038488	0.00038488	4.8109E-05	4.8109E-05	0.00028866	0.00024055	0.00038488	0.00024055	0.00019244	0.00014433	0.00014433	0.00014433	0.00019244	0.0005292	0.0005292	0.00067353	0.00024055	0.00028866
Naphthalene	0.05%	0.00012027	0.00072164	0.00072164	0.00048109	0.00096219	0.00096219	0.00012027	0.00012027	0.00072164	0.00060137	0.00096219	0.00060137	0.00048109	0.00036082	0.00036082	0.00036082	0.00048109	0.00132301	0.00132301	0.00168383	0.00060137	0.00072164
Propylene	3.06%	0.00736075	0.04416449	0.04416449	0.029443	0.05888599	0.05888599	0.00736075	0.00736075	0.04416449	0.03680374	0.05888599	0.03680374	0.029443	0.02208225	0.02208225	0.02208225	0.029443	0.08096824	0.08096824	0.10305048	0.03680374	0.04416449
Styrene	0.12%	0.00028866	0.00173194	0.00173194	0.00115463	0.00230925	0.00230925	0.00028866	0.00028866	0.00173194	0.00144328	0.00230925	0.00144328	0.00115463	0.00086597	0.00086597	0.00086597	0.00115463	0.00317522	0.00317522	0.0040412	0.00144328	0.00173194
Toluene	5.76%	0.01385553	0.08313316	0.08313316	0.05542211	0.11084422	0.11084422	0.01385553	0.01385553	0.08313316	0.06927764	0.11084422	0.06927764	0.05542211	0.04156658	0.04156658	0.04156658	0.05542211	0.1524108	0.1524108	0.19397738	0.06927764	0.08313316
Xylenes	4.80%	0.01154627	0.06927764	0.06927764	0.04618509	0.09237018	0.09237018	0.01154627	0.01154627	0.06927764	0.05773136	0.09237018	0.05773136	0.04618509	0.03463882	0.03463882	0.03463882	0.04618509	0.127009	0.127009	0.16164782	0.05773136	0.06927764
DPM	ton/yr	1.74E-05	1.04E-04	1.04E-04	6.96E-05	1.39E-04	1.39E-04	1.74E-05	1.74E-05	1.04E-04	8.70E-05	1.39E-04	8.70E-05	6.96E-05	5.22E-05	5.22E-05	5.22E-05	6.96E-05	1.91E-04	1.91E-04	2.44E-04	8.70E-05	1.04E-04
DPM	lb/yr	3.48E-02	2.09E-01	2.09E-01	1.39E-01	2.78E-01	2.78E-01	3.48E-02	3.48E-02	2.09E-01	1.74E-01	2.78E-01	1.74E-01	1.39E-01	1.04E-01	1.04E-01	1.04E-01	1.39E-01	3.83E-01	3.83E-01	4.87E-01	1.74E-01	2.09E-01

lb/hr	(% of TOG)	TOLAN1	OAKD1	INDUS1	TOLAN2	TOLAN3	JERR1	BAYSH1	INDUS2	INDUS3	BAYSH2	BAYSH3	BAYSH4	KIRK1	KIRK2	RANK2	MCKI2	MCKI3	SELB3	SELB4	SELB5	OAKD2	INDU1
Acetaldehyde	0.28%	7.6887E-08	4.6132E-07	4.6132E-07	3.0755E-07	6.151E-07	6.151E-07	7.6887E-08	7.6887E-08	4.6132E-07	3.8444E-07	6.151E-07	3.8444E-07	3.0755E-07	2.3066E-07	2.3066E-07	2.3066E-07	3.0755E-07	8.4576E-07	8.4576E-07	1.0764E-06	3.8444E-07	4.6132E-07
Acrolein	0.13%	3.5698E-08	2.1419E-07	2.1419E-07	1.4279E-07	2.8558E-07	2.8558E-07	3.5698E-08	3.5698E-08	2.1419E-07	1.7849E-07	2.8558E-07	1.7849E-07	1.4279E-07	1.0709E-07	1.0709E-07	1.0709E-07	1.4279E-07	3.9267E-07	3.9267E-07	4.9977E-07	1.7849E-07	2.1419E-07
Benzene	2.47%	6.7826E-07	4.0695E-06	4.0695E-06	2.713E-06	5.426E-06	5.426E-06	6.7826E-07	6.7826E-07	4.0695E-06	3.3913E-06	5.426E-06	3.3913E-06	2.713E-06	2.0348E-06	2.0348E-06	2.0348E-06	2.713E-06	7.4608E-06	7.4608E-06	9.4956E-06	3.3913E-06	4.0695E-06
1,3-Butadiene	0.55%	1.5103E-07	9.0617E-07	9.0617E-07	6.0411E-07	1.2082E-06	1.2082E-06	1.5103E-07	1.5103E-07	9.0617E-07	7.5514E-07	1.2082E-06	7.5514E-07	6.0411E-07	4.5309E-07	4.5309E-07	4.5309E-07	6.0411E-07	1.6613E-06	1.6613E-06	2.1144E-06	7.5514E-07	9.0617E-07
Ethylbenzene	1.05%	2.8833E-07	1.73E-06	1.73E-06	1.1533E-06	2.3066E-06	2.3066E-06	2.8833E-07	2.8833E-07	1.73E-06	1.4416E-06	2.3066E-06	1.4416E-06	1.1533E-06	8.6498E-07	8.6498E-07	8.6498E-07	1.1533E-06	3.1716E-06	3.1716E-06	4.0366E-06	1.4416E-06	1.73E-06
Formaldehyde	1.58%	4.3386E-07	2.6032E-06	2.6032E-06	1.7355E-06	3.4709E-06	3.4709E-06	4.3386E-07	4.3386E-07	2.6032E-06	2.1693E-06	3.4709E-06	2.1693E-06	1.7355E-06	1.3016E-06	1.3016E-06	1.3016E-06	1.7355E-06	4.7725E-06	4.7725E-06	6.0741E-06	2.1693E-06	2.6032E-06
Hexane	1.60%	4.3936E-07	2.6361E-06	2.6361E-06	1.7574E-06	3.5148E-06	3.5148E-06	4.3936E-07	4.3936E-07	2.6361E-06	2.1968E-06	3.5148E-06	2.1968E-06	1.7574E-06	1.3181E-06	1.3181E-06	1.3181E-06	1.7574E-06	4.8329E-06	4.8329E-06	6.151E-06	2.1968E-06	2.6361E-06
Methanol	0.12%	3.2952E-08	1.9771E-07	1.9771E-07	1.3181E-07	2.6361E-07	2.6361E-07	3.2952E-08	3.2952E-08	1.9771E-07	1.6476E-07	2.6361E-07	1.6476E-07	1.3181E-07	9.8855E-08	9.8855E-08	9.8855E-08	1.3181E-07	3.6247E-07	3.6247E-07	4.6132E-07	1.6476E-07	1.9771E-07
Methyl Ethyl Ketone	0.02%	5.4919E-09	3.2952E-08	3.2952E-08	2.1968E-08	4.3936E-08	4.3936E-08	5.4919E-09	5.4919E-09	3.2952E-08	2.746E-08	4.3936E-08	2.746E-08	2.1968E-08	1.6476E-08	1.6476E-08	1.6476E-08	2.1968E-08	6.0411E-08	6.0411E-08	7.6887E-08	2.746E-08	3.2952E-08
Naphthalene	0.05%	1.373E-08	8.2379E-08	8.2379E-08	5.4919E-08	1.0984E-07	1.0984E-07	1.373E-08	1.373E-08	8.2379E-08	6.8649E-08	1.0984E-07	6.8649E-08	5.4919E-08	4.119E-08	4.119E-08	4.119E-08	5.4919E-08	1.5103E-07	1.5103E-07	1.9222E-07	6.8649E-08	8.2379E-08
Propylene	3.06%	8.4027E-07	5.0416E-06	5.0416E-06	3.3611E-06	6.7221E-06	6.7221E-06	8.4027E-07	8.4027E-07	5.0416E-06	4.2013E-06	6.7221E-06	4.2013E-06	3.3611E-06	2.5208E-06	2.5208E-06	2.5208E-06	3.3611E-06	9.2429E-06	9.2429E-06	1.1764E-05	4.2013E-06	5.0416E-06
Styrene	0.12%	3.2952E-08	1.9771E-07	1.9771E-07	1.3181E-07	2.6361E-07	2.6361E-07	3.2952E-08	3.2952E-08	1.9771E-07	1.6476E-07	2.6361E-07	1.6476E-07	1.3181E-07	9.8855E-08	9.8855E-08	9.8855E-08	1.3181E-07	3.6247E-07	3.6247E-07	4.6132E-07	1.6476E-07	1.9771E-07
Toluene	5.76%	1.5817E-06	9.4901E-06	9.4901E-06	6.3267E-06	1.2653E-05	1.2653E-05	1.5817E-06	1.5817E-06	9.4901E-06	7.9084E-06	1.2653E-05	7.9084E-06	6.3267E-06	4.745E-06	4.745E-06	4.745E-06	6.3267E-06	1.7398E-05	1.7398E-05	2.2144E-05	7.9084E-06	9.4901E-06
Xylenes	4.80%	1.3181E-06	7.9084E-06	7.9084E-06	5.2723E-06	1.0545E-05	1.0545E-05	1.3181E-06	1.3181E-06	7.9084E-06	6.5903E-06	1.0545E-05	6.5903E-06	5.2723E-06	3.9542E-06	3.9542E-06	3.9542E-06	5.2723E-06	1.4499E-05	1.4499E-05	1.8453E-05	6.5903E-06	7.9084E-06