DOCKETED	
Docket Number:	20-SPPE-02
Project Title:	Lafayette Backup Generating Facility
TN #:	242488
Document Title:	Digital Realty Responses to Data Request Set 5 - Lafayette Backup Generating Facility
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	3/29/2022 9:20:48 AM
Docketed Date:	3/29/2022

RESPONSE TO CEC STAFF DATA REQUEST SET 5 (132-140)

Lafayette Backup Generating Facility (20-SPPE-02)

SUBMITTED TO: CALIFORNIA ENERGY COMMISSION

SUBMITTED BY: **Digital Realty**

March 2022

DAYZEN LLC

INTRODUCTION

Attached are Digital Realty's responses to California Energy Commission (CEC) Staff Data Request Set No. 5 (132-140) for the Lafayette Backup Generation Facility (LBGF) Application for Small Power Plant Exemption (SPPE) (20-SPPE-02). Staff issued Data Request Set No. 5 on February 24, 2022.

The Data Responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as Staff presented them and are keyed to the Data Request numbers (132-139 are presented in the Attached Report prepared by Atmospheric Dynamics)). Additional tables, figures, or documents submitted in response to a data request (e.g., supporting data, stand-alone documents such as plans, folding graphics, etc.) are found in Attachments at the end of the document and labeled with the Data Request Number for ease of reference.

For context, the text of the Background and Data Request precede each Data Response.

GENERAL OBJECTIONS

Digital Realty objects to all data requests that require analysis beyond which is necessary to comply with the California Environmental Quality Act (CEQA) or which requires Digital Realty to provide data that is in the control of third parties and not reasonably available to Digital Realty. Notwithstanding this objection, Digital Realty has worked diligently to provide these responses swiftly to allow the CEC Staff to prepare the Draft Environmental Impact Report (DEIR).

AIR QUALITY

See Attached Report prepared by Atmospheric Dynamics Inc. which responds to Staff's Data Requests 132-139.

GREENHOUSE GAS EMISSIONS

BACKGROUND Carbon Neutral Data Centers and Renewable Electricity for New Data Centers.

The City's draft 2022 CAP Update includes Action B-1-7, Carbon-neutral data centers, which would require all new data centers to operate on 100 percent carbon-neutral energy, with offsets as needed. For staff to conclude the project would be consistent with this policy and for staff to demonstrate that the project would employ all feasible means available to reduce its GHG emissions, staff needs to determine the feasibility of participating in SVP's Large Customer Renewable Energy (LCRE) program for 100 percent carbon-free electricity or purchase carbon offsets or similar instruments that accomplished the same goals of 100 percent carbon-free electricity.

DATA REQUEST

140. Please describe the feasibility of reducing the project's indirect emissions by the use of 100 percent renewable electricity by participating in SVP's LCRE program for 100 percent carbon-free electricity or purchasing carbon offsets or similar instruments that accomplish the same goals of 100 percent carbon-free electricity.

RESPONSE TO DATA REQUEST 140

Digital Realty does not believe that the Action B-1-7 of the City of Santa Clara Draft CAP 2022 Update applies to the Lafayette Data Center because the Action specifically states that "This requirement does not apply to development projects on file with the city as of the CAP adoption date". However, Digital Realty will accept the same Mitigation Measure GHG-3 included in the recently published Final EIR for the Vantage CA3 Data Center facility, as it is consistent with Digital Realty's long-term strategy to reduce indirect emissions from the LDC.

Lafayette Backup Generating Facility

CEC Submittal

CEC Data Request Set 5 Responses

Santa Clara, California

Prepared for

Prepared by

Atmospheric Dynamics, Inc.

March 2022

Responses to CEC Data Requests Set 5 dated 2/24/2022

132. Please provide a consistent project description for staff to review with respect to the total number of stationary sources, to clarify whether the project would include 45 or 46 generators total and the proposed size of each engine.

Response: There are 45 generators in total for the project and are broken out as follows:

a. One (1) Cummins QST30 engine (1,482 bhp) which will be used for emergency building power,
b. Forty-four (44) Cummins QSK95 engines (4,309 bhp) which will be used for emergency backup power.

These changes resulted in the total number of engines decreasing to 45 versus the previous 46 engines. Emissions for the engines have been revised based on some slight changes proposed by the Applicant. The QSK95 and QST30 engine brochures have already been supplied to staff, and LDC staff is not aware of any changes to the data as supplied in these brochures.

133. Please update the Project Description, site plans, and emissions/modeling assessments, as needed to reflect a consistent total number of stationary sources.

Response: The Applicant has revised the emission calculations to reflect 44 QSK95 and one (1) QST30 engine(s). The previous calculation used 45 QSK95 engines. See the attached file *LDC Engine Emissions Rev 13.xlsx.*

In addition, the Applicant is providing revised versions of the following tables: 4.3-1, 4.3-2, 4.3-3, 4.3-4, 4.3-5, and 4.3-6 (these tables are located at the end of these responses).

The dispersion modeling was based on 44 QSK95 engines and one (1) QST30 engine so no revisions are required (see the HRA response below where the QST30 engine DPM emissions were revised).

134. Please describe how the NOx emission factor for each engine would vary within a typical hour of routine testing while the catalyst begins as cold and warms up.

Response: The revised emissions evaluation for the 44 large engines and the 1 small engine accounts for both the cold startup (warm-up period) and steady state operations by using a set of composite emissions factors as delineated in the emissions calculation file. The warmup period was assumed to occur for 15 minutes and used Tier 2 or D2 cycle (dependent on the engine model) emission factors with the remaining 45 minutes at Tier 4. DPFs were assumed to be operational for the entire testing hour. See the attached file *LDC Engine Emissions Rev 13.xlsx*.

135. Please quantify the maximum hourly rate of NOx emissions for each engine assuming that the catalyst may not be fully effective in controlling NOx emissions for 15 minutes or other demonstrated period after the initial startup of each engine.

Response: See response 134 and the attached file *LDC Engine Emissions Rev 13.xlsx*. The maximum hourly NO_x emissions during M&R testing for the QSK95 engines would be 13.94 lbs/hr. The maximum hourly NO_x emissions during M&R testing for the QST30 engine would be 4.90 lbs/hr. These values are based on the composite emissions factors as described above.

136. Please evaluate ambient air quality impacts to 1-hour NO_2 concentrations relative to the NAAQS and CAAQS assuming that the catalyst in each engine begins as cold and warms up.

Response: The 1-hour NO_2 modeling was revised to reflect the one-hour warmup period for the QSK95 and QST30 engines. The Ambient Ratio Method 2 (ARM2) was used and the modeled results were added to the maximum background concentration The revised modeling results are summarized in the table below.

MODELED MAXIMUM CONSTRUCTION IMPACTS

Pollutant	Averaging Time	Maximum Construction Impacts (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	State Standards (µg/m³)	Federal Standards (µg/m³)
NO_2	1-hour C 1-hour N	99.64 1.95	162 101	263.64 192.95	339 -	- 188

Notes:
[a] Maximum Annual Arithmetic Mean.

137. The June 2021 Revised Emissions report indicates that the smaller generator (model: QST30) could emit up to 3.25 lb/yr of PM2.5 or DPM (Table 4.3-5 and Table 4.3-12), but the annual PM2.5 modeling and health risk modeling includes insufficient emissions to match 3.25 lb/yr. (Source EG01 was modeled at 5.696x10-5 grams/sec, which would be an annual equivalent annual rate of only 1.65 lb/yr DPM.) Please review annual PM2.5 modeling and health risk modeling to ensure correct annual emissions rates were modeled for all generators.

Response: PM2.5 emissions for the QST30 engine have been revised. See table 4.3-5 below. Hourly and annual emissions of PM2.5 are 0.049 lbs/hr and 2.45 lbs/year, respectively. For the HRA analysis, the 2.45 lbs/yr corresponds to 8.4591x10-5 g/s on an annual basis.

Table 4.3-21: LBGF Operational Residential/Sensitive Health Risk Assessment Summary

Location	Receptor #	UTM	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	51	593354.91, 4136644.49	8.34E-06	0.00193	NA	NA
MEIR	3628	593024.94, 4135677.43	1.30E-07	0.000030	NA	NA
MEIS	4531	592005.25, 4136664.00	1.47E-07	0.000034	NA	NA
Notes: See acronym definitions above.						

Table 4.3-22: LBGF Operational Worker Health Risk Assessment Summary

Location	Receptor #	UTM	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	51	593354.9, 4136644.49	1.83E-06	0.00193	NA	NA
MEIW	1608	593397, 4136613	1.77E-06	0.00186	NA	NA
Notes: See acronym definitions above.						

138. The June 2021 Revised Emissions report lists a nearby residence and other receptors in Table 4.3-10 (Table 4.3-10: Sensitive Receptors Nearfield of the LBGF Site). Please provide a map showing these locations.

Response: See the map (Figure 2) attached after the tables following the text responses. Note that only the closest residential and school locations were presented. The other sensitive receptors, hospitals, daycare and universities were well beyond 5,000 feet from the project site and were not displayed as the scale of the map would be too large. Approximate UTM coordinates in NAD 83, Zone 10 were previously provided.

139. The Revised Emissions report (at p.19, TN 238218; 6/15/2021) indicates that a CEQA cumulative modeling assessment would be submitted upon the BAAQMD providing updated procedures. Please provide an updated assessment of cumulative health risks following the recommendations in the BAAQMD CEQA guidelines.

Response: A cumulative impact assessment is provided below.

Cumulative Impacts – Lafayette Data Center

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for assuring that the National and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) are attained and maintained in the Bay Area. BAAQMD's jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties. The Air District's responsibilities in improving

air quality in the region include: preparing plans for attaining and maintaining air quality standards; adopting and enforcing rules and regulations; issuing permits for stationary sources of air pollutants; inspecting stationary sources and responding to citizen complaints; monitoring air quality and meteorological conditions; awarding grants to reduce mobile emissions; implementing public outreach campaigns; and assisting local governments in addressing climate change.

Under the Small Power Plant Exemption process with the California Energy Commission (CEC), the BAAQMD acts as a Responsible Agency when it has limited discretionary authority over a portion of a project but does not have the primary discretionary authority of a Lead Agency. As a Responsible Agency, BAAQMD may coordinate the environmental review process with the lead agency regarding BAAQMD's permitting process, provide comments to the Lead Agency regarding potential impacts, and recommend mitigation measures.

Cumulative Thresholds of Significance

In accordance with BAAQMD CEQA Guidelines, a project impact would be considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

In May 2017, the BAAQMD updated the significance thresholds for agencies to use with environmental review of projects. These thresholds were designed to establish the level at which BAAQMD believed air pollutant emissions would cause significant impacts under CEQA.

A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus the contribution from the project, exceeds the following recommended significance thresholds in Table 4.3-25 below.

Table 4.3-25 Cumulative Significance Thresholds

Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources	
Excess Cancer Risk	100 per 1 million
Chronic Hazard Index	10.0
Annual Average PM25	0.8 µg/m^3
PM2.5 = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. Source: BAAQMD, 2018.	

Cumulative Impacts Assessment

Cumulative stationary and mobile source impacts were assessed for the proposed project. As recommended by the BAAQMD (BAAQMD, 2020), in order to evaluate cumulative risks, permitted stationary sources of TACs near the project site were identified using BAAQMD's *Stationary Source Risk and Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated screening level cancer risk and hazard impacts. This tool identified eight sources within 1,000 feet of the project boundaries and are summarized in Table 4.3-26.

Table 4.3-26 Combined Source Listing

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration (µg/m^3)
#2853 Spray Technology	0.01	0.0	0.01
#13815 Katarzyna Grzybems	3.61	0.01	0.0
#14991 SVP Von Raesfeld Power Plant*	8.53	0.15	2.46
#15588 Bi-CMOS Foundry	0.67	0.0	0.0
#15791 Global Satcom Technology	0.0	0.0	0.0
#19181 Comstock Data Center	2.06	0.01	0.0
#20574 2805 Lafayette	3.92	0.01	0.0
#23373 WL Gore and Associates Inc.	0.0	0.0	0.0
Combined Sources[1]	18.80	0.18	2.47
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

* The BAAQMD Distance Adjustment Multiplier Tool for Generic sources was used to adjust the risk, hazard and PM2.5 impacts from the SVP (#14991).

[1]The combined source level is an overestimate because the maximum impact from each source is assumed to occur at the same location

In addition to stationary sources, mobile source impacts from the nearest major roadway, defined as having at least 10,000 average annual daily traffic (AADT) within 1,000 feet of the project were assessed. The nearest major roadway that meets the listed criteria is the Central Expressway and Lafayette Street. Traffic on Central Expressway and Lafayette Street are a source

of TACs that could adversely affect sensitive receptors near the roadway. Potential community risk impacts to sensitive receptors from local traffic TAC emissions were evaluated.

A refined analysis of potential health impacts from vehicle traffic on Central Expressway and Lafayette Street was conducted. The refined analysis involved calculating emissions for the traffic volume and mix of vehicle types on both roadways near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures and BAAQMD recommended procedures.

Traffic Emissions

This analysis involved the development of DPM, organic TACs, and PM2.5 emissions for traffic on both roadways using the Caltrans version of the CARB EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM from diesel fueled vehicles. Emission processes modeled include running exhaust for DPM, PM2.5 and total organic compounds (e.g., TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for PM2.5. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. For PM2.5, emissions from all vehicles were used because all vehicle types (i.e., gasoline and diesel powered) produce PM2.5. Additionally, PM2.5 emissions from vehicle tire and brake wear and from re-entrained roadway dust from all vehicles were included in these emissions.

Inputs to the CT-EMFAC2017model include the region (i.e., Santa Clara County), type of road, truck percentage (BAAQMD truck percentages for non-state highways in Santa Clara County[1]), and traffic mix assigned by CT-EMFAC2017 for the county, year of analysis, and season. The CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2023, the first year of project operation. Year 2023 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated (30 years).

The ADT volume for Central Expressway was based on Santa Clara County ADT data[2] and the ADT volume for Lafayette Street was calculated based on AM and PM peak-hour data for the intersection of Central Expressway and Lafayette Street from the Gateway Crossings Mixed-Use Development Project[3] and assuming a one percent per year increase in volumes from the year of the traffic data to the analysis year of 2023. The ADT volume for Central Expressway was 40,810 vehicles per day in 2019 and the calculated ADT for Lafayette Street in 2017 was 20,435 vehicles per day. Average hourly traffic distributions for Santa Clara County roadways were developed

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

[2] County of Santa Clara 2020. *The County of Santa Clara, Official County Road Book 2020*.

[3] Hexagon Transportation Consultants, Inc. 2018. *Gateway Crossings Mixed-Use Development – Final, Traffic Impact Analysis*. March 13, 2018.

using the EMFAC model,[4] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for both roadways. An average speed of 50 mph was assumed for Central Expressway traffic for all hours of the day other than during the 2-hour peak AM and PM periods when an average travel speed of 15 mph was used.[5] For Lafayette Street, an average speed of 35 mph was assumed for all hours of the day other than during the peak AM and PM periods when the an average travel speed of 15 mph was assumed to be similar to that of Central Expressway.

Dispersion Modeling

Dispersion modeling of TAC and PM2.5 emissions was conducted using the EPA AERMOD model. TAC and PM2.5 emissions from traffic on Central Expressway and Lafayette Street within about 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a series of adjacent volume sources along a line (line-volume sources); with line segments used for northbound and southbound travel on Lafayette Street and eastbound and westbound travel on Central Expressway. A five-year data set (2013-2017) of hourly meteorological data from the San Jose Airport prepared for use with the AERMOD model by the BAAQMD was used for the modeling. Other inputs to the model included road geometries, hourly traffic emissions, and the MEIR receptor location. Annual TAC and PM2.5 concentrations from 2023 traffic on Central Expressway and Lafayette Street were calculated using the model. Concentrations were calculated at the MEIR with receptor heights of 5 feet (1.5 meters) to represent the breathing heights of residents.

Computed Cancer and Non-Cancer Health Impacts

The maximum increased cancer risk at the MEIR would be 7.4 in one million from Central Expressway traffic and 1.7 in one million from Lafayette Street traffic. The maximum PM2.5 concentration at the MEIR receptor would be 0.52 µg/m^3 from Central Expressway traffic and 0.14 µg/m^3 from Lafayette Street traffic. The hazard index (HI) at the MEIR would be less than 0.01 from both Central Expressway and Lafayette Street traffic. Figure 1 shows the roadway links used for the modeling and MEI location where concentrations were calculated.

Summary of Cumulative Risk Impacts

The increased cancer risk calculations were based on guidance provided by the BAAQMD to analyze potential community health risk impacts from nearby sources of TAC emissions and applying the BAAQMD recommended age sensitivity factors to the TAC concentrations[6]. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. The range of infant through adult exposures were assumed to occur at the MEIR.

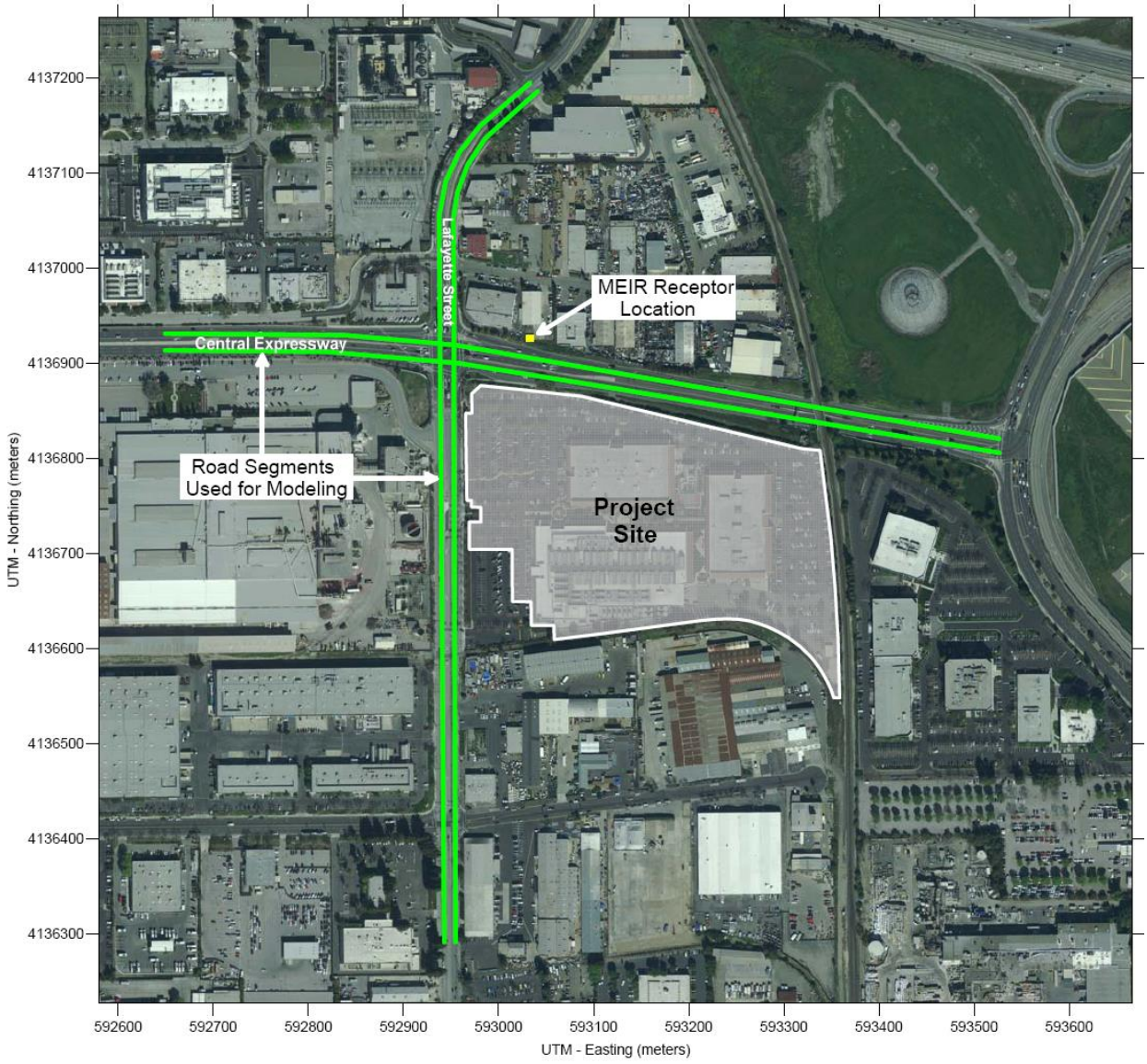
[4] The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2017 does not include Burden type output with hour by hour traffic volume information.
[5] Santa Clara Valley Transportation Authority 2016. *2016 CMP Monitoring and Conformance Report.*
[6] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

As discussed above, the project site is affected by several sources of TACs. Table 4.3-28 shows the cancer and non-cancer risks associated with each source affecting the project site. The sum of impacts from combined sources (i.e., all sources within 1,000 feet of the project) would be below the BAAQMD risk thresholds, with the exception of PM2.5. The SVP Von Raesfeld Power Plant PM2.5 concentration, by itself, exceeds the significance level of 0.8 µg/m^3 after adjusting for distance. However, the proposed LBGF PM2.5 concentration is 0.007 µg/m^3 which is far below the BAAQMD single source significant impact level of 0.3 µg/m^3 and would not contribute to the existing PM2.5 levels in the project area. Therefore, the impact from combined community risk would be considered less than significant. Appendix AQ-5 presents the support data for the operational risk calculations.

Table 4.3-28. Impacts from Combined Sources

Source	Maximum Cancer Risk (per million)	Hazard Index	PM2.5 concentration (µg/m^3)
Central Expressway/Lafayette Street Traffic	9.1	0.01	0.66
Existing Background Sources.	18.80	0.18	2.47
LBGF Project	6.36	0.00005	0.007
Combined Sources[1]	34.26	0.19	3.14
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***
Note: [1]The combined source level is an overestimate because the maximum impact from each source is assumed to occur at the same location.			

Figure 1.
Project Site, Modeled MEIR Receptor and Central Expressway and Lafayette Street Road Segments Evaluated



Revised LDC Tables – March 22, 2022

Table 4.3-1: Emergency Ops Emissions Summary for QSK95 and QST30 Engines

Period	NO_x	CO	VOC	SO_2	PM10/2.5
QSK95 CEC Scenario[1]					
Single Engine lbs/3 Hrs	23.44	14.25	4.20	0.14	0.28
Single Engine lbs/yr	778.3	475.0	140.1	4.75	9.5
44 Engines Tons/yr	17.12	10.45	3.08	0.10	0.21
QSK95 BAAQMD Scenario[2]					
44 Engines Tons/Yr	10.45	10.45	2.93	0.10	0.21
QST30 CEC Scenario[1]					
Single Engine lbs/3 Hrs	8.17	4.74	3.38	0.05	0.15
Single Engine lbs/yr	271.2	158.0	112.1	1.63	4.90
Single Engine Tons/Yr	0.14	0.08	0.06	0.001	0.002
QST30 BAAQMD Scenario[2]					
Single Engine Tons/Yr	0.08	0.08	0.02	0.001	0.002

[1] See the revised emissions calculation file LDC Engine Emissions Rev 13.xlsx attached to these responses.

[2] The CEC scenario is the worst case as compared to the BAAQMD emergency ops emissions which assumes only the T4 emissions factors.

Emissions NOT subject to NSR applicability.

Table 4.3-2: M&R Emissions Summary for QSK95 and QST30 Engines Based on 50 Hours of M&R Testing per Engine per Year

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
QSK95						
Max Hourly, lbs/engine	13.94	4.75	1.54	0.05	0.095	-
Max Daily, lbs/10 engines	139.4	47.5	15.4	0.48	0.95	-
Max Annual, tons 44 engines	15.34	5.22	1.70	0.05	0.10	5161
QST30						
Max Hourly, lbs/1 engine	4.90	1.47	2.47	0.016	0.049	-
Max Daily,	4.90	1.47	2.47	0.016	0.049	-

lbs/1 engine						
Max Annual, tons 1 engine	0.12	0.04	0.06	0.0004	0.001	41
See the revised emissions calculation file LDC Engine Emissions Rev 13.xlsx attached to these responses.						

Table 4.3-3: Facility M&R Testing Emissions and BAAQMD CEQA Significance Levels

Scenario	**Lbs/Day**					
	NO_x	**CO**	**VOC**	**SO_2**	**PM10**	**PM2.5**
BAAQMD CEQA Thresholds	54	NA	54	NA	82	54
Worst Case Daily Emissions[1]	139.4	47.5	15.4	0.47	0.95	0.95
Significance Threshold Exceeded	Yes	NA	No	NA	No	No
Scenario	**Tons/Yr**					
	NO_x	**CO**	**VOC**	**SO_2**	**PM10**	**PM2.5**
BAAQMD CEQA Thresholds	10	NA	10	NA	15	10
Worst Case Annual Emissions[2]	15.46	5.26	1.76	0.052	0.11	0.11
Significance Threshold Exceeded	Yes	NA	No	NA	No	No

[1] M&R Testing Scenario for QSK95 only, 10 engines tested per day.

[2] M&R Testing Scenario for QSK95 plus QST30.

[2] Worst case CO2e emissions are 5202 tpy (based on the M&R testing scenario for all engines).

Table 4.3-4 BAAQMD 150 Hour per Year Emissions Summation (tons per year)

Engines	**NO_x**	**CO**	**VOC**	**SO_2**	**PM10/2.5**
QSK95	25.79	15.68	4.62	0.157	0.313
QST30	0.20	0.118	0.085	0.001	0.004
Annual Total	**25.99**	**15.79**	**4.71**	**0.16**	**0.32**
See the revised emissions calculation file LDC Engine Emissions Rev 13.xlsx attached to these responses. ***These values are NOT the NSR applicability values.***					

Table 4.3-5: Toxic Air Contaminant (DPM) Emissions from the Proposed Engines (per engine basis)

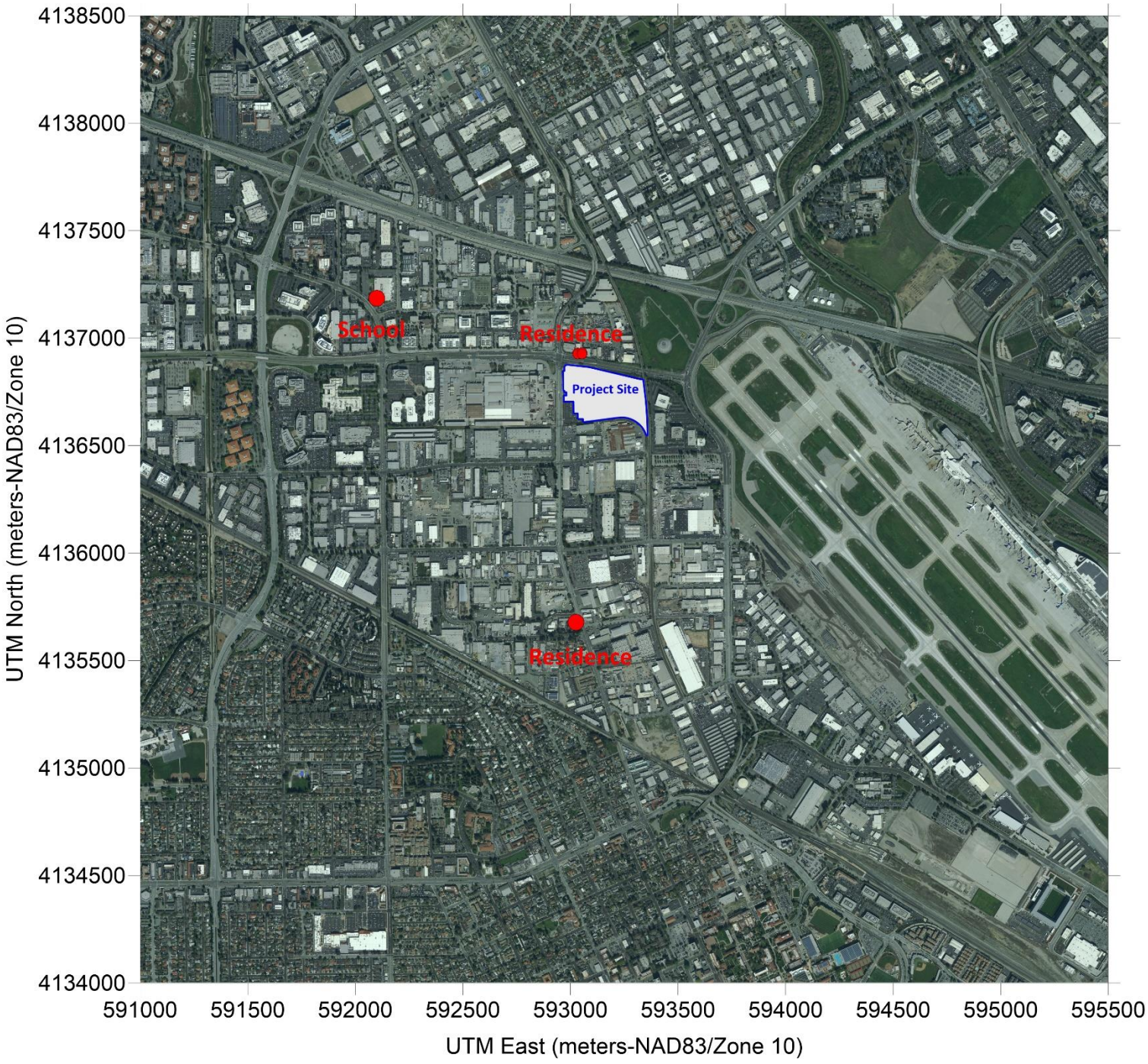
Scenario	QSK95	QST30
	DPM Emissions	
Maximum Annual, lbs/yr	4.75	2.45
Maximum Hourly, lbs	0.095	0.049

Notes: DPM is the approved surrogate compound for diesel fuel combustion for purposes of health risk assessment.
Annual emissions for each engine are based on the max allowed M&R testing runtime of 50 hours per year using Miratech catalyst/DPF emissions.

Table 4.3-6 Engine Fuel Use Values

Scenario	QSK95	QST30
	Fuel Use, gallons (per engine basis)	
Maximum Annual, gals/yr	10,350	3610
Maximum Hourly, gals/hr	207	72.2
Total Annual Fuel Use (All Engines)		
Annual Fuel Use, gals/yr	459,010	

Figure 2
Sensitive Receptor Map



Attachment

Central Expressway and Lafayette Street Traffic Emissions and Health Risk Calculations

CT-EMFAC2017 Emission Factors

```
           File Name:   Lafayette Data Center - Santa Clara (SF) - 2023 - Annual-BAAQMD Trucks.EF
CT-EMFAC2017 Version:   1.0.2.27401
            Run Date:   9/13/2020 9:38:46 PM
                Area:   Santa Clara (SF)
       Analysis Year:   2023
              Season:   Annual

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

Vehicle Category        VMT Fraction            Diesel VMT Fraction     Gas VMT Fraction
                        Across Category         Within Category         Within Category
         Truck 1             0.015                   0.487                   0.513
         Truck 2             0.020                   0.938                   0.047
       Non-Truck             0.965                   0.014                   0.958

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               Road Type:       Major/Collector
     Silt Loading Factor:                 CARB         0.032 g/m2
Precipitation Correction:                 CARB         P = 64 days     N = 365 days

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

       Pollutant Name     10 mph     15 mph     25 mph     35 mph     45 mph     50 mph     55 mph
                PM2.5   0.005981   0.004054   0.002194   0.001511   0.001329   0.001357   0.001452
                  TOG   0.127928   0.086105   0.046181   0.030861   0.025044   0.024259   0.024675
            Diesel PM   0.000732   0.000563   0.000382   0.000350   0.000411   0.000473   0.000556
                 DEOG   0.008516   0.004582   0.001688   0.001121   0.000878   0.000838   0.000843

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

       Pollutant Name   Emission Factor
                  TOG          1.357610

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.002108

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.016808

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.014855

                              END
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Central Expressway Traffic Emissions and Health Risk Calculations

Lafayette Data Center, Santa Clara -Roadway Emissions
Central Expressway
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
EBCTRL_DPM	Eastbound Central Expry	E	3	885.0	0.55	17.0	55.7	3.4	Variable	21,221
WBCTRL_DPM	Westbound Central Expry	W	3	885.0	0.55	17.0	55.7	3.4	Variable	21,221
									Total	42,442

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	50	15		
Emissions per Vehicle (g/VMT)	0.000473	0.000563		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - EBCTRL_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.81%	809	5.85E-05	9	6.66%	1414	1.22E-04	17	6.50%	1379	1.19E-04
2	3.15%	669	4.83E-05	10	8.16%	1731	1.25E-04	18	3.85%	816	7.02E-05
3	2.32%	493	3.56E-05	11	6.33%	1344	9.71E-05	19	2.35%	499	3.61E-05
4	1.00%	211	1.53E-05	12	7.66%	1625	1.17E-04	20	1.19%	253	1.83E-05
5	1.00%	211	1.53E-05	13	6.83%	1449	1.05E-04	21	3.02%	640	4.62E-05
6	2.16%	458	3.31E-05	14	6.66%	1414	1.02E-04	22	5.01%	1062	7.68E-05
7	4.67%	992	7.17E-05	15	6.00%	1274	9.20E-05	23	3.32%	704	5.09E-05
8	3.35%	710	6.11E-05	16	4.34%	922	6.66E-05	24	0.66%	141	1.02E-05
								Total		21,221	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - WBCTRL_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.81%	809	5.85E-05	9	6.66%	1414	1.22E-04	17	6.50%	1379	1.19E-04
2	3.15%	669	4.83E-05	10	8.16%	1731	1.25E-04	18	3.85%	816	7.02E-05
3	2.32%	493	3.56E-05	11	6.33%	1344	9.71E-05	19	2.35%	499	3.61E-05
4	1.00%	211	1.53E-05	12	7.66%	1625	1.17E-04	20	1.19%	253	1.83E-05
5	1.00%	211	1.53E-05	13	6.83%	1449	1.05E-04	21	3.02%	640	4.62E-05
6	2.16%	458	3.31E-05	14	6.66%	1414	1.02E-04	22	5.01%	1062	7.68E-05
7	4.67%	992	7.17E-05	15	6.00%	1274	9.20E-05	23	3.32%	704	5.09E-05
8	3.35%	710	6.11E-05	16	4.34%	922	6.66E-05	24	0.66%	141	1.02E-05
								Total		21,221	

Analysis Year = ***2023***

Vehicle Type	2019 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**40,810**	**42,442**
Increase From 2019		1.04
Vehicles/Direction		**21,221**
Avg Vehicles/Hour/Direction		884

Traffic Data Year = ***2019***

Official County Road Book 2020 (Santa Clara County)	AADT Total
Central Expressway - between San Tomas/De La Cruz	40,810

Percent of Total Vehicles

Traffic Increase per Year (%) = *1.00%*

Lafayette Data Center, Santa Clara -Roadway Emissions
Central Expressway
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
EBCTRL_PM25	Eastbound Central Expry	E	3	885.0	0.55	17.0	56	1.3	Variable	21,221
WBCTRL_PM25	Westbound Central Expry	W	3	885.0	0.55	17.0	56	1.3	Variable	21,221
									Total	42,442

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	50	15		
Emissions per Vehicle (g/VMT)	0.001452	0.00405		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - EBCTRL_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	238	5.27E-05	9	7.12%	1510	9.35E-04	17	7.43%	1577	9.77E-04
2	0.41%	88	1.94E-05	10	4.37%	928	2.06E-04	18	8.24%	1748	1.08E-03
3	0.37%	80	1.76E-05	11	4.65%	987	2.19E-04	19	5.72%	1214	2.69E-04
4	0.17%	36	8.02E-06	12	5.89%	1249	2.77E-04	20	4.30%	913	2.02E-04
5	0.46%	98	2.17E-05	13	6.17%	1309	2.90E-04	21	3.25%	690	1.53E-04
6	0.85%	180	3.99E-05	14	6.05%	1284	2.85E-04	22	3.31%	703	1.56E-04
7	3.73%	792	1.76E-04	15	7.06%	1498	3.32E-04	23	2.48%	527	1.17E-04
8	7.77%	1649	1.02E-03	16	7.19%	1526	3.38E-04	24	1.87%	398	8.82E-05
								Total		21,221	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - WBCTRL_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	238	5.27E-05	9	7.12%	1510	9.35E-04	17	7.43%	1577	9.77E-04
2	0.41%	88	1.94E-05	10	4.37%	928	2.06E-04	18	8.24%	1748	1.08E-03
3	0.37%	80	1.76E-05	11	4.65%	987	2.19E-04	19	5.72%	1214	2.69E-04
4	0.17%	36	8.02E-06	12	5.89%	1249	2.77E-04	20	4.30%	913	2.02E-04
5	0.46%	98	2.17E-05	13	6.17%	1309	2.90E-04	21	3.25%	690	1.53E-04
6	0.85%	180	3.99E-05	14	6.05%	1284	2.85E-04	22	3.31%	703	1.56E-04
7	3.73%	792	1.76E-04	15	7.06%	1498	3.32E-04	23	2.48%	527	1.17E-04
8	7.77%	1649	1.02E-03	16	7.19%	1526	3.38E-04	24	1.87%	398	8.82E-05
								Total		21,221	

Lafayette Data Center, Santa Clara -Roadway Emissions
Central Expressway
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
EBCTRL_TEXH	Eastbound Central Expry	E	3	885.0	0.55	17.0	56	1.3	Variable	21,221
WBCTRL_TEXH	Westbound Central Expry	W	3	885.0	0.55	17.0	56	1.3	Variable	21,221
									Total	42,442

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	50	15		
All Vehicles TOG Emissions per Vehicle (g/VMT)	0.024259	0.086105		
Diesel Vehicles TOG Emissions per Vehicle (g/VMT)	0.000838	0.004582		
Gasoline Vehicles Emissions per Vehicle (g/VMT)	0.02342	0.08152		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - EBCTRL_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	238	8.51E-04	9	7.12%	1510	1.88E-02	17	7.43%	1577	1.96E-02
2	0.41%	88	3.14E-04	10	4.37%	928	3.32E-03	18	8.24%	1748	2.18E-02
3	0.37%	80	2.85E-04	11	4.65%	987	3.53E-03	19	5.72%	1214	4.34E-03
4	0.17%	36	1.29E-04	12	5.89%	1249	4.47E-03	20	4.30%	913	3.27E-03
5	0.46%	98	3.49E-04	13	6.17%	1309	4.68E-03	21	3.25%	690	2.47E-03
6	0.85%	180	6.44E-04	14	6.05%	1284	4.60E-03	22	3.31%	703	2.52E-03
7	3.73%	792	2.83E-03	15	7.06%	1498	5.36E-03	23	2.48%	527	1.89E-03
8	7.77%	1649	2.05E-02	16	7.19%	1526	5.46E-03	24	1.87%	398	1.42E-03
								Total		21,221	

2023 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - WBCTRL_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	238	8.51E-04	9	7.12%	1510	1.88E-02	17	7.43%	1577	1.96E-02
2	0.41%	88	3.14E-04	10	4.37%	928	3.32E-03	18	8.24%	1748	2.18E-02
3	0.37%	80	2.85E-04	11	4.65%	987	3.53E-03	19	5.72%	1214	4.34E-03
4	0.17%	36	1.29E-04	12	5.89%	1249	4.47E-03	20	4.30%	913	3.27E-03
5	0.46%	98	3.49E-04	13	6.17%	1309	4.68E-03	21	3.25%	690	2.47E-03
6	0.85%	180	6.44E-04	14	6.05%	1284	4.60E-03	22	3.31%	703	2.52E-03
7	3.73%	792	2.83E-03	15	7.06%	1498	5.36E-03	23	2.48%	527	1.89E-03
8	7.77%	1649	2.05E-02	16	7.19%	1526	5.46E-03	24	1.87%	398	1.42E-03
								Total		21,221	

Lafayette Data Center, Santa Clara -Roadway Emissions
Central Expressway
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
EBCTRL_TEVAP	Eastbound Central Expry	E	3	885.0	0.55	17.0	56	1.3	Variable	21,221
WBCTRL_TEVAP	Westbound Central Expry	W	3	885.0	0.55	17.0	56	1.3	Variable	21,221
									Total	42,442

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	50	15		
Emissions per Vehicle per Hour (g/hour)	1.35761	1.35761		
Emissions per Vehicle per Mile (g/VMT)	0.02715	0.09051		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - EBCTRL_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	238	9.86E-04	9	7.12%	1510	2.09E-02	17	7.43%	1577	2.18E-02
2	0.41%	88	3.64E-04	10	4.37%	928	3.85E-03	18	8.24%	1748	2.42E-02
3	0.37%	80	3.30E-04	11	4.65%	987	4.09E-03	19	5.72%	1214	5.04E-03
4	0.17%	36	1.50E-04	12	5.89%	1249	5.18E-03	20	4.30%	913	3.79E-03
5	0.46%	98	4.05E-04	13	6.17%	1309	5.43E-03	21	3.25%	690	2.86E-03
6	0.85%	180	7.46E-04	14	6.05%	1284	5.33E-03	22	3.31%	703	2.92E-03
7	3.73%	792	3.28E-03	15	7.06%	1498	6.21E-03	23	2.48%	527	2.19E-03
8	7.77%	1649	2.28E-02	16	7.19%	1526	6.33E-03	24	1.87%	398	1.65E-03
								Total		21,221	

2023 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - WBCTRL_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	238	9.86E-04	9	7.12%	1510	2.09E-02	17	7.43%	1577	2.18E-02
2	0.41%	88	3.64E-04	10	4.37%	928	3.85E-03	18	8.24%	1748	2.42E-02
3	0.37%	80	3.30E-04	11	4.65%	987	4.09E-03	19	5.72%	1214	5.04E-03
4	0.17%	36	1.50E-04	12	5.89%	1249	5.18E-03	20	4.30%	913	3.79E-03
5	0.46%	98	4.05E-04	13	6.17%	1309	5.43E-03	21	3.25%	690	2.86E-03
6	0.85%	180	7.46E-04	14	6.05%	1284	5.33E-03	22	3.31%	703	2.92E-03
7	3.73%	792	3.28E-03	15	7.06%	1498	6.21E-03	23	2.48%	527	2.19E-03
8	7.77%	1649	2.28E-02	16	7.19%	1526	6.33E-03	24	1.87%	398	1.65E-03
								Total		21,221	

Lafayette Data Center, Santa Clara -Roadway Emissions
Central Expressway
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
EBCTRL_FUG	Eastbound Central Expry	E	3	885.0	0.55	17.0	56	1.3	Variable	21,221
WBCTRL_FUG	Westbound Central Expry	W	3	885.0	0.55	17.0	56	1.3	Variable	21,221
									Total	42,442

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	50	15		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681	0.01681		
Road Dust - Emissions per Vehicle (g/VMT)	0.01486	0.01486		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377	0.03377		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - EBCTRL_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	238	1.23E-03	9	7.12%	1510	7.79E-03	17	7.43%	1577	8.14E-03
2	0.41%	88	4.52E-04	10	4.37%	928	4.79E-03	18	8.24%	1748	9.02E-03
3	0.37%	80	4.10E-04	11	4.65%	987	5.09E-03	19	5.72%	1214	6.26E-03
4	0.17%	36	1.87E-04	12	5.89%	1249	6.44E-03	20	4.30%	913	4.71E-03
5	0.46%	98	5.04E-04	13	6.17%	1309	6.75E-03	21	3.25%	690	3.56E-03
6	0.85%	180	9.28E-04	14	6.05%	1284	6.63E-03	22	3.31%	703	3.63E-03
7	3.73%	792	4.08E-03	15	7.06%	1498	7.73E-03	23	2.48%	527	2.72E-03
8	7.77%	1649	8.51E-03	16	7.19%	1526	7.87E-03	24	1.87%	398	2.05E-03
								Total		21,221	

2023 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - WBCTRL_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	238	1.23E-03	9	7.12%	1510	7.79E-03	17	7.43%	1577	8.14E-03
2	0.41%	88	4.52E-04	10	4.37%	928	4.79E-03	18	8.24%	1748	9.02E-03
3	0.37%	80	4.10E-04	11	4.65%	987	5.09E-03	19	5.72%	1214	6.26E-03
4	0.17%	36	1.87E-04	12	5.89%	1249	6.44E-03	20	4.30%	913	4.71E-03
5	0.46%	98	5.04E-04	13	6.17%	1309	6.75E-03	21	3.25%	690	3.56E-03
6	0.85%	180	9.28E-04	14	6.05%	1284	6.63E-03	22	3.31%	703	3.63E-03
7	3.73%	792	4.08E-03	15	7.06%	1498	7.73E-03	23	2.48%	527	2.72E-03
8	7.77%	1649	8.51E-03	16	7.19%	1526	7.87E-03	24	1.87%	398	2.05E-03
								Total		21,221	

Lafayette Data Center - Central Expressway Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
Off-Site Maximum Residential Receptor (1.5 meter receptor height)

Emissions Year	2023
Receptor Information	
Number of Receptors	1
Receptor Height =	1.5 meters above ground level
Receptor distances =	receptor at residential MEI location
Meteorological Conditions	
BAAQMDSan Jose Airport Met Data	2013-2017
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological Data Years	Concentration (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00634	0.5932	0.6712

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Exhaust PM2.5
2013-2017	0.5180	0.4856	0.0324

Lafayette Data Center - Central Expressway Traffic Maximum Cancer Risks
Off-Site Maximum Residential Receptor (1.5 meter receptor height)
30-Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

Values

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

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
					Annual TAC Conc (ug/m3)						
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
0	2023	0.25	-0.25 - 0*	10	0.0063	0.5932	0.6712	0.086	0.046	0.003	0.14
1	2023	1	1	10	0.0063	0.5932	0.6712	1.04	0.556	0.037	1.63
2	2024	1	2	10	0.0063	0.5932	0.6712	1.04	0.556	0.037	1.63
3	2025	1	3	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
4	2026	1	4	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
5	2027	1	5	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
6	2028	1	6	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
7	2029	1	7	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
8	2030	1	8	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
9	2031	1	9	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
10	2032	1	10	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
11	2033	1	11	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
12	2034	1	12	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
13	2035	1	13	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
14	2036	1	14	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
15	2037	1	15	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
16	2038	1	16	3	0.0063	0.5932	0.6712	0.16	0.088	0.006	0.26
17	2039	1	17	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
18	2040	1	18	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
19	2041	1	19	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
20	2042	1	20	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
21	2043	1	21	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
22	2044	1	22	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
23	2045	1	23	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
24	2046	1	24	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
25	2047	1	25	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
26	2048	1	26	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
27	2049	1	27	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
28	2050	1	28	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
29	2051	1	29	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
30	2052	1	30	1	0.0063	0.5932	0.6712	0.02	0.010	0.001	0.029
Total Increased Cancer Risk			**Total**					4.72	2.521	0.168	**7.41**

* Third trimester of pregnancy

Lafayette Data Center, Santa Clara -Roadway Emissions
Lafayette Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NBLAF_DPM	Eastbound Central Expry	N	2	927	0.58	13.3	43.7	3.4	Variable	10,831
SBLAF_DPM	Westbound Central Expry	S	2	939	0.58	13.3	43.7	3.4	Variable	10,831
									Total	21,661

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35	15		
Emissions per Vehicle (g/VMT)	0.000350	0.000563		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - NBLAF_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.81%	413	2.31E-05	9	6.66%	722	6.50E-05	17	6.50%	704	6.34E-05
2	3.15%	341	1.91E-05	10	8.16%	883	4.95E-05	18	3.85%	416	3.75E-05
3	2.32%	251	1.41E-05	11	6.33%	686	3.84E-05	19	2.35%	255	1.43E-05
4	1.00%	108	6.03E-06	12	7.66%	830	4.64E-05	20	1.19%	129	7.23E-06
5	1.00%	108	6.03E-06	13	6.83%	740	4.14E-05	21	3.02%	327	1.83E-05
6	2.16%	233	1.31E-05	14	6.66%	722	4.04E-05	22	5.01%	542	3.04E-05
7	4.67%	506	2.83E-05	15	6.00%	650	3.64E-05	23	3.32%	359	2.01E-05
8	3.35%	363	3.26E-05	16	4.34%	470	2.63E-05	24	0.66%	72	4.02E-06
								Total		10,831	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - SBLAF_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.81%	413	2.34E-05	9	6.66%	722	6.58E-05	17	6.50%	704	6.42E-05
2	3.15%	341	1.94E-05	10	8.16%	883	5.01E-05	18	3.85%	416	3.80E-05
3	2.32%	251	1.43E-05	11	6.33%	686	3.89E-05	19	2.35%	255	1.45E-05
4	1.00%	108	6.11E-06	12	7.66%	830	4.70E-05	20	1.19%	129	7.32E-06
5	1.00%	108	6.11E-06	13	6.83%	740	4.20E-05	21	3.02%	327	1.85E-05
6	2.16%	233	1.32E-05	14	6.66%	722	4.09E-05	22	5.01%	542	3.07E-05
7	4.67%	506	2.87E-05	15	6.00%	650	3.69E-05	23	3.32%	359	2.04E-05
8	3.35%	363	3.31E-05	16	4.34%	470	2.67E-05	24	0.66%	72	4.07E-06
								Total		10,831	

Analysis Year = ***2023***

Vehicle Type	2017 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**20,435**	**21,661**

Increase From 2017 1.06
Vehicles/Direction **10,831**
Avg Vehicles/Hour/Direction 451

Traffic Data Year = ***2017***

Traffic Report for Gateway Crossings Mixed Use Development (2018 EIR)	AADT Total
Lafayette St	20,435

Percent of Total Vehicles

Traffic Increase per Year (%) = *1.00%*

Lafayette Data Center, Santa Clara -Roadway Emissions
Lafayette Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NBLAF_PM25	Eastbound Central Expry	N	2	926.6	0.58	13.3	44	1.3	Variable	10,831
SBLAF_PM25	Westbound Central Expry	S	2	938.7	0.58	13.3	44	1.3	Variable	10,831
									Total	21,661

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35	15		
Emissions per Vehicle (g/VMT)	0.001511	0.00405		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - NBLAF_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	121	2.93E-05	9	7.12%	771	5.00E-04	17	7.43%	805	5.22E-04
2	0.41%	45	1.08E-05	10	4.37%	474	1.14E-04	18	8.24%	892	5.78E-04
3	0.37%	41	9.81E-06	11	4.65%	504	1.22E-04	19	5.72%	620	1.50E-04
4	0.17%	18	4.46E-06	12	5.89%	638	1.54E-04	20	4.30%	466	1.13E-04
5	0.46%	50	1.20E-05	13	6.17%	668	1.61E-04	21	3.25%	352	8.51E-05
6	0.85%	92	2.22E-05	14	6.05%	656	1.58E-04	22	3.31%	359	8.67E-05
7	3.73%	404	9.77E-05	15	7.06%	764	1.85E-04	23	2.48%	269	6.50E-05
8	7.77%	841	5.46E-04	16	7.19%	779	1.88E-04	24	1.87%	203	4.91E-05
								Total		10,831	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SBLAF_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	121	2.97E-05	9	7.12%	771	5.06E-04	17	7.43%	805	5.29E-04
2	0.41%	45	1.10E-05	10	4.37%	474	1.16E-04	18	8.24%	892	5.86E-04
3	0.37%	41	9.94E-06	11	4.65%	504	1.23E-04	19	5.72%	620	1.52E-04
4	0.17%	18	4.52E-06	12	5.89%	638	1.56E-04	20	4.30%	466	1.14E-04
5	0.46%	50	1.22E-05	13	6.17%	668	1.64E-04	21	3.25%	352	8.62E-05
6	0.85%	92	2.25E-05	14	6.05%	656	1.60E-04	22	3.31%	359	8.79E-05
7	3.73%	404	9.89E-05	15	7.06%	764	1.87E-04	23	2.48%	269	6.58E-05
8	7.77%	841	5.53E-04	16	7.19%	779	1.91E-04	24	1.87%	203	4.97E-05
								Total		10,831	

Lafayette Data Center, Santa Clara -Roadway Emissions
Lafayette Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NBLAF_TEXH	Eastbound Central Expry	N	2	926.6	0.58	13.3	44	1.3	Variable	10,831
SBLAF_TEXH	Westbound Central Expry	S	2	938.7	0.58	13.3	44	1.3	Variable	10,831
									Total	21,661

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35	15		
All Vehicles TOG Emissions per Vehicle (g/VMT)	0.030861	0.086105		
Diesel Vehicles TOG Emissions per Vehicle (g/VMT)	0.001121	0.004582		
Gasoline Vehicles Emissions per Vehicle (g/VMT)	0.02974	0.08152		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - NBLAF_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	121	5.77E-04	9	7.12%	771	1.01E-02	17	7.43%	805	1.05E-02
2	0.41%	45	2.13E-04	10	4.37%	474	2.25E-03	18	8.24%	892	1.16E-02
3	0.37%	41	1.93E-04	11	4.65%	504	2.40E-03	19	5.72%	620	2.95E-03
4	0.17%	18	8.78E-05	12	5.89%	638	3.03E-03	20	4.30%	466	2.22E-03
5	0.46%	50	2.37E-04	13	6.17%	668	3.18E-03	21	3.25%	352	1.67E-03
6	0.85%	92	4.37E-04	14	6.05%	656	3.12E-03	22	3.31%	359	1.71E-03
7	3.73%	404	1.92E-03	15	7.06%	764	3.64E-03	23	2.48%	269	1.28E-03
8	7.77%	841	1.10E-02	16	7.19%	779	3.70E-03	24	1.87%	203	9.66E-04
								Total		10,831	

2023 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SBLAF_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	121	5.85E-04	9	7.12%	771	1.02E-02	17	7.43%	805	1.06E-02
2	0.41%	45	2.16E-04	10	4.37%	474	2.28E-03	18	8.24%	892	1.18E-02
3	0.37%	41	1.96E-04	11	4.65%	504	2.43E-03	19	5.72%	620	2.99E-03
4	0.17%	18	8.89E-05	12	5.89%	638	3.07E-03	20	4.30%	466	2.25E-03
5	0.46%	50	2.40E-04	13	6.17%	668	3.22E-03	21	3.25%	352	1.70E-03
6	0.85%	92	4.42E-04	14	6.05%	656	3.16E-03	22	3.31%	359	1.73E-03
7	3.73%	404	1.95E-03	15	7.06%	764	3.68E-03	23	2.48%	269	1.30E-03
8	7.77%	841	1.11E-02	16	7.19%	779	3.75E-03	24	1.87%	203	9.78E-04
								Total		10,831	

Lafayette Data Center, Santa Clara -Roadway Emissions
Lafayette Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NBLAF_TEVAP	Eastbound Central Expry	N	2	926.6	0.58	13.3	44	1.3	Variable	10,831
SBLAF_TEVAP	Westbound Central Expry	S	2	938.7	0.58	13.3	44	1.3	Variable	10,831
									Total	21,661

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35	15		
Emissions per Vehicle per Hour (g/hour)	1.35761	1.35761		
Emissions per Vehicle per Mile (g/VMT)	0.03879	0.09051		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - NBLAF_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	121	7.53E-04	9	7.12%	771	1.12E-02	17	7.43%	805	1.17E-02
2	0.41%	45	2.78E-04	10	4.37%	474	2.94E-03	18	8.24%	892	1.29E-02
3	0.37%	41	2.52E-04	11	4.65%	504	3.13E-03	19	5.72%	620	3.84E-03
4	0.17%	18	1.14E-04	12	5.89%	638	3.96E-03	20	4.30%	466	2.89E-03
5	0.46%	50	3.09E-04	13	6.17%	668	4.14E-03	21	3.25%	352	2.18E-03
6	0.85%	92	5.70E-04	14	6.05%	656	4.07E-03	22	3.31%	359	2.23E-03
7	3.73%	404	2.51E-03	15	7.06%	764	4.74E-03	23	2.48%	269	1.67E-03
8	7.77%	841	1.22E-02	16	7.19%	779	4.83E-03	24	1.87%	203	1.26E-03
								Total		10,831	

2023 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SBLAF_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	121	7.63E-04	9	7.12%	771	1.13E-02	17	7.43%	805	1.18E-02
2	0.41%	45	2.81E-04	10	4.37%	474	2.98E-03	18	8.24%	892	1.31E-02
3	0.37%	41	2.55E-04	11	4.65%	504	3.17E-03	19	5.72%	620	3.89E-03
4	0.17%	18	1.16E-04	12	5.89%	638	4.01E-03	20	4.30%	466	2.93E-03
5	0.46%	50	3.13E-04	13	6.17%	668	4.20E-03	21	3.25%	352	2.21E-03
6	0.85%	92	5.77E-04	14	6.05%	656	4.12E-03	22	3.31%	359	2.26E-03
7	3.73%	404	2.54E-03	15	7.06%	764	4.80E-03	23	2.48%	269	1.69E-03
8	7.77%	841	1.23E-02	16	7.19%	779	4.89E-03	24	1.87%	203	1.28E-03
								Total		10,831	

Lafayette Data Center, Santa Clara -Roadway Emissions
Lafayette Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NBLAF_FUG	Eastbound Central Expry	N	2	926.6	0.58	13.3	44	1.3	Variable	10,831
SBLAF_FUG	Westbound Central Expry	S	2	938.7	0.58	13.3	44	1.3	Variable	10,831
									Total	21,661

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35	15		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681	0.01681		
Road Dust - Emissions per Vehicle (g/VMT)	0.01486	0.01486		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377	0.03377		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NBLAF_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.12%	121	6.55E-04	9	7.12%	771	4.16E-03	17	7.43%	805	4.35E-03
2	0.41%	45	2.42E-04	10	4.37%	474	2.56E-03	18	8.24%	892	4.82E-03
3	0.37%	41	2.19E-04	11	4.65%	504	2.72E-03	19	5.72%	620	3.35E-03
4	0.17%	18	9.97E-05	12	5.89%	638	3.44E-03	20	4.30%	466	2.52E-03
5	0.46%	50	2.69E-04	13	6.17%	668	3.61E-03	21	3.25%	352	1.90E-03
6	0.85%	92	4.96E-04	14	6.05%	656	3.54E-03	22	3.31%	359	1.94E-03
7	3.73%	404	2.18E-03	15	7.06%	764	4.13E-03	23	2.48%	269	1.45E-03
8	7.77%	841	4.54E-03	16	7.19%	779	4.21E-03	24	1.87%	203	1.10E-03
								Total		10,831	

2023 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SBLAF_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.12%	121	6.64E-04	9	7.12%	771	4.22E-03	17	7.43%	805	4.40E-03
2	0.41%	45	2.45E-04	10	4.37%	474	2.59E-03	18	8.24%	892	4.88E-03
3	0.37%	41	2.22E-04	11	4.65%	504	2.76E-03	19	5.72%	620	3.39E-03
4	0.17%	18	1.01E-04	12	5.89%	638	3.49E-03	20	4.30%	466	2.55E-03
5	0.46%	50	2.73E-04	13	6.17%	668	3.66E-03	21	3.25%	352	1.93E-03
6	0.85%	92	5.02E-04	14	6.05%	656	3.59E-03	22	3.31%	359	1.96E-03
7	3.73%	404	2.21E-03	15	7.06%	764	4.18E-03	23	2.48%	269	1.47E-03
8	7.77%	841	4.60E-03	16	7.19%	779	4.26E-03	24	1.87%	203	1.11E-03
								Total		10,831	

Lafayette Data Center - Lafayette Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
Off-Site Maximum Residential Receptor (1.5 meter receptor height)

Emissions Year	2023
Receptor Information	
Number of Receptors	1
Receptor Height =	1.5 meters above ground level
Receptor distances =	receptor at residential MEI location
Meteorological Conditions	
BAAQMDSan Jose Airport Met Data	2013-2017
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Meteorological Data Years	Concentration (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00132	0.1670	0.2017

Meteorological Data Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	Fugitive PM2.5	Exhaust PM2.5
2013-2017	0.1376	0.1292	0.0084

Lafayette Data Center - Lafayette Street Traffic Maximum Cancer Risks
Off-Site Maximum Residential Receptor (1.5 meter receptor height)
30-Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

Values

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

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
					Annual TAC Conc (ug/m3)						
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
0	2023	0.25	-0.25 - 0*	10	0.0013	0.1670	0.2017	0.018	0.013	0.001	0.03
1	2023	1	1	10	0.0013	0.1670	0.2017	0.22	0.157	0.011	0.38
2	2024	1	2	10	0.0013	0.1670	0.2017	0.22	0.157	0.011	0.38
3	2025	1	3	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
4	2026	1	4	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
5	2027	1	5	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
6	2028	1	6	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
7	2029	1	7	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
8	2030	1	8	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
9	2031	1	9	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
10	2032	1	10	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
11	2033	1	11	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
12	2034	1	12	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
13	2035	1	13	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
14	2036	1	14	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
15	2037	1	15	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
16	2038	1	16	3	0.0013	0.1670	0.2017	0.03	0.025	0.002	0.06
17	2039	1	17	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
18	2040	1	18	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
19	2041	1	19	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
20	2042	1	20	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
21	2043	1	21	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
22	2044	1	22	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
23	2045	1	23	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
24	2046	1	24	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
25	2047	1	25	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
26	2048	1	26	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
27	2049	1	27	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
28	2050	1	28	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
29	2051	1	29	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
30	2052	1	30	1	0.0013	0.1670	0.2017	0.00	0.003	0.000	0.007
Total Increased Cancer Risk			**Total**					0.98	0.710	0.051	**1.74**

* Third trimester of pregnancy