Appendix A: Supplemental Air Quality and GHG Analysis

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M E M O

Date: March 3, 2020

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From: **James A. Reyff & Mimi McNamara**
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RE: Charcot Avenue Extension – San Jose, CA

SUBJECT: Air Quality and Greenhouse Gas Supplemental Analysis for the Charcot Roadway Project
Job#17-229

This memo is an alternative analysis to the air quality technical report for the Charcot Roadway extension that was submitted in June 2019. In December 2019, the Bay Area Air Quality Management District (BAAQMD) submitted a comment letter with concerns that the modeling methodology used in the technical report were not appropriate for the air quality and community risk modeling. Instead of using the Roadway Construction Emissions Model (RCEM) version 8.1.0 for construction emissions modeling and the Caltrans version of the EMissions FACtor (EMFAC) 2014 (CT-EMFAC2014), the Air District recommended the use of the California Emissions Estimator Model (CalEEMod) version 2016.3.2 for construction and the EMission FACtors (EMFAC) model 2017 instead. Even though BAAQMD recommended those modeling tools, the DEIR air quality analysis was done appropriately since RCEM is the recommended model for linear projects like roads per BAAQMD and EMFAC 2017 was not approved by the United States Environmental Protection Agency (U.S. EPA) until August 2019, which was after the submittal of the air quality report. However, to supplement the previous analysis, the project was re-modeled using the models suggested in the BAAQMD comment letter.

Construction Period Emissions

CalEEMod

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to provide a supplemental estimate of emissions from construction of the project. The project land use types

and size, and anticipated construction schedule were input to CalEEMod. The model output from CalEEMod along with construction inputs are included as *Attachment 1*to this memo.

CalEEMod computes annual emissions for construction that are based on the project type, size and acreage. CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The land uses and construction build-out scenario, including equipment list and schedule, were based on information provided by the project applicant. Table 1 lists the project-specific information entered into CalEEMod.

Table 1. CalEEMod Land Use and Construction Inputs

Land Use Size	Type of Land use	Section of Road	Number of Workdays	Hauling Volumes	Asphalt Volumes	Concrete Trucks
2.45 acres, 106,801 sf	Other Asphalt Surfaces	Eastern	55	Export 4,500 cy	1,300 cy	-
2.16 acres, 94,012 sf		Western	75	Export 5,500 cy	1,700 cy	-
0.88 acres, 38,579 sf		Bridge	220	Import 21,000 cy Export 3,580 cy	-	350 round trips

Additionally, the construction equipment worksheet provided included the schedule for each phase. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was provided. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be January 2019 and the project would be built out over a period of approximately 11 months, or 220 construction workdays. It was assumed that construction of all three sections would overlap.

CalEEMod predicted the amount of worker traffic, vendor trips and haul trips. Haul trips were computed by CalEEMod based on the amount of demolition material and excavated dirt that would be hauled from the site. CalEEMod assumes haul trip lengths of 20 miles

Summary of Computed Construction Period Emissions

Annual emissions were predicted using CalEEMod and the estimated 220 construction workdays. Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 2 compares the average daily construction emissions of ROG, NO_x, PM_{10} exhaust, and $PM_{2.5}$ exhaust from the DEIR analysis to the updated emissions. The CalEEMod emissions are lower than the emissions calculated with RCEM version 8.1.0.

Table 2. Comparison of Construction Period Emissions from the Air Quality Report

Scenario	ROG		NO_x		PM_{10} Exhaust		$PM_{2.5}$ Exhaust	
Construction emissions (tons)	*0.2*	0.3	*4.88*	2.8	*0.18*	0.11	*0.14*	0.11
Average daily emissions (pounds/day)[1]	*2.4*	2.3	*44.3*	25.4	*1.6*	1.0	*1.2*	1.0
BAAQMD Thresholds (pounds per day)	*54* lbs.		*54* lbs.		*82* lbs.		*54* lbs.	
Exceed Threshold?	*No*	No	*No*	No	*No*	No	*No*	No
Notes: *DEIR*/Revised Risk Values, [1] Assumes 220 workdays								

Operational Period Emissions

CT-EMFAC 2017

The California Department of Transportation (Caltrans [CT]) CT-EMFAC 2017 Version 1.0.2 model was used to predict vehicle emission rates. The CT-EMFAC 2017 models on-road vehicle emissions for criteria pollutants, mobile source air toxics (MSATs), and carbon dioxide (CO_2). The tool's underlying data are based on CARB's EMFAC2017 on-road emissions model. The model computes MSATs based on CARB-supplied/EPA-supplied MSAT speciation factors. The model also accounts for re entrained roadway dust using methods employed by CARB. Inputs to the model include region (i.e., Santa Clara County), default traffic mix assigned by CT-EMFAC2017 for that county, year of analysis and season.

The same methodology applied in the DEIR analysis was used for this analysis. This analysis also evaluated the existing year (using 2020 emission rates), opening year (2025) and the horizon year (2040) conditions. Emission rates were based on annual conditions.

Summary of Computed Operational Period Emissions

The predicted daily traffic conditions were combined with CT-EMFAC2017 emissions factors to predict emission in pounds per day. Table 3 reports the predicted air pollutant emission in terms of average daily emissions for both the No-Project and Project scenarios for the three analysis years (i.e., existing or 2020, 2025 and 2040). Table 3 compares the change in emissions from the previous report with the updated emissions. *Attachment 2* to this report includes the traffic and CT-EMFAC2017 model output files for the proposed project emission factors and modeling calculations.

Table 3. Comparison of Area-Wide Daily Project Operational Emissions from the Air Quality Report in pounds per day

Scenario	ROG		NO_x		CO		PM_{10} Total*		$PM_{2.5}$ Total*	
Existing	*752*	751	*2,249*	2,276	*8,505*	9,327	*1,660*	1,666	*377*	383
Existing Plus Project	*728*	726	*2,209*	2,229	*8,349*	9,160	*1,655*	1,661	*375*	381
Increase	*-25*	-24	*-40*	-47	*-156*	-167	*-5*	-5	*-2*	-2
2025 No Project	*1,023*	936	*2,234*	2,310	*8,935*	9,1190	*2,026*	2,018	*506*	499
2025 Project	*1,002*	917	*2,172*	2,274	*8,851*	9,040	*2,024*	2,016	*505*	498
2025 Project Increase	*-21*	-19	*-61*	-36	*-84*	-80	*-2*	-2	*-1*	-1
2040 No Project	*1,102*	959	*3,365*	3,085	*8,065*	9,122	*2,553*	2,549	*567*	564
2040 Project	*1,088*	947	*3,302*	3,064	*8,030*	9,088	*2,558*	2,554	*568*	565
2040 Project Increase	*-14*	-12	*-63*	-22	*-35*	-34	*+5*	-5	*+1*	-1
BAAQMD Thresholds (pounds per day)[1]	*54* lbs.		*54* lbs.		--		*82* lbs.		*54* lbs.	
Exceed Threshold?	*No*	No	*No*	No	--		*No*	No	*No*	No

Notes: *DEIR*/Revised Risk Values, [1]The BAAQMD emission thresholds are for land-use type project and are provided in this table for informational and comparative purposes. *Includes entrained roadway dust along with tire and brake wear.

Community Risks from Toxic Air Containments (TAC)

The community risk evaluation was also assessed for the project using the construction emissions computed using CalEEMod and the roadway emissions using CT-EMFAC 2017. Attachment 3 includes the construction and operation emission calculations, and the source information used in the modeling and the cancer risk calculations.

Community Risks from Project Construction Activity

The community risks and hazards (i.e. cancer risk, $PM_{2.5}$, and Hazard Index [HI]) were re-computed using the CalEEMod emissions for diesel particulate matter (i.e. PM_{10} exhaust) and fugitive $PM_{2.5}$. The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences and school) in the vicinity of the project construction area. The same construction area sources, meteorological data, and sensitive receptors used in the DEIR air quality report were also used in this supplemental analysis.[1]

To calculate the construction-related cancer risks for children at the Orchard School an updated method was used that modified the method used in the DEIR to be more in alignment with BAAQMD's health risk assessment guidelines. For the DEIR, the school child cancer risks were calculated using BAAMD methods for residential child exposures, but with an increased daily breathing rate. A 95th percentile daily child breathing rate was used instead of the BAAQMD recommended 80th percentile daily child breathing rate for residential child exposures. Additionally, a 9-year exposure period was used and modeled annual TAC concentrations from project construction were used. The modeled annual TAC concentrations for construction were based on emissions that would occur for nine hours per day. The students were assumed to be exposed to the modeled annual concentrations for 350 days per year rather than a reduced number of days when the school would be in session (BAAQMD recommends a 180 day per year exposure period for school children).

This updated method for calculating school child cancer risks uses a 95th percentile eight-hour child breathing rate for moderate intensity activities and is recommended by the District for children at schools. This breathing rate was used along with the modeled annual TAC concentrations and assuming the exposure would occur for 180 days per year at the school site, as recommended by BAAQMD. As described above, the modeled annual TAC concentrations for project construction activities were based on emissions occurring for nine hour per day (i.e., from 7 am to 4 pm). As such, and per BAAQMD recommendation, the annual concentrations were adjusted to account for the average concentration the students would be breathing during the school day. Therefore, the long-term annual concentrations from construction emissions were adjusted so it is based on the hours when the students are present while construction activities occur.[2]

[1] It was noted that two potential sensitive receptors at 1942 and 1954 Oakland Road were not included in the DEIR analysis. These residential receptors were included in this analysis.

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

Predicted construction-related risks based on CalEEMod emissions are shown in Table 4 and are compared to the risks reported in the DEIR air quality analysis (grey italic values). For the residential maximally exposed individual (MEI), the cancer risk, annual $PM_{2.5}$, and HI value based on CalEEMod emissions are lower than the original reported maximum risk values for construction. For the Orchard School, the annual $PM_{2.5}$ and HI value are lower than the reported risks, and the cancer risk is slightly higher by 0.1 per million. The results in Table 4 show that if emissions from CalEEMod were used in the DEIR analysis, the risk values would have been less than the risk values based on RCEM (except for the cancer risk at the Orchard School). It should be noted that both CalEEMod and RCEM use the same database of off-road (construction equipment) emission factors; therefore, only slight differences were between the two analyses were anticipated. The risk values computed using this analysis do not exceed the BAAQMD single-source thresholds.

Table 4. Comparison of the Maximum Community Risks from Project Construction Activities from the Air Quality Report

Location and Exposure Type		Cancer Risk (per million)		Annual $PM_{2.5}$ ($\mu g/m^3$)[1]		Chronic Hazard Index	
Maximum Residential	Unmitigated	*4.5*	3.2	*0.10*	0.08	*0.01*	0.01
	Exceed Threshold?	*No*		*No*		*No*	
Orchard School District (Child)	Unmitigated	*1.0*	1.1	*0.17*	0.15	*0.01*	0.01
	Exceed Threshold?	*No*		*No*		*No*	
BAAQMD Single-Source Threshold		***>10.0***		***>0.3***		***>1.0***	

Notes: *DEIR*/Revised Risk Values [1]The annual $PM_{2.5}$ concentration is the sum of the DPM and fugitive $PM_{2.5}$ concentrations.

Community Risks from Project Operation – Charcot Avenue and Oakland Road

For this analysis, Charcot Avenue was still assumed to be constructed and operational by 2020 and would contribute to traffic on Oakland Road. The CT-EMFAC2017 model was used to develop vehicle emission factors and emissions for the years 2020, 2025, and 2040. Emission factors for DPM, exhaust $PM_{2.5}$, exhaust total organic gas (TOG), evaporative TOG, $PM_{2.5}$ from tire and brake wear, and entrained roadway $PM_{2.5}$ dust were computed using the CT-EMFAC2017 model. Default EMFAC2017 fleet mix for Santa Clara County was used along with default California Air Resource Board (CARB) road surface silt loading dust parameters and default CARB precipitation correction. The road type chosen was major/collector road.[3] Traffic for Charcot Avenue and Oakland Road was based on the traffic increase reported by Hexagon.[4] The community risks from project operation were calculated in the same manner described in the DEIR air quality report. The community risk calculations for residential and school child exposures used the annual modeled TAC concentrations from roadways (Charcot Avenue and Oakland Road) which were based on emissions that would occur for 24 hours per day. School child cancer risk were calculated using the updated methods described above, with the exception that the roadway TAC concentrations do not require any adjustment since the emissions from roadways occur 24 hours per day.

3 A Major/Collector road type is a principal arterial or minor arterial road in urban areas.
4 Hexagon Transportation Consultants. 2018. Memorandum to Natalina Bernardi & Chiaming Chi, BKF Engineers from Robert Del Rio, November 12.

Table 5 shows that the community risks (based on CT-EMFAC2017) from increased project traffic trips on Charcot Avenue and Oakland Road would be similar or slightly lower than the risk values reported in the DEIR air quality report. The revised cancer risks, annual $PM_{2.5}$ concentration, and HI value are also below the BAAQMD single-source thresholds. The conclusion from the DEIR remain the same regarding the project's impacts to community risk levels based on future traffic on Charcot Avenue and Oakland Road.

Table 5. Community Risks from Charcot Ave. and Oakland Rd. Traffic

Location and Exposure Type	Cancer Risk (per million)		Annual $PM_{2.5}$ ($\mu g/m^3$)[1]		Chronic Hazard Index	
Residential Receptor	*5.3*	4.9	*0.19*	0.19	*<0.1*	<0.1
Exceed Threshold?	*No*		*No*		*No*	
Orchard School (Child)	*1.0*	1.0	*0.26*	0.26	*<0.1*	<0.1
Exceed Threshold?	*No*		*No*		*No*	
BAAQMD Single-Source Threshold	***>10.0***		***>0.3***		***>1.0***	

Notes: *DEIR*/Revised Risk Values [1]The annual $PM_{2.5}$ concentration is the sum of the DPM and fugitive $PM_{2.5}$ concentrations.

Truck Percentages

The Ct-EMFAC2017 model used for this analysis used the county default truck percentages that were 6.1 percent in 2020. The truck default percentage is consistent with truck traffic data reported on I-880, which is the only roadway in the area that has truck traffic counts reported. Truck percentage on I-880 in the area ranges from 4.3 to 5.7 percent. The 6.1 percent truck traffic percentage was assumed to be appropriate. Subsequent to the preparation of the DEIR Air Quality Report, the traffic analysis produced estimates for total truck traffic percentages on the roadways. The portion of truck traffic estimated for Charcot Avenue was seven percent. Assuming the seven-percent estimate is more accurate, and all cancer risk is from trucks, the contribution of cancer risk from Charcot Avenue traffic to the MEI would increase by up to 1.1 chances per million for the residential receptor to 6.0. At Orchard School, the child cancer risk would increase by about 0.15 chance per million to 1.2 chances per million. These are upper bound estimates since they assume that the contribution from trucks increases without the decrease from non-truck traffic.

Summary of Project-Related Community Risks at MEIs

As stated in the DEIR air quality report, the cumulative project risk impacts are the combination of construction and operation (i.e. roadways) activities. The cumulative residential project cancer risks were computed for a 30-year exposure period by adding the construction cancer risks for a third trimester and infant during the first exposure year (2019) to the cancer risks from project operational conditions for the roadways (Charcot Avenue and Oakland Road) over a 29-year period (2020-2048) comprised of one year of infant exposure, 14 years of child exposure, and 14 years of adult exposure. These cumulative residential cancer risks were calculated for all residential receptor locations and the maximum combined construction and operation residential cancer risk identified.

For the school child cancer risks, a nine-year child exposure duration was used. The cumulative school child cancer risks were computed for a nine-year exposure period by adding the

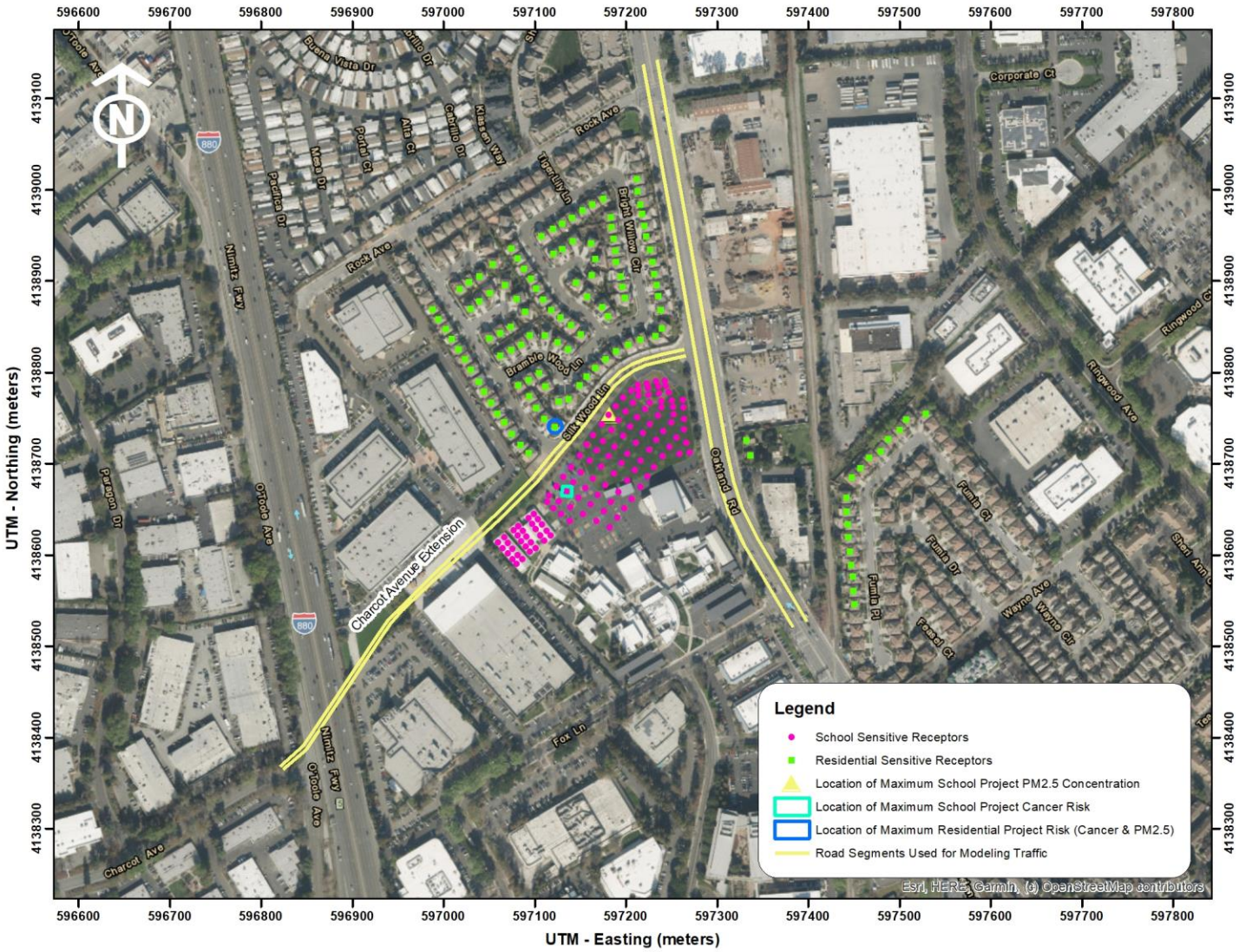
construction cancer risks for the first child exposure year (2019) to the cancer risks from project operational conditions for the roadways (Charcot Avenue and Oakland Road) over the remaining 8 years of child exposure (2020-2027). The school child cancer risks were calculated using the updated methods described above. These cumulative school child cancer risks were calculated for all school receptor locations and the maximum combined construction and operation school child cancer risk identified.

Results of this assessment are shown in Table 6. The total project risk values, which were based on CalEEMod emissions and updated health risk calculation methodology for the school students, are slightly lower or similar to the results from the DEIR analysis. At the residential project MEI, the increased cancer risk is lower than the cancer risk value reported in the DEIR analysis, while the annual $PM_{2.5}$ concentration, and HI value are the same. At the school project MEI, the increased cancer risk is higher by 0.1 per million but the annual $PM_{2.5}$ concentration and HI value are also the same. None of these risk values exceed the BAAQMD single-source significance thresholds. Figure 1 identifies the project MEI locations. The location of the maximum residential cancer risk and $PM_{2.5}$ concentration did not change with this analysis nor did the location of the maximum $PM_{2.5}$ concentration for the school MEI. However, the location of the maximum cancer risk for the school project MEI moved approximately 50 feet southwest from the MEI identified in the DEIR analysis.

Table 6. Comparison of Total Project (Construction and Operation) Risk Impacts at the Offsite MEIs (Residential and School) – ***Grey italic values from DEIR analysis for comparison with newly computed values.***

Source	Cancer Risk (per million)		Annual $PM_{2.5}$ ($\mu g/m^3$)		Hazard Index	
Project Risk – Residential MEI	*8.1*	6.4	*0.19*	0.19	*<0.1*	<0.1
Project Risk – Student MEI	*1.6*	1.7	*0.26*	0.26	*<0.1*	<0.1
BAAQMD Single-Source Threshold	***>10.0***		***>0.3***		***>1.0***	
Exceed Threshold?	*No/No*		*No/No*		*No/No*	
Notes: *DEIR*/Revised Risk Values						

Figure 1. Updated Maximum TAC Impacts from Combined Construction and Project Traffic on Charcot Avenue and Oakland Road Segments



Cumulative Community Risks from all TAC Sources at Project MEIs

The same TAC sources identified in the DEIR report are listed in Table 7. Neither the methodology used to calculate the risks, nor the distances used for adjustment were changed because the distances were approximate, and the updated school project MEI location has not significantly changed. Therefore, the risk impacts for nearby existing TAC sources were not updated.

Note that there was a comment received that the cumulative analysis did not include emissions associated with the Union Pacific owned railroad tracks located 450 feet east of the project. This is an infrequently used rail line that includes a maximum of two switching trains per day[5]. The associated cancer risks, annual $PM_{2.5}$ concentrations and hazard index are considered negligible at the MEI receptors that are 900 feet away from this source.

As shown in Table 7, the updated cumulative cancer risks would be slightly higher at the school MEI location by 0.1 per million and the cumulative cancer risk at the residential MEI would be slightly lower by 1.7 per million. The annual $PM_{2.5}$ concentrations and HI values for both sets of MEIs do not change. The updated risk values for both MEIs are also below the BAAQMD cumulative source threshold for risks and hazards.

Table 7. Combined Community Risk Impacts at Project MEIs

Source	Maximum Cancer Risk (per million)		Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)		Maximum Hazard Index	
Project Impacts to Off-Site Receptors (at MEI)						
Residential (Infant Exposure)	*8.1*	6.4	*0.19*	0.19	*<0.1*	<0.1
Champions/Orchard School (Child Exposure)	*1.6*	1.7	*0.26*	0.26	*<0.1*	<0.1
Cumulative Impacts						
Oakland Road (ADT 41,450)						
At 500-ft West for Residential MEI	2.3		0.06		<0.03	
At 400-ft West for School MEI	0.5		0.07		<0.03	
Interstate 880 (Highway Screening Calculator)						
At 800-ft east for Residential MEI	19.9		0.12		0.01	
At 800-ft east for School MEI	2.8		0.12		0.01	
Plant #20285 (Southwest Offset Printing Co, Inc)	-		-		0.07	
Plant #6919 (Applied Anodize, Inc)	<0.1		0.01		<0.01	
Plant #20442 (Epiphotonics Corporation)	-		<0.01		<0.01	
Plant #1618 (Sanmina Corporation)	-		-		0.20	
Plant #4020 (SFPP, Oil & Natural Gas Source)	1.5		-		0.75	
Cumulative Total						
Residential MEI	*31.9*	30.2	*0.39*	0.39	*<1.18*	<1.18
School MEI	*6.5*	6.6	*0.47*	0.47	*<1.18*	<1.18
BAAQMD Threshold – Cumulative Sources	***>100***		***>0.8***		***>10.0***	
Exceed Threshold?	***No***		***No***		***No***	

Notes: *DEIR*/Revised Risk Values

[5] U. S. DOT Crossing Inventory Form for Crossing 750088U at Old Oakland Road in San Jose. Accessed at https://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Xingqryloc.aspx on Feb. 5, 2020.

Greenhouse Gas Emissions

GHG emissions were also recomputed for the project using CalEEMod and CT-EMFAC2017.

Construction Greenhouse Gas Emissions (Temporary Emissions)

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Currently, neither City of San Jose nor BAAQMD have adopted GHG significance thresholds that apply to construction projects. For informational purposes, GHG emissions from project construction are estimated to be 510 metric tons of CO_2e over the course of the entire construction project based on the CalEEMod modeling described above.

Operational Greenhouse Gas Emissions (Ongoing Emissions)

The GHG emissions were computed using CT-EMFAC2017 in the same manner as the operational period emissions. Emissions rates are based on VMT, speed and delay time. The CO_2e emissions were computed for daily conditions. These were assumed to occur 365 days per year to compute annual emissions that are shown in Table 8.

Table 8. CO_2e Emissions in Metric Tons per Year

Existing	Existing + Project		2025 No-Build		2025 Build		2040 No-Build		2040 Build	
524,765	513,870		*698,812*	637,610	*688,980*	629,448	*847,438*	749,347	*841,842*	745,289
Project Difference	(10,896)				*(9,832)*	(8,161)			*(5,596)*	(4,058)
	-0.34%				*-0.23%*	-0.21%			*-0.11%*	-0.09%
Note: *DEIR*/Revised Risk Values, "Existing" and Existing + Project" from DEIR analysis corrected for data entry error.										

Attachments

Attachment 1: CalEEMod Output for Construction Modeling
Attachment 2: Summary of CT-EMFAC2017 Modeling Results – Criteria Air Pollutants and GHG
Attachment 3: Summary of Health Risk Computations and Dispersion Modeling

Attachment 1: CalEEMod Output for Construction Modeling

Project Name: Charcot Avenue (EAST Alt 1) - Roadway (55 Work Days)

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size _____ Dwelling Units _____ total project acres disturbed
_____ s.f. residential
_____ s.f. retail
_____ s.f. office/commercial
_____ s.f. other, specify:
_____ s.f. parking garage _____ spaces
_____ s.f. parking lot _____ spaces

Construction Hours am to pm

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Grading / Excavation	**Start Date:**		**Total phase:**	**15**			
		End Date:						**Soil Hauling Volume**
2	Excavators	162	0.38	6	7	2.80	84	Export volume = 4,500 cubic yards?
2	Graders	174	0.41	6	7	2.80	84	Import volume = ? cubic yards?
4	Rubber Tired Dozers	255	0.4	6	5	2.00	120	
4	Tractors/Loaders/Backhoes	97	0.37	6	5	2.00	120	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**		**Total phase:**	**10**			
	Drainage	**End Date:**						
4	Tractor/Loader/Backhoe	97	0.37	8	5	4.00	160	
4	Excavators	162	0.38	8	5	4.00	160	
2	Forklifts	89	0.2	4	2	0.80	16	
2	Cement and Mortar Mixers	9	0.56	8	2	0.53	32	
	Other Equipment?							
	Paving & Roadway Items	**Start Date:**		**Total phase:**	**30**			
		Start Date:						
2	Cement and Mortar Mixers	9	0.56	4	4	0.53	32	
2	Pavers	125	0.42	6	7	1.40	84	
2	Paving Equipment	130	0.36	6	7	1.40	84	**Asphalt? 1300 cubic yards or ____ round trips?**
2	Rollers	80	0.38	6	7	1.40	84	
4	Tractors/Loaders/Backhoes	97	0.37	6	7	1.40	168	
10	Trucks: Hauling & Equipment	150	0.3	8	25	6.67	2000	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab.
Equipment listed in this sheet is to provide an example of inputs
It is assumed that water trucks would be used during grading
Add or subtract phases and equipment, as appropriate
Modify horepower or load factor, as appropriate

Project Name: Charcot Avenue (WEST) - Roadway (75 Work Days)

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size _____ Dwelling Units _____ total project acres disturbed

_____ s.f. residential

_____ s.f. retail

_____ s.f. office/commercial

_____ s.f. other, specify:

_____ s.f. parking garage _____ spaces

_____ s.f. parking lot _____ spaces

Construction Hours am to pm

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Grading / Excavation	**Start Date:**		**Total phase:**	**17**			
		End Date:						**Soil Hauling Volume**
2	Excavators	162	0.38	6	8	2.82	96	Export volume = 5,500 cubic yards?
2	Graders	174	0.41	6	8	2.82	96	Import volume = ? cubic yards?
4	Rubber Tired Dozers	255	0.4	6	6	2.12	144	
4	Tractors/Loaders/Backhoes	97	0.37	6	6	2.12	144	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**		**Total phase:**	**13**			
	Drainage	**End Date:**						
4	Tractor/Loader/Backhoe	97	0.37	8	7	4.31	224	
4	Excavators	162	0.38	8	7	4.31	224	
2	Forklifts	89	0.2	4	3	0.92	24	
2	Cement and Mortar Mixers	9	0.56	8	3	0.53	48	
	Other Equipment?							
	Paving & Roadway Items	**Start Date:**		**Total phase:**	**45**			
		Start Date:	5/6/2021					
2	Cement and Mortar Mixers	9	0.56	4	6	0.53	48	
2	Pavers	125	0.42	6	10	1.33	120	
2	Paving Equipment	130	0.36	6	10	1.33	120	**Asphalt? 1700 cubic yards or ____ round trips?**
2	Rollers	80	0.38	6	10	1.33	120	
4	Tractors/Loaders/Backhoes	97	0.37	6	10	1.33	240	
10	Trucks: Hauling & Equipment	150	0.3	8	35	6.22	2800	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab.
Equipment listed in this sheet is to provide an example of inputs
It is assumed that water trucks would be used during grading
Add or subtract phases and equipment, as appropriate
Modify horepower or load factor, as appropriate

Project Name: Charcot Avenue Overcrossing
Bridge Construction

Complete ALL Portions in Yellow

See Equipment Types TAB for type, horsepower and load factor

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg Hrs/Day	Annual Hours	Comments
		Start Date:						**220 Working Days Assumed for Bridge Construction**
		End Date:			**220**			
1	Tractors/Loaders/Backhoes	97	0.3685	8	80	2.9	640	
1	Cranes	231	0.2881	3	100	1.4	300	
1	Bore/Drill Rigs	221	0.5	8	40	1.5	320	
2	Generator Sets	84	0.4958	8	200	7.3	3200	
1	Welders	46	0.3015	4	20	0.4	80	**Soil Hauling Volume**
2	Air Compressors	78	0.32	2	40	0.4	160	Export volume = 3,580 cubic yards?
1	Aerial Lift	63	0.3	2	60	0.5	120	Import volume = 21,000 cubic yards?
2	Trucks:Hauling tools, materials, equi	150	0.3	8	200	7.3	3200	Concrete Trucks? 530 Total Round-Trips
2	Concrete Pumper	84	0.74	8	50	1.8	800	
2	Concrete Mixer Trucks (Diesel)	?	?	8	70	2.5	65	

Equipment types listed in "Equipment Types" worksheet tab.
Equipment listed in this sheet is to provide an example of inputs
It is assumed that water trucks would be used during grading
Add or subtract equipment, as appropriate
Modify horepower or load factor, as appropriate

Charcot Road Extension - Bridge AQ Model (Rev 2020) - Santa Clara County, Annual

Charcot Road Extension - Bridge AQ Model (Rev 2020)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.88	Acre	0.88	38,578.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 290 rate

Land Use - Bridge portion of Charcot Extension, Approximtely 0.88 acres, sqft matches AERMOD estimate

Construction Phase - Based on schedule from Construction Worksheet

Off-road Equipment - Bridge construction equipment

Off-road Equipment - Applicant equipment usage

Trips and VMT - 530 concrete truck haul trips round-trip --> approximtely 1,060 trips + grading haul trips

Grading - Import 21,000-cy and export 3,580-cy of soil

Construction Off-road Equipment Mitigation - Tier 3 DPF 3 mitigation

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	2.00	220.00
tblConstructionPhase	PhaseEndDate	1/2/2019	11/4/2019
tblGrading	MaterialExported	0.00	3,580.00
tblGrading	MaterialImported	0.00	21,000.00
tblLandUse	LandUseSquareFeet	38,332.80	38,578.80
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	2.90
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	3,073.00	4,132.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

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

2019	0.1734	1.9249	1.3706	4.03E-03	0.0608	0.0756	0.1364	0.0163	0.0744	0.0907	0	366.5646	366.5646	0.0301	0	367.317
Maximum	**0.1734**	**1.9249**	**1.3706**	**4.03E-03**	**0.0608**	**0.0756**	**0.1364**	**0.0163**	**0.0744**	**0.0907**	**0**	**366.5646**	**366.5646**	**0.0301**	**0**	**367.317**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1734	1.9249	1.3706	4.0300e-003	0.0608	0.0756	0.1364	0.0163	0.0744	0.0907	0.0000	366.5644	366.5644	0.0301	0.0000	367.3168
Maximum	**0.1734**	**1.9249**	**1.3706**	**4.0300e-003**	**0.0608**	**0.0756**	**0.1364**	**0.0163**	**0.0744**	**0.0907**	**0.0000**	**366.5644**	**366.5644**	**0.0301**	**0.0000**	**367.3168**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.6146	0.6146
2	4-1-2019	6-30-2019	0.6159	0.6159
3	7-1-2019	9-30-2019	0.6226	0.6226
		Highest	0.6226	0.6226

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.3000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3000e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.3000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3000e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	11/4/2019	5	220	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.88

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Cranes	1	1.40	231	0.29
Grading	Bore/Drill Rigs	1	1.50	221	0.50
Grading	Generator Sets	2	7.30	84	0.74
Grading	Welders	1	0.40	46	0.45
Grading	Air Compressors	2	0.40	78	0.48
Grading	Aerial Lifts	1	0.50	63	0.31
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	2.90	97	0.37
Grading	Pumps	2	1.80	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	11	28.00	0.00	4,132.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3900e-003	0.0000	1.3900e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1434	1.2733	1.1575	2.1400e-003		0.0729	0.0729		0.0719	0.0719	0.0000	185.7252	185.7252	0.0221	0.0000	186.2764
Total	**0.1434**	**1.2733**	**1.1575**	**2.1400e-003**	**1.3900e-003**	**0.0729**	**0.0743**	**2.1000e-004**	**0.0719**	**0.0721**	**0.0000**	**185.7252**	**185.7252**	**0.0221**	**0.0000**	**186.2764**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0188	0.6432	0.1271	1.6500e-003	0.0350	2.4700e-003	0.0375	9.6300e-003	2.3600e-003	0.0120	0.0000	159.2152	159.2152	7.4600e-003	0.0000	159.4017
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0112	8.3300e-003	0.0860	2.4000e-004	0.0244	1.6000e-004	0.0246	6.5000e-003	1.5000e-004	6.6500e-003	0.0000	21.6242	21.6242	5.9000e-004	0.0000	21.6389
Total	**0.0300**	**0.6516**	**0.2131**	**1.8900e-003**	**0.0595**	**2.6300e-003**	**0.0621**	**0.0161**	**2.5100e-003**	**0.0186**	**0.0000**	**180.8394**	**180.8394**	**8.0500e-003**	**0.0000**	**181.0406**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3900e-003	0.0000	1.3900e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1434	1.2733	1.1575	2.1400e-003		0.0729	0.0729		0.0719	0.0719	0.0000	185.7250	185.7250	0.0221	0.0000	186.2761
Total	**0.1434**	**1.2733**	**1.1575**	**2.1400e-003**	**1.3900e-003**	**0.0729**	**0.0743**	**2.1000e-004**	**0.0719**	**0.0721**	**0.0000**	**185.7250**	**185.7250**	**0.0221**	**0.0000**	**186.2761**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0188	0.6432	0.1271	1.6500e-003	0.0350	2.4700e-003	0.0375	9.6300e-003	2.3600e-003	0.0120	0.0000	159.2152	159.2152	7.4600e-003	0.0000	159.4017
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0112	8.3300e-003	0.0860	2.4000e-004	0.0244	1.6000e-004	0.0246	6.5000e-003	1.5000e-004	6.6500e-003	0.0000	21.6242	21.6242	5.9000e-004	0.0000	21.6389
Total	**0.0300**	**0.6516**	**0.2131**	**1.8900e-003**	**0.0595**	**2.6300e-003**	**0.0621**	**0.0161**	**2.5100e-003**	**0.0186**	**0.0000**	**180.8394**	**180.8394**	**8.0500e-003**	**0.0000**	**181.0406**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.616749	0.035330	0.181430	0.103378	0.013121	0.005016	0.012828	0.021913	0.002183	0.001508	0.005219	0.000634	0.000691

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

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

Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.3000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	3.3000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**3.2900e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**3.2900e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Charcot Road Extension - Bridge TAC Model (Rev 2020) - Santa Clara County, Annual

Charcot Road Extension - Bridge TAC Model (Rev 2020)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.88	Acre	0.88	38,578.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 290 rate

Land Use - Bridge portion of Charcot Extension, Approximtely 0.88 acres, sqft matches AERMOD estimate

Construction Phase - Based on schedule from Construction Worksheet

Off-road Equipment - Bridge construction equipment

Off-road Equipment - Applicant equipment usage

Trips and VMT - 530 concrete truck haul trips round-trip --> approximtely 1,060 trips + grading haul trips, TAC trip length of 1 mile for localized air emissions

Grading - Import 21,000-cy and export 3,580-cy of soil

Construction Off-road Equipment Mitigation - Tier 3 DPF 3 mitigation

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	PhaseEndDate	1/2/2019	11/4/2019
tblLandUse	LandUseSquareFeet	38,332.80	38,578.80
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	4,132.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.6579	25.2915	4.9162	0.0318	0.1378	0.0900	0.2278	0.0653	0.0859	0.1512	0.0000	3,060.8565	3,060.8565	0.3660	0.0000	3,070.0062
Maximum	**0.6579**	**25.2915**	**4.9162**	**0.0318**	**0.1378**	**0.0900**	**0.2278**	**0.0653**	**0.0859**	**0.1512**	**0.0000**	**3,060.8565**	**3,060.8565**	**0.3660**	**0.0000**	**3,070.0062**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.6579	25.2915	4.9162	0.0318	0.1378	0.0900	0.2278	0.0653	0.0859	0.1512	0.0000	3,060.8564	3,060.8564	0.3660	0.0000	3,070.0060

Maximum	**0.6579**	**25.2915**	**4.9162**	**0.0318**	**0.1378**	**0.0900**	**0.2278**	**0.0653**	**0.0859**	**0.1512**	**0.0000**	**3,060.8564**	**3,060.8564**	**0.3660**	**0.0000**	**3,070.0060**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	7.4565	7.4565
2	**4-1-2019**	**6-30-2019**	7.7376	7.7376
3	**7-1-2019**	**9-30-2019**	7.8226	7.8226
		Highest	7.8226	7.8226

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	11/4/2019	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.88

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	10.00	0.00	4,132.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0828	0.0000	0.0828	0.0455	0.0000	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1048	0.9464	0.8461	1.3200e-003		0.0591	0.0591		0.0564	0.0564	0.0000	115.7226	115.7226	0.0221	0.0000	116.2742
Total	**0.1048**	**0.9464**	**0.8461**	**1.3200e-003**	**0.0828**	**0.0591**	**0.1419**	**0.0455**	**0.0564**	**0.1019**	**0.0000**	**115.7226**	**115.7226**	**0.0221**	**0.0000**	**116.2742**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.5518	24.3444	4.0620	0.0305	0.0542	0.0309	0.0851	0.0195	0.0295	0.0491	0.0000	2,944.2112	2,944.2112	0.3439	0.0000	2,952.8082
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	6.4000e-004	8.1300e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.9227	0.9227	4.0000e-005	0.0000	0.9238

Total	**0.5531**	**24.3451**	**4.0701**	**0.0305**	**0.0550**	**0.0309**	**0.0859**	**0.0198**	**0.0295**	**0.0493**	**0.0000**	**2,945.1339**	**2,945.1339**	**0.3439**	**0.0000**	**2,953.7320**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0828	0.0000	0.0828	0.0455	0.0000	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1048	0.9464	0.8461	1.3200e-003		0.0591	0.0591		0.0564	0.0564	0.0000	115.7224	115.7224	0.0221	0.0000	116.2740
Total	**0.1048**	**0.9464**	**0.8461**	**1.3200e-003**	**0.0828**	**0.0591**	**0.1419**	**0.0455**	**0.0564**	**0.1019**	**0.0000**	**115.7224**	**115.7224**	**0.0221**	**0.0000**	**116.2740**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.5518	24.3444	4.0620	0.0305	0.0542	0.0309	0.0851	0.0195	0.0295	0.0491	0.0000	2,944.2112	2,944.2112	0.3439	0.0000	2,952.8082
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	6.4000e-004	8.1300e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.9227	0.9227	4.0000e-005	0.0000	0.9238
Total	**0.5531**	**24.3451**	**4.0701**	**0.0305**	**0.0550**	**0.0309**	**0.0859**	**0.0198**	**0.0295**	**0.0493**	**0.0000**	**2,945.1339**	**2,945.1339**	**0.3439**	**0.0000**	**2,953.7320**

Charcot Road Extension - East Lane AQ Model (Rev 2020) - Santa Clara County, Annual

Charcot Road Extension - East Lane AQ Model (Rev 2020)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.45	Acre	2.45	106,801.10	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 290 rate

Land Use - East 4 Lane Portion of Charcot Extension, Approximtely 2.45 acres, sqft matches AERMOD estimate

Construction Phase - Based on schedule from Construction Worksheet

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Trips and VMT - 1300-cy of asphalt hauled --> approximately 260 one-way trips

Grading - Export 4,500-cy of soil

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	6.00	15.00
tblConstructionPhase	NumDays	10.00	30.00
tblGrading	MaterialExported	0.00	4,500.00
tblLandUse	LandUseSquareFeet	106,722.00	106,801.10
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.50
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	1.40
tblOffRoadEquipment	UsageHours	8.00	1.40
tblOffRoadEquipment	UsageHours	8.00	1.40
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.40
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	0.00	260.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

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

2019	0.0351	0.3858	0.2412	6.70E-04	0.0605	0.0146	0.0751	0.0285	0.0135	0.042	0	62.3514	62.3514	0.0107	0	62.6191
Maximum	**0.0351**	**0.3858**	**0.2412**	**6.70E-04**	**0.0605**	**0.0146**	**0.0751**	**0.0285**	**0.0135**	**0.042**	**0**	**62.3514**	**62.3514**	**0.0107**	**0**	**62.6191**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0351	0.3858	0.2412	6.7000e-004	0.0605	0.0146	0.0751	0.0285	0.0135	0.0420	0.0000	62.3514	62.3514	0.0107	0.0000	62.6190
Maximum	**0.0351**	**0.3858**	**0.2412**	**6.7000e-004**	**0.0605**	**0.0146**	**0.0751**	**0.0285**	**0.0135**	**0.0420**	**0.0000**	**62.3514**	**62.3514**	**0.0107**	**0.0000**	**62.6190**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.4219	0.4219
		Highest	0.4219	0.4219

2.2 Overall Operational

Unmitigated Operational

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

Area	9.1300e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1300e-003**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.1300e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1300e-003**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/21/2019	5	15	
2	Trenching/Foundation	Trenching	1/22/2019	2/4/2019	5	10	
3	Paving	Paving	2/5/2019	3/18/2019	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.25

Acres of Paving: 2.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	2.80	158	0.38
Grading	Graders	2	2.80	187	0.41
Grading	Rubber Tired Dozers	4	2.00	247	0.40
Grading	Tractors/Loaders/Backhoes	4	2.00	97	0.37
Trenching/Foundation	Cement and Mortar Mixers	2	0.50	9	0.56
Trenching/Foundation	Excavators	4	4.00	158	0.38
Trenching/Foundation	Forklifts	2	0.80	89	0.20
Trenching/Foundation	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Paving	Cement and Mortar Mixers	2	0.50	9	0.56
Paving	Pavers	2	1.40	130	0.42
Paving	Paving Equipment	2	1.40	132	0.36
Paving	Rollers	2	1.40	80	0.38
Paving	Tractors/Loaders/Backhoes	4	1.40	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

Grading	12	30.00	0.00	445.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching/Foundation	12	30.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	260.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0480	0.0000	0.0480	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.1567	0.0762	1.5000e-004		7.3700e-003	7.3700e-003		6.7800e-003	6.7800e-003	0.0000	13.4111	13.4111	4.2400e-003	0.0000	13.5172
Total	**0.0142**	**0.1567**	**0.0762**	**1.5000e-004**	**0.0480**	**7.3700e-003**	**0.0553**	**0.0251**	**6.7800e-003**	**0.0319**	**0.0000**	**13.4111**	**13.4111**	**4.2400e-003**	**0.0000**	**13.5172**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0200e-003	0.0693	0.0137	1.8000e-004	3.7700e-003	2.7000e-004	4.0400e-003	1.0400e-003	2.5000e-004	1.2900e-003	0.0000	17.1469	17.1469	8.0000e-004	0.0000	17.1669
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	6.1000e-004	6.2900e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.8000e-003	4.7000e-004	1.0000e-005	4.9000e-004	0.0000	1.5797	1.5797	4.0000e-005	0.0000	1.5808
Total	**2.8400e-003**	**0.0699**	**0.0200**	**2.0000e-004**	**5.5500e-003**	**2.8000e-004**	**5.8400e-003**	**1.5100e-003**	**2.6000e-004**	**1.7800e-003**	**0.0000**	**18.7265**	**18.7265**	**8.4000e-004**	**0.0000**	**18.7477**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0480	0.0000	0.0480	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.1567	0.0762	1.5000e-004		7.3700e-003	7.3700e-003		6.7800e-003	6.7800e-003	0.0000	13.4111	13.4111	4.2400e-003	0.0000	13.5172
Total	**0.0142**	**0.1567**	**0.0762**	**1.5000e-004**	**0.0480**	**7.3700e-003**	**0.0553**	**0.0251**	**6.7800e-003**	**0.0319**	**0.0000**	**13.4111**	**13.4111**	**4.2400e-003**	**0.0000**	**13.5172**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0200e-003	0.0693	0.0137	1.8000e-004	3.7700e-003	2.7000e-004	4.0400e-003	1.0400e-003	2.5000e-004	1.2900e-003	0.0000	17.1469	17.1469	8.0000e-004	0.0000	17.1669
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	6.1000e-004	6.2900e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.8000e-003	4.7000e-004	1.0000e-005	4.9000e-004	0.0000	1.5797	1.5797	4.0000e-005	0.0000	1.5808
Total	**2.8400e-003**	**0.0699**	**0.0200**	**2.0000e-004**	**5.5500e-003**	**2.8000e-004**	**5.8400e-003**	**1.5100e-003**	**2.6000e-004**	**1.7800e-003**	**0.0000**	**18.7265**	**18.7265**	**8.4000e-004**	**0.0000**	**18.7477**

3.3 Trenching/Foundation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1300e-003	0.0519	0.0571	8.0000e-005		2.9700e-003	2.9700e-003		2.7400e-003	2.7400e-003	0.0000	7.5927	7.5927	2.4000e-003	0.0000	7.6527
Total	**5.1300e-003**	**0.0519**	**0.0571**	**8.0000e-005**		**2.9700e-003**	**2.9700e-003**		**2.7400e-003**	**2.7400e-003**	**0.0000**	**7.5927**	**7.5927**	**2.4000e-003**	**0.0000**	**7.6527**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.1000e-004	4.1900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0531	1.0531	3.0000e-005	0.0000	1.0538
Total	**5.4000e-004**	**4.1000e-004**	**4.1900e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0531**	**1.0531**	**3.0000e-005**	**0.0000**	**1.0538**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1300e-003	0.0519	0.0571	8.0000e-005		2.9700e-003	2.9700e-003		2.7400e-003	2.7400e-003	0.0000	7.5927	7.5927	2.4000e-003	0.0000	7.6526

Total	**5.1300e-003**	**0.0519**	**0.0571**	**8.0000e-005**		**2.9700e-003**	**2.9700e-003**		**2.7400e-003**	**2.7400e-003**	**0.0000**	**7.5927**	**7.5927**	**2.4000e-003**	**0.0000**	**7.6526**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.1000e-004	4.1900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0531	1.0531	3.0000e-005	0.0000	1.0538
Total	**5.4000e-004**	**4.1000e-004**	**4.1900e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0531**	**1.0531**	**3.0000e-005**	**0.0000**	**1.0538**

3.4 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3700e-003	0.0653	0.0633	9.0000e-005		3.8300e-003	3.8300e-003		3.5300e-003	3.5300e-003	0.0000	8.3901	8.3901	2.6400e-003	0.0000	8.4560
Paving	3.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5800e-003**	**0.0653**	**0.0633**	**9.0000e-005**		**3.8300e-003**	**3.8300e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**8.3901**	**8.3901**	**2.6400e-003**	**0.0000**	**8.4560**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1800e-003	0.0405	7.9900e-003	1.0000e-004	2.2000e-003	1.6000e-004	2.3600e-003	6.1000e-004	1.5000e-004	7.5000e-004	0.0000	10.0184	10.0184	4.7000e-004	0.0000	10.0301
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6300e-003	1.2200e-003	0.0126	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	3.1594	3.1594	9.0000e-005	0.0000	3.1615
Total	**2.8100e-003**	**0.0417**	**0.0206**	**1.3000e-004**	**5.7700e-003**	**1.8000e-004**	**5.9500e-003**	**1.5600e-003**	**1.7000e-004**	**1.7200e-003**	**0.0000**	**13.1778**	**13.1778**	**5.6000e-004**	**0.0000**	**13.1917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3700e-003	0.0653	0.0633	9.0000e-005		3.8300e-003	3.8300e-003		3.5300e-003	3.5300e-003	0.0000	8.3901	8.3901	2.6400e-003	0.0000	8.4560
Paving	3.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5800e-003**	**0.0653**	**0.0633**	**9.0000e-005**		**3.8300e-003**	**3.8300e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**8.3901**	**8.3901**	**2.6400e-003**	**0.0000**	**8.4560**

Mitigated Construction Off-Site

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

Hauling	1.1800e-003	0.0405	7.9900e-003	1.0000e-004	2.2000e-003	1.6000e-004	2.3600e-003	6.1000e-004	1.5000e-004	7.5000e-004	0.0000	10.0184	10.0184	4.7000e-004	0.0000	10.0301
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6300e-003	1.2200e-003	0.0126	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	3.1594	3.1594	9.0000e-005	0.0000	3.1615
Total	**2.8100e-003**	**0.0417**	**0.0206**	**1.3000e-004**	**5.7700e-003**	**1.8000e-004**	**5.9500e-003**	**1.5600e-003**	**1.7000e-004**	**1.7200e-003**	**0.0000**	**13.1778**	**13.1778**	**5.6000e-004**	**0.0000**	**13.1917**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.616749	0.035330	0.181430	0.103378	0.013121	0.005016	0.012828	0.021913	0.002183	0.001508	0.005219	0.000634	0.000691

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.1300e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	5.0000e-005
Unmitigated	9.1300e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	5.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	5.0000e-005
Total	**9.1300e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	5.0000e-005
Total	**9.1300e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e

Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Charcot Road Extension - East Lane TAC Model (Rev 2020)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.45	Acre	2.45	106,801.10	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 290 rate

Land Use - East 4 Lane Portion of Charcot Extension, Approximtely 2.45 acres, sqft matches AERMOD estimate

Construction Phase - Based on schedule from Construction Worksheet

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Trips and VMT - 1300-cy of asphalt hauled --> approximately 260 one-way trips, TAC trip length of 1 mile for localized emissions

Grading - Export 4,500-cy of soil

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	6.00	15.00
tblConstructionPhase	NumDays	10.00	30.00
tblGrading	MaterialExported	0.00	4,500.00
tblLandUse	LandUseSquareFeet	106,722.00	106,801.10
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.50
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	1.40
tblOffRoadEquipment	UsageHours	8.00	1.40
tblOffRoadEquipment	UsageHours	8.00	1.40
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.40
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	260.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0308	0.3121	0.2089	3.8000e-004	0.0489	0.0142	0.0631	0.0254	0.0131	0.0385	0.0000	34.6528	34.6528	9.8400e-003	0.0000	34.8988
Maximum	**0.0308**	**0.3121**	**0.2089**	**3.8000e-004**	**0.0489**	**0.0142**	**0.0631**	**0.0254**	**0.0131**	**0.0385**	**0.0000**	**34.6528**	**34.6528**	**9.8400e-003**	**0.0000**	**34.8988**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0308	0.3121	0.2089	3.8000e-004	0.0489	0.0142	0.0631	0.0254	0.0131	0.0385	0.0000	34.6527	34.6527	9.8400e-003	0.0000	34.8988
Maximum	**0.0308**	**0.3121**	**0.2089**	**3.8000e-004**	**0.0489**	**0.0142**	**0.0631**	**0.0254**	**0.0131**	**0.0385**	**0.0000**	**34.6527**	**34.6527**	**9.8400e-003**	**0.0000**	**34.8988**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

1	**1-1-2019**	**3-31-2019**	0.3422	0.3422
		Highest	0.3422	0.3422

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/21/2019	5	15	
2	Trenching/Foundation	Trenching	1/22/2019	2/4/2019	5	10	
3	Paving	Paving	2/5/2019	3/18/2019	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.25

Acres of Paving: 2.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	2.80	158	0.38
Grading	Graders	2	2.80	187	0.41
Grading	Rubber Tired Dozers	4	2.00	247	0.40
Grading	Tractors/Loaders/Backhoes	4	2.00	97	0.37
Trenching/Foundation	Cement and Mortar Mixers	2	0.50	9	0.56
Trenching/Foundation	Excavators	4	4.00	158	0.38
Trenching/Foundation	Forklifts	2	0.80	89	0.20
Trenching/Foundation	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Paving	Cement and Mortar Mixers	2	0.50	9	0.56
Paving	Pavers	2	1.40	130	0.42
Paving	Paving Equipment	2	1.40	132	0.36
Paving	Rollers	2	1.40	80	0.38

Paving	Tractors/Loaders/Backhoes	4	1.40	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	12	30.00	0.00	445.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Trenching/Foundation	12	30.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	260.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0480	0.0000	0.0480	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.1567	0.0762	1.5000e-004		7.3700e-003	7.3700e-003		6.7800e-003	6.7800e-003	0.0000	13.4111	13.4111	4.2400e-003	0.0000	13.5172
Total	**0.0142**	**0.1567**	**0.0762**	**1.5000e-004**	**0.0480**	**7.3700e-003**	**0.0553**	**0.0251**	**6.7800e-003**	**0.0319**	**0.0000**	**13.4111**	**13.4111**	**4.2400e-003**	**0.0000**	**13.5172**

Unmitigated Construction Off-Site

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

Hauling	5.4000e-004	0.0238	3.9800e-003	3.0000e-005	1.9000e-004	3.0000e-005	2.2000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	2.8825	2.8825	3.4000e-004	0.0000	2.8910
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.3000e-004	1.6600e-003	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1887	0.1887	1.0000e-005	0.0000	0.1890
Total	**8.2000e-004**	**0.0240**	**5.6400e-003**	**3.0000e-005**	**3.6000e-004**	**3.0000e-005**	**3.9000e-004**	**9.0000e-005**	**3.0000e-005**	**1.3000e-004**	**0.0000**	**3.0713**	**3.0713**	**3.5000e-004**	**0.0000**	**3.0799**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0480	0.0000	0.0480	0.0251	0.0000	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.1567	0.0762	1.5000e-004		7.3700e-003	7.3700e-003		6.7800e-003	6.7800e-003	0.0000	13.4111	13.4111	4.2400e-003	0.0000	13.5172
Total	**0.0142**	**0.1567**	**0.0762**	**1.5000e-004**	**0.0480**	**7.3700e-003**	**0.0553**	**0.0251**	**6.7800e-003**	**0.0319**	**0.0000**	**13.4111**	**13.4111**	**4.2400e-003**	**0.0000**	**13.5172**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.4000e-004	0.0238	3.9800e-003	3.0000e-005	1.9000e-004	3.0000e-005	2.2000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	2.8825	2.8825	3.4000e-004	0.0000	2.8910
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.3000e-004	1.6600e-003	0.0000	1.7000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1887	0.1887	1.0000e-005	0.0000	0.1890
Total	**8.2000e-004**	**0.0240**	**5.6400e-003**	**3.0000e-005**	**3.6000e-004**	**3.0000e-005**	**3.9000e-004**	**9.0000e-005**	**3.0000e-005**	**1.3000e-004**	**0.0000**	**3.0713**	**3.0713**	**3.5000e-004**	**0.0000**	**3.0799**

3.3 Trenching/Foundation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1300e-003	0.0519	0.0571	8.0000e-005		2.9700e-003	2.9700e-003		2.7400e-003	2.7400e-003	0.0000	7.5927	7.5927	2.4000e-003	0.0000	7.6527
Total	**5.1300e-003**	**0.0519**	**0.0571**	**8.0000e-005**		**2.9700e-003**	**2.9700e-003**		**2.7400e-003**	**2.7400e-003**	**0.0000**	**7.5927**	**7.5927**	**2.4000e-003**	**0.0000**	**7.6527**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	9.0000e-005	1.1100e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1258	0.1258	1.0000e-005	0.0000	0.1260
Total	**1.8000e-004**	**9.0000e-005**	**1.1100e-003**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1258**	**0.1258**	**1.0000e-005**	**0.0000**	**0.1260**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1300e-003	0.0519	0.0571	8.0000e-005		2.9700e-003	2.9700e-003		2.7400e-003	2.7400e-003	0.0000	7.5927	7.5927	2.4000e-003	0.0000	7.6526
Total	**5.1300e-003**	**0.0519**	**0.0571**	**8.0000e-005**		**2.9700e-003**	**2.9700e-003**		**2.7400e-003**	**2.7400e-003**	**0.0000**	**7.5927**	**7.5927**	**2.4000e-003**	**0.0000**	**7.6526**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	9.0000e-005	1.1100e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1258	0.1258	1.0000e-005	0.0000	0.1260
Total	**1.8000e-004**	**9.0000e-005**	**1.1100e-003**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1258**	**0.1258**	**1.0000e-005**	**0.0000**	**0.1260**

3.4 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3700e-003	0.0653	0.0633	9.0000e-005		3.8300e-003	3.8300e-003		3.5300e-003	3.5300e-003	0.0000	8.3901	8.3901	2.6400e-003	0.0000	8.4560

Paving	3.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5800e-003**	**0.0653**	**0.0633**	**9.0000e-005**		**3.8300e-003**	**3.8300e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**8.3901**	**8.3901**	**2.6400e-003**	**0.0000**	**8.4560**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2000e-004	0.0139	2.3200e-003	2.0000e-005	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	1.6842	1.6842	2.0000e-004	0.0000	1.6891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	2.6000e-004	3.3200e-003	0.0000	3.3000e-004	0.0000	3.4000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3775	0.3775	2.0000e-005	0.0000	0.3779
Total	**8.7000e-004**	**0.0142**	**5.6400e-003**	**2.0000e-005**	**4.4000e-004**	**2.0000e-005**	**4.7000e-004**	**1.2000e-004**	**2.0000e-005**	**1.4000e-004**	**0.0000**	**2.0617**	**2.0617**	**2.2000e-004**	**0.0000**	**2.0670**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3700e-003	0.0653	0.0633	9.0000e-005		3.8300e-003	3.8300e-003		3.5300e-003	3.5300e-003	0.0000	8.3901	8.3901	2.6400e-003	0.0000	8.4560
Paving	3.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5800e-003**	**0.0653**	**0.0633**	**9.0000e-005**		**3.8300e-003**	**3.8300e-003**		**3.5300e-003**	**3.5300e-003**	**0.0000**	**8.3901**	**8.3901**	**2.6400e-003**	**0.0000**	**8.4560**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2000e-004	0.0139	2.3200e-003	2.0000e-005	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	1.6842	1.6842	2.0000e-004	0.0000	1.6891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	2.6000e-004	3.3200e-003	0.0000	3.3000e-004	0.0000	3.4000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3775	0.3775	2.0000e-005	0.0000	0.3779
Total	**8.7000e-004**	**0.0142**	**5.6400e-003**	**2.0000e-005**	**4.4000e-004**	**2.0000e-005**	**4.7000e-004**	**1.2000e-004**	**2.0000e-005**	**1.4000e-004**	**0.0000**	**2.0617**	**2.0617**	**2.2000e-004**	**0.0000**	**2.0670**

Charcot Road Extension - West Lane AQ Model (Rev 2020)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.16	Acre	2.16	94,019.90	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 290 rate

Land Use - West Lane Portion of Charcot Extension, Approximtely 2.16 acres, sqft matches AERMOD estimate

Construction Phase - Based on schedule from Construction Worksheet

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Grading - Export 5,500-cy of soil

Trips and VMT - 1700-cy of asphalt hauled --> approximately 340 one-way trips

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	6.00	17.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	PhaseEndDate	1/8/2019	1/23/2019
tblConstructionPhase	PhaseEndDate	1/22/2019	4/15/2019
tblConstructionPhase	PhaseStartDate	1/9/2019	2/12/2019
tblGrading	MaterialExported	0.00	5,500.00
tblLandUse	LandUseSquareFeet	94,089.60	94,019.90
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.50
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	2.10
tblOffRoadEquipment	UsageHours	7.00	2.10
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	1.30
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripNumber	0.00	340.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0437	0.4879	0.3157	8.60E-04	0.0733	0.0188	0.0921	0.0343	0.0173	0.0516	0	79.9172	79.9172	0.0138	0	80.2618
Maximum	**0.0437**	**0.4879**	**0.3157**	**8.60E-04**	**0.0733**	**0.0188**	**0.0921**	**0.0343**	**0.0173**	**0.0516**	**0**	**79.9172**	**79.9172**	**0.0138**	**0**	**80.2618**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0437	0.4879	0.3157	8.6000e-004	0.0733	0.0188	0.0921	0.0343	0.0173	0.0516	0.0000	79.9172	79.9172	0.0138	0.0000	80.2618
Maximum	**0.0437**	**0.4879**	**0.3157**	**8.6000e-004**	**0.0733**	**0.0188**	**0.0921**	**0.0343**	**0.0173**	**0.0516**	**0.0000**	**79.9172**	**79.9172**	**0.0138**	**0.0000**	**80.2618**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.4881	0.4881

2	**4-1-2019**	**6-30-2019**	0.0382	0.0382
		Highest	0.4881	0.4881

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/23/2019	5	17	
2	Trenching/Foundation	Trenching	1/24/2019	2/11/2019	5	13	
3	Paving	Paving	2/12/2019	4/15/2019	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.95

Acres of Paving: 2.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	2.80	158	0.38
Paving	Cement and Mortar Mixers	2	0.50	9	0.56
Trenching/Foundation	Tractors/Loaders/Backhoes	4	4.30	97	0.37
Trenching/Foundation	Excavators	4	4.30	158	0.38
Trenching/Foundation	Forklifts	2	0.90	89	0.20
Trenching/Foundation	Cement and Mortar Mixers	2	0.50	9	0.56
Paving	Pavers	2	1.30	130	0.42

Paving	Rollers	2	1.30	80	0.38
Grading	Rubber Tired Dozers	4	2.10	247	0.40
Grading	Tractors/Loaders/Backhoes	4	2.10	97	0.37
Paving	Tractors/Loaders/Backhoes	4	1.30	97	0.37
Grading	Graders	2	2.80	187	0.41
Paving	Paving Equipment	2	1.30	132	0.36

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching/Foundation	12	30.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	12	30.00	0.00	544.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	340.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0569	0.0000	0.0569	0.0299	0.0000	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0167	0.1837	0.0891	1.7000e-004		8.6700e-003	8.6700e-003		7.9800e-003	7.9800e-003	0.0000	15.6438	15.6438	4.9500e-003	0.0000	15.7675
Total	**0.0167**	**0.1837**	**0.0891**	**1.7000e-004**	**0.0569**	**8.6700e-003**	**0.0656**	**0.0299**	**7.9800e-003**	**0.0379**	**0.0000**	**15.6438**	**15.6438**	**4.9500e-003**	**0.0000**	**15.7675**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4700e-003	0.0847	0.0167	2.2000e-004	4.6100e-003	3.3000e-004	4.9400e-003	1.2700e-003	3.1000e-004	1.5800e-003	0.0000	20.9615	20.9615	9.8000e-004	0.0000	20.9861
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.3000e-004	6.9000e-004	7.1200e-003	2.0000e-005	2.0200e-003	1.0000e-005	2.0400e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7903	1.7903	5.0000e-005	0.0000	1.7915
Total	**3.4000e-003**	**0.0854**	**0.0239**	**2.4000e-004**	**6.6300e-003**	**3.4000e-004**	**6.9800e-003**	**1.8100e-003**	**3.2000e-004**	**2.1300e-003**	**0.0000**	**22.7519**	**22.7519**	**1.0300e-003**	**0.0000**	**22.7776**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0569	0.0000	0.0569	0.0299	0.0000	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0167	0.1837	0.0891	1.7000e-004		8.6700e-003	8.6700e-003		7.9800e-003	7.9800e-003	0.0000	15.6438	15.6438	4.9500e-003	0.0000	15.7675
Total	**0.0167**	**0.1837**	**0.0891**	**1.7000e-004**	**0.0569**	**8.6700e-003**	**0.0656**	**0.0299**	**7.9800e-003**	**0.0379**	**0.0000**	**15.6438**	**15.6438**	**4.9500e-003**	**0.0000**	**15.7675**

Mitigated Construction Off-Site

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

Hauling	2.4700e-003	0.0847	0.0167	2.2000e-004	4.6100e-003	3.3000e-004	4.9400e-003	1.2700e-003	3.1000e-004	1.5800e-003	0.0000	20.9615	20.9615	9.8000e-004	0.0000	20.9861
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.3000e-004	6.9000e-004	7.1200e-003	2.0000e-005	2.0200e-003	1.0000e-005	2.0400e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7903	1.7903	5.0000e-005	0.0000	1.7915
Total	**3.4000e-003**	**0.0854**	**0.0239**	**2.4000e-004**	**6.6300e-003**	**3.4000e-004**	**6.9800e-003**	**1.8100e-003**	**3.2000e-004**	**2.1300e-003**	**0.0000**	**22.7519**	**22.7519**	**1.0300e-003**	**0.0000**	**22.7776**

3.3 Trenching/Foundation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1800e-003	0.0725	0.0798	1.2000e-004		4.1600e-003	4.1600e-003		3.8300e-003	3.8300e-003	0.0000	10.6170	10.6170	3.3500e-003	0.0000	10.7008
Total	**7.1800e-003**	**0.0725**	**0.0798**	**1.2000e-004**		**4.1600e-003**	**4.1600e-003**		**3.8300e-003**	**3.8300e-003**	**0.0000**	**10.6170**	**10.6170**	**3.3500e-003**	**0.0000**	**10.7008**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	5.3000e-004	5.4500e-003	2.0000e-005	1.5500e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3691	1.3691	4.0000e-005	0.0000	1.3700
Total	**7.1000e-004**	**5.3000e-004**	**5.4500e-003**	**2.0000e-005**	**1.5500e-003**	**1.0000e-005**	**1.5600e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3691**	**1.3691**	**4.0000e-005**	**0.0000**	**1.3700**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1800e-003	0.0725	0.0798	1.2000e-004		4.1600e-003	4.1600e-003		3.8300e-003	3.8300e-003	0.0000	10.6170	10.6170	3.3500e-003	0.0000	10.7008
Total	**7.1800e-003**	**0.0725**	**0.0798**	**1.2000e-004**		**4.1600e-003**	**4.1600e-003**		**3.8300e-003**	**3.8300e-003**	**0.0000**	**10.6170**	**10.6170**	**3.3500e-003**	**0.0000**	**10.7008**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	5.3000e-004	5.4500e-003	2.0000e-005	1.5500e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3691	1.3691	4.0000e-005	0.0000	1.3700
Total	**7.1000e-004**	**5.3000e-004**	**5.4500e-003**	**2.0000e-005**	**1.5500e-003**	**1.0000e-005**	**1.5600e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3691**	**1.3691**	**4.0000e-005**	**0.0000**	**1.3700**

3.4 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8900e-003	0.0910	0.0882	1.3000e-004		5.3400e-003	5.3400e-003		4.9100e-003	4.9100e-003	0.0000	11.6955	11.6955	3.6700e-003	0.0000	11.7873
Paving	2.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0117**	**0.0910**	**0.0882**	**1.3000e-004**		**5.3400e-003**	**5.3400e-003**		**4.9100e-003**	**4.9100e-003**	**0.0000**	**11.6955**	**11.6955**	**3.6700e-003**	**0.0000**	**11.7873**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0529	0.0105	1.4000e-004	2.8800e-003	2.0000e-004	3.0800e-003	7.9000e-004	1.9000e-004	9.9000e-004	0.0000	13.1010	13.1010	6.1000e-004	0.0000	13.1163
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4500e-003	1.8300e-003	0.0189	5.0000e-005	5.3500e-003	4.0000e-005	5.3900e-003	1.4200e-003	3.0000e-005	1.4600e-003	0.0000	4.7391	4.7391	1.3000e-004	0.0000	4.7423
Total	**3.9900e-003**	**0.0548**	**0.0293**	**1.9000e-004**	**8.2300e-003**	**2.4000e-004**	**8.4700e-003**	**2.2100e-003**	**2.2000e-004**	**2.4500e-003**	**0.0000**	**17.8400**	**17.8400**	**7.4000e-004**	**0.0000**	**17.8586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8900e-003	0.0910	0.0882	1.3000e-004		5.3400e-003	5.3400e-003		4.9100e-003	4.9100e-003	0.0000	11.6955	11.6955	3.6700e-003	0.0000	11.7873

Paving	2.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0117**	**0.0910**	**0.0882**	**1.3000e-004**		**5.3400e-003**	**5.3400e-003**		**4.9100e-003**	**4.9100e-003**	**0.0000**	**11.6955**	**11.6955**	**3.6700e-003**	**0.0000**	**11.7873**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0529	0.0105	1.4000e-004	2.8800e-003	2.0000e-004	3.0800e-003	7.9000e-004	1.9000e-004	9.9000e-004	0.0000	13.1010	13.1010	6.1000e-004	0.0000	13.1163
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4500e-003	1.8300e-003	0.0189	5.0000e-005	5.3500e-003	4.0000e-005	5.3900e-003	1.4200e-003	3.0000e-005	1.4600e-003	0.0000	4.7391	4.7391	1.3000e-004	0.0000	4.7423
Total	**3.9900e-003**	**0.0548**	**0.0293**	**1.9000e-004**	**8.2300e-003**	**2.4000e-004**	**8.4700e-003**	**2.2100e-003**	**2.2000e-004**	**2.4500e-003**	**0.0000**	**17.8400**	**17.8400**	**7.4000e-004**	**0.0000**	**17.8586**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.616749	0.035330	0.181430	0.103378	0.013121	0.005016	0.012828	0.021913	0.002183	0.001508	0.005219	0.000634	0.000691

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Unmitigated	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Charcot Road Extension - West Lane TAC Model (Rev 2020) - Santa Clara County, Annual

Charcot Road Extension - West Lane TAC Model (Rev 2020)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.16	Acre	2.16	94,019.90	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2020 290 rate

Land Use - West Lane Portion of Charcot Extension, Approximtely 2.16 acres, sqft matches AERMOD estimate

Construction Phase - Based on schedule from Construction Worksheet

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Off-road Equipment - Specified equpiment list and usage

Grading - Export 5,500-cy of soil

Trips and VMT - 1700-cy of asphalt hauled --> approximately 340 one-way trips, TAC trip length 1 mile for localized emissions

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	6.00	17.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	PhaseEndDate	1/8/2019	1/23/2019
tblConstructionPhase	PhaseEndDate	1/22/2019	4/15/2019
tblConstructionPhase	PhaseStartDate	1/9/2019	2/12/2019
tblGrading	MaterialExported	0.00	5,500.00
tblLandUse	LandUseSquareFeet	94,089.60	94,019.90
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.50
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	2.10
tblOffRoadEquipment	UsageHours	7.00	2.10
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	1.30
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00

tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	340.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	VendorTripLength	7.30	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00
tblTripsAndVMT	WorkerTripLength	10.80	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0380	0.3952	0.2733	4.9000e-004	0.0581	0.0182	0.0764	0.0302	0.0168	0.0470	0.0000	44.6262	44.6262	0.0127	0.0000	44.9434
Maximum	**0.0380**	**0.3952**	**0.2733**	**4.9000e-004**	**0.0581**	**0.0182**	**0.0764**	**0.0302**	**0.0168**	**0.0470**	**0.0000**	**44.6262**	**44.6262**	**0.0127**	**0.0000**	**44.9434**

Mitigated Construction

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

2019	0.0380	0.3952	0.2733	4.9000e-004	0.0581	0.0182	0.0764	0.0302	0.0168	0.0470	0.0000	44.6261	44.6261	0.0127	0.0000	44.9433
Maximum	**0.0380**	**0.3952**	**0.2733**	**4.9000e-004**	**0.0581**	**0.0182**	**0.0764**	**0.0302**	**0.0168**	**0.0470**	**0.0000**	**44.6261**	**44.6261**	**0.0127**	**0.0000**	**44.9433**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	0.3991	0.3991
2	**4-1-2019**	**6-30-2019**	0.0292	0.0292
		Highest	0.3991	0.3991

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/23/2019	5	17	
2	Trenching/Foundation	Trenching	1/24/2019	2/11/2019	5	13	
3	Paving	Paving	2/12/2019	4/15/2019	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5.95

Acres of Paving: 2.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	2.80	158	0.38
Paving	Cement and Mortar Mixers	2	0.50	9	0.56
Trenching/Foundation	Tractors/Loaders/Backhoes	4	4.30	97	0.37
Trenching/Foundation	Excavators	4	4.30	158	0.38
Trenching/Foundation	Forklifts	2	0.90	89	0.20
Trenching/Foundation	Cement and Mortar Mixers	2	0.50	9	0.56
Paving	Pavers	2	1.30	130	0.42
Paving	Rollers	2	1.30	80	0.38
Grading	Rubber Tired Dozers	4	2.10	247	0.40
Grading	Tractors/Loaders/Backhoes	4	2.10	97	0.37
Paving	Tractors/Loaders/Backhoes	4	1.30	97	0.37
Grading	Graders	2	2.80	187	0.41
Paving	Paving Equipment	2	1.30	132	0.36

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching/Foundation	12	30.00	0.00	0.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Grading	12	30.00	0.00	544.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving	12	30.00	0.00	340.00	1.00	1.00	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2019

Unmitigated Construction On-Site

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

Category	tons/yr										MT/yr					
Fugitive Dust					0.0569	0.0000	0.0569	0.0299	0.0000	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0167	0.1837	0.0891	1.7000e-004		8.6700e-003	8.6700e-003		7.9800e-003	7.9800e-003	0.0000	15.6438	15.6438	4.9500e-003	0.0000	15.7675
Total	**0.0167**	**0.1837**	**0.0891**	**1.7000e-004**	**0.0569**	**8.6700e-003**	**0.0656**	**0.0299**	**7.9800e-003**	**0.0379**	**0.0000**	**15.6438**	**15.6438**	**4.9500e-003**	**0.0000**	**15.7675**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6000e-004	0.0291	4.8600e-003	4.0000e-005	2.4000e-004	4.0000e-005	2.7000e-004	7.0000e-005	4.0000e-005	1.0000e-004	0.0000	3.5238	3.5238	4.1000e-004	0.0000	3.5341
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	1.5000e-004	1.8800e-003	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.2139	0.2139	1.0000e-005	0.0000	0.2142
Total	**9.7000e-004**	**0.0293**	**6.7400e-003**	**4.0000e-005**	**4.3000e-004**	**4.0000e-005**	**4.6000e-004**	**1.2000e-004**	**4.0000e-005**	**1.5000e-004**	**0.0000**	**3.7377**	**3.7377**	**4.2000e-004**	**0.0000**	**3.7483**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0569	0.0000	0.0569	0.0299	0.0000	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0167	0.1837	0.0891	1.7000e-004		8.6700e-003	8.6700e-003		7.9800e-003	7.9800e-003	0.0000	15.6438	15.6438	4.9500e-003	0.0000	15.7675

Total	**0.0167**	**0.1837**	**0.0891**	**1.7000e-004**	**0.0569**	**8.6700e-003**	**0.0656**	**0.0299**	**7.9800e-003**	**0.0379**	**0.0000**	**15.6438**	**15.6438**	**4.9500e-003**	**0.0000**	**15.7675**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.6000e-004	0.0291	4.8600e-003	4.0000e-005	2.4000e-004	4.0000e-005	2.7000e-004	7.0000e-005	4.0000e-005	1.0000e-004	0.0000	3.5238	3.5238	4.1000e-004	0.0000	3.5341
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	1.5000e-004	1.8800e-003	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.2139	0.2139	1.0000e-005	0.0000	0.2142
Total	**9.7000e-004**	**0.0293**	**6.7400e-003**	**4.0000e-005**	**4.3000e-004**	**4.0000e-005**	**4.6000e-004**	**1.2000e-004**	**4.0000e-005**	**1.5000e-004**	**0.0000**	**3.7377**	**3.7377**	**4.2000e-004**	**0.0000**	**3.7483**

3.3 Trenching/Foundation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1800e-003	0.0725	0.0798	1.2000e-004		4.1600e-003	4.1600e-003		3.8300e-003	3.8300e-003	0.0000	10.6170	10.6170	3.3500e-003	0.0000	10.7008
Total	**7.1800e-003**	**0.0725**	**0.0798**	**1.2000e-004**		**4.1600e-003**	**4.1600e-003**		**3.8300e-003**	**3.8300e-003**	**0.0000**	**10.6170**	**10.6170**	**3.3500e-003**	**0.0000**	**10.7008**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.1000e-004	1.4400e-003	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1636	0.1636	1.0000e-005	0.0000	0.1638
Total	**2.4000e-004**	**1.1000e-004**	**1.4400e-003**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1636**	**0.1636**	**1.0000e-005**	**0.0000**	**0.1638**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1800e-003	0.0725	0.0798	1.2000e-004		4.1600e-003	4.1600e-003		3.8300e-003	3.8300e-003	0.0000	10.6170	10.6170	3.3500e-003	0.0000	10.7008
Total	**7.1800e-003**	**0.0725**	**0.0798**	**1.2000e-004**		**4.1600e-003**	**4.1600e-003**		**3.8300e-003**	**3.8300e-003**	**0.0000**	**10.6170**	**10.6170**	**3.3500e-003**	**0.0000**	**10.7008**

Mitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.1000e-004	1.4400e-003	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1636	0.1636	1.0000e-005	0.0000	0.1638
Total	**2.4000e-004**	**1.1000e-004**	**1.4400e-003**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1636**	**0.1636**	**1.0000e-005**	**0.0000**	**0.1638**

3.4 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8900e-003	0.0910	0.0882	1.3000e-004		5.3400e-003	5.3400e-003		4.9100e-003	4.9100e-003	0.0000	11.6955	11.6955	3.6700e-003	0.0000	11.7873
Paving	2.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0117**	**0.0910**	**0.0882**	**1.3000e-004**		**5.3400e-003**	**5.3400e-003**		**4.9100e-003**	**4.9100e-003**	**0.0000**	**11.6955**	**11.6955**	**3.6700e-003**	**0.0000**	**11.7873**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0182	3.0400e-003	2.0000e-005	1.5000e-004	2.0000e-005	1.7000e-004	4.0000e-005	2.0000e-005	6.0000e-005	0.0000	2.2024	2.2024	2.6000e-004	0.0000	2.2088
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	3.9000e-004	4.9900e-003	1.0000e-005	5.0000e-004	1.0000e-005	5.1000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	0.5662	0.5662	3.0000e-005	0.0000	0.5669
Total	**1.2400e-003**	**0.0186**	**8.0300e-003**	**3.0000e-005**	**6.5000e-004**	**3.0000e-005**	**6.8000e-004**	**1.7000e-004**	**3.0000e-005**	**2.0000e-004**	**0.0000**	**2.7686**	**2.7686**	**2.9000e-004**	**0.0000**	**2.7757**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8900e-003	0.0910	0.0882	1.3000e-004		5.3400e-003	5.3400e-003		4.9100e-003	4.9100e-003	0.0000	11.6955	11.6955	3.6700e-003	0.0000	11.7873
Paving	2.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0117**	**0.0910**	**0.0882**	**1.3000e-004**		**5.3400e-003**	**5.3400e-003**		**4.9100e-003**	**4.9100e-003**	**0.0000**	**11.6955**	**11.6955**	**3.6700e-003**	**0.0000**	**11.7873**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0182	3.0400e-003	2.0000e-005	1.5000e-004	2.0000e-005	1.7000e-004	4.0000e-005	2.0000e-005	6.0000e-005	0.0000	2.2024	2.2024	2.6000e-004	0.0000	2.2088
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	3.9000e-004	4.9900e-003	1.0000e-005	5.0000e-004	1.0000e-005	5.1000e-004	1.3000e-004	1.0000e-005	1.4000e-004	0.0000	0.5662	0.5662	3.0000e-005	0.0000	0.5669
Total	**1.2400e-003**	**0.0186**	**8.0300e-003**	**3.0000e-005**	**6.5000e-004**	**3.0000e-005**	**6.8000e-004**	**1.7000e-004**	**3.0000e-005**	**2.0000e-004**	**0.0000**	**2.7686**	**2.7686**	**2.9000e-004**	**0.0000**	**2.7757**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.616749	0.035330	0.181430	0.103378	0.013121	0.005016	0.012828	0.021913	0.002183	0.001508	0.005219	0.000634	0.000691

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

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

Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Unmitigated	8.0400e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	**8.0400e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0000**	**4.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 2: Summary of CT-EMFAC2017 Modeling Results – Criteria Air Pollutants and GHG

Charcot Ave Emissions Modeling

2020

Measure	No-Project	Project	Change
Daily VMT	3928408	3917065	-0.3%
Daily VHT	121715	118124	
Average Speed	32.3	33.2	

Emissions in lbs/day

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

Pollutant Name			**32.3**	**33.2**	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph
ROG	317.98	306.65	**0.0367**	**0.0355**	0.231203	0.155662	0.099699	0.066714	0.050072	0.039834
TOG	437.65	422.15	**0.0506**	**0.0489**	0.309158	0.207867	0.134617	0.091284	0.068762	0.054793
CO	9326.85	9159.89	**1.0779**	**1.0617**	2.077345	1.786598	1.543769	1.362881	1.228127	1.119365
NOx	2276.10	2229.25	**0.2630**	**0.2584**	0.664905	0.546691	0.421748	0.352282	0.309023	0.274974
CO2	2942354.42	2892870.48	**340.0433**	**335.2927**	832.505859	680.535042	552.8865	461.4533	396.4506	352.1839
CH4	79.47	77.01	**0.0092**	**0.0089**	0.040639	0.028827	0.020406	0.015138	0.011954	0.009844
PM10	34.15	33.34	**0.0039**	**0.0039**	0.017837	0.012796	0.008812	0.006267	0.004936	0.004158
PM2.5	32.16	31.40	**0.0037**	**0.0036**	0.016688	0.012004	0.008271	0.005885	0.00464	0.003913
Benzene	9.79	9.44	**0.0011**	**0.0011**	0.006931	0.004615	0.003001	0.002046	0.001539	0.001225
Acrolein	0.44	0.42	**0.0001**	**0.0000**	0.000293	0.000189	0.000129	0.000092	0.00007	0.000055
Acetaldehyde	6.55	6.30	**0.0008**	**0.0007**	0.006001	0.004405	0.002487	0.001393	0.00103	0.000825
Formaldehyde	16.28	15.67	**0.0019**	**0.0018**	0.014115	0.010172	0.005899	0.003449	0.002561	0.002047
Butadiene	2.05	1.98	**0.0002**	**0.0002**	0.001397	0.000915	0.00061	0.000427	0.000322	0.000256
Naphthalene	0.30	0.29	**0.0000**	**0.0000**	0.000207	0.000142	0.000091	0.000061	0.000046	0.000037
POM	0.45	0.43	**0.0001**	**0.0001**	0.000344	0.000237	0.000147	0.000094	0.00007	0.000056
Diesel PM	20.40	20.11	**0.0024**	**0.0023**	0.007615	0.00633	0.004512	0.003257	0.002712	0.002426
DEOG	69.40	66.69	**0.0080**	**0.0077**	0.068884	0.051655	0.028183	0.014888	0.010934	0.008764

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

Pollutant Name			Emission Factor
ROG	432.57	419.81	1.613495
TOG	432.57	419.81	1.613495
Benzene	4.33	4.20	0.016135
Butadiene	0.00	0.00	0
Naphthalene	0.61	0.59	0.002259

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

Pollutant Name			Emission Factor
PM10	74.76	74.55	0.00864
PM2.5	18.69	18.64	0.00216

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

Pollutant Name			Emission Factor
PM10	352.66	351.64	0.040756
PM2.5	151.14	150.70	0.017467

Entrained Roadway Dust

Pollutant Name			Emission Factor	
PM10	1204.79	1201.31	0.1392356	gm/mi
PM2.5	180.77	180.25	0.02089143	gm/mi

Total Emissions (lbs/day)

Pollutant Name	No-Project	Project	Difference			
ROG	**751**	**726**	**-24**			
TOG	**870**	**842**	**-28**			
CO	**9327**	**9160**	**-167**			
NOx	**2276**	**2229**	**-47**			
CO2	**2942354**	**2892870**	**-49484**	**487,148**	**478,955**	**(8,193)**
CH4	**79**	**77**	**-2**			-0.28%
PM10	**1666**	**1661**	**-5.52**			
PM2.5	**383**	**381**	**-1.77**			
Benzene	**14**	**14**	**-0.47**			
Acrolein	**0**	**0**	**-0.02**			
Acetaldehyde	**7**	**6**	**-0.25**			
Formaldehyde	**16**	**16**	**-0.61**			
Butadiene	**2**	**2**	**-0.07**			
Naphthalene	**0**	**0**	**-0.01**			
POM	**0**	**0**	**-0.02**			
Diesel PM	**20**	**20**	**-0.29**			
DEOG	**69**	**67**	**-2.71**			

GHG Metric Tons

File Name:	Santa Clara (SF) - 2020_Charcot - Annual.EF
CT-EMFAC2017 Version:	1.0.2.27401
Run Date:	########
Area:	Santa Clara (SF)
Analysis Year:	2020
Season:	Annual

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Vehicle Category	VMT Fracti Across Cat	Diesel VM Within Cat	Gas VMT Fraction Within Category
Truck 1	0.026	0.456	0.544
Truck 2	0.035	0.944	0.044
Non-Truck	0.939	0.013	0.966

==========

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	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.016688	0.012004	0.008271	0.005885	0.00464	0.003913	0.003486	0.003293	0.0033	0.00349	0.003856	0.004227	0.004549	0.004678	0.004678
PM10	0.017837	0.012796	0.008812	0.006267	0.004936	0.004158	0.003699	0.00349	0.003494	0.00369	0.004074	0.004464	0.004807	0.004946	0.004946
NOx	0.664905	0.546691	0.421748	0.352282	0.309023	0.274974	0.249041	0.230759	0.219846	0.216147	0.219612	0.230029	0.24701	0.25024	0.25024
CO	2.077345	1.786598	1.543769	1.362881	1.228127	1.119365	1.0292	0.954563	0.893632	0.845598	0.81068	0.790381	0.787793	0.79505	0.795817
HC	0.270491	0.180707	0.11834	0.0813	0.061343	0.048893	0.040768	0.0356	0.032616	0.031408	0.031828	0.033912	0.037841	0.040667	0.040727
TOG	0.309158	0.207867	0.134617	0.091284	0.068762	0.054793	0.04563	0.039773	0.036372	0.03498	0.035431	0.037736	0.042043	0.045138	0.045224
ROG	0.231203	0.155662	0.099699	0.066714	0.050072	0.039834	0.033127	0.028859	0.026415	0.025472	0.025915	0.027734	0.031026	0.033393	0.033469
1,3-Butadiene	0.001397	0.000915	0.00061	0.000427	0.000322	0.000256	0.000214	0.000188	0.000173	0.000168	0.000172	0.000184	0.000207	0.000207	0.000207
Acetaldehyde	0.006001	0.004405	0.002487	0.001393	0.00103	0.000825	0.000677	0.000574	0.000509	0.000478	0.000477	0.000497	0.000523	0.000528	0.000534
Acrolein	0.000293	0.000189	0.000129	0.000092	0.00007	0.000055	0.000046	0.000041	0.000038	0.000037	0.000038	0.00004	0.000046	0.000046	0.000046
Benzene	0.006931	0.004615	0.003001	0.002046	0.001539	0.001225	0.001021	0.000892	0.000819	0.000792	0.000807	0.000863	0.000963	0.000965	0.000966
Diesel PM	0.007615	0.00633	0.004512	0.003257	0.002712	0.002426	0.002277	0.002257	0.002365	0.002599	0.002958	0.003252	0.003414	0.003414	0.003414
Ethylbenzene	0.002629	0.001719	0.001148	0.000807	0.000609	0.000484	0.000405	0.000355	0.000328	0.000318	0.000325	0.000349	0.000392	0.000392	0.000392
Formaldehyde	0.014115	0.010172	0.005899	0.003449	0.002561	0.002047	0.001686	0.00144	0.001288	0.001217	0.001222	0.00128	0.00137	0.00138	0.001392
Naphthalene	0.000207	0.000142	0.000091	0.000061	0.000046	0.000037	0.000031	0.000027	0.000024	0.000023	0.000024	0.000025	0.000028	0.000027	0.000027
POM	0.000344	0.000237	0.000147	0.000094	0.00007	0.000056	0.000047	0.000041	0.000037	0.000036	0.000037	0.000039	0.000043	0.000043	0.000043
DEOG	0.068884	0.051655	0.028183	0.014888	0.010934	0.008764	0.007148	0.005992	0.005239	0.00485	0.004798	0.004927	0.00505	0.005117	0.005197
CO2	832.5059	680.535	552.8865	461.4533	396.4506	352.1839	325.7914	313.3154	311.7975	318.832	330.7298	344.1628	356.5073	359.4173	359.4173
N2O	0.033586	0.028782	0.023595	0.020625	0.018454	0.01676	0.015584	0.014719	0.01417	0.01401	0.014196	0.014724	0.015513	0.015513	0.015513
CH4	0.040639	0.028827	0.020406	0.015138	0.011954	0.009844	0.00841	0.007452	0.006854	0.006547	0.006504	0.006744	0.007286	0.007665	0.007668
BC	0.003686	0.00259	0.001783	0.001274	0.000997	0.000833	0.000735	0.000686	0.000679	0.000708	0.000773	0.000841	0.000905	0.000905	0.000905

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.083275	0.067344	0.055107	0.045845	0.039192	0.034788	0.032219	0.031171	0.031294	0.032188	0.033534	0.034774	0.035817	0.035817	0.035817
Diesel	0.01317	0.011141	0.008744	0.007512	0.006619	0.005913	0.005417	0.005046	0.00481	0.004749	0.00483	0.005027	0.005355	0.005355	0.005355

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

Pollutant Name	Emission Factor
HC	1.479692
TOG	1.581982
ROG	1.581982
1,3-Butadiene	0
Benzene	0.01582
Ethylbenzene	0.025944
Naphthalene	0.002215
CH4	0.229202
HFC	0.029147

==========

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

Pollutant Name	Emission Factor
PM2.5	0.002182
PM10	0.008729

==========

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

Pollutant Name	Emission Factor
PM2.5	0.017337
PM10	0.040454

==========

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

Pollutant Name	Emission Factor
PM2.5	0.01676
PM10	0.111737

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

Charcot Ave Emissions Modeling

2025

Measure	No-Project	Project	
Daily VMT	4789277	4787047	0.0%
Daily VHT	209093	205279	
Average Speed	22.9	23.32	

Emissions in lbs/day

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

Pollutant Name			**22.9**	**23.3**	5 mph	10 mph	15 mph	**20 mph**	**25 mph**	30 mph
ROG	349.68	341.36	**0.0331**	**0.0324**	0.129483	0.084685	0.055857	0.038757	0.029087	0.023117
TOG	497.56	486.02	**0.0472**	**0.0461**	0.17789	0.117255	0.078214	0.05494	0.041537	0.033163
CO	9119.49	9039.87	**0.8645**	**0.8573**	1.404999	1.205833	1.038232	0.916307	0.826955	0.754508
NOx	2310.34	2274.05	**0.2190**	**0.2157**	0.504329	0.396146	0.295359	0.243218	0.201478	0.1653
CO2	3851137.51	3801843.43	**365.0690**	**360.5640**	720.64962	587.87426	476.3237	397.7299	341.418	302.7086
CH4	103.53	101.58	**0.0098**	**0.0096**	0.028244	0.020273	0.014669	0.011123	0.008867	0.007348
PM10	27.67	27.06	**0.0026**	**0.0026**	0.009409	0.006163	0.004212	0.003035	0.002325	0.001901
PM2.5	25.67	25.11	**0.0024**	**0.0024**	0.008696	0.005704	0.003902	0.002814	0.002158	0.001767
Benzene	11.20	10.93	**0.0011**	**0.0010**	0.004086	0.002662	0.00177	0.00124	0.000932	0.000741
Acrolein	0.56	0.55	**0.0001**	**0.0001**	0.000197	0.000127	0.000086	0.000062	0.000047	0.000037
Acetaldehyde	4.22	4.10	**0.0004**	**0.0004**	0.00201	0.001397	0.000808	0.000475	0.000345	0.000275
Formaldehyde	12.36	12.05	**0.0012**	**0.0011**	0.005409	0.003688	0.002223	0.001384	0.001018	0.00081
Butadiene	2.49	2.43	**0.0002**	**0.0002**	0.000889	0.000576	0.000388	0.000275	0.000208	0.000165
Naphthalene	0.34	0.33	**0.0000**	**0.0000**	0.000121	0.00008	0.000053	0.000037	0.000028	0.000023
POM	0.42	0.41	**0.0000**	**0.0000**	0.000162	0.000106	0.000069	0.000047	0.000035	0.000028
Diesel PM	5.95	5.88	**0.0006**	**0.0006**	0.001179	0.000971	0.000758	0.000611	0.00053	0.0005
DEOG	31.10	30.19	**0.0029**	**0.0029**	0.018216	0.013087	0.006959	0.003562	0.002503	0.001992

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

Pollutant Name			Emission Factor
ROG	586.80	576.10	1.274107
TOG	586.80	576.10	1.274107
Benzene	5.87	5.76	0.012741
Butadiene	0.00	0.00	0
Naphthalene	0.82	0.81	0.001784

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

Pollutant Name			Emission Factor
PM10	91.83	91.79	0.008705
PM2.5	22.95	22.94	0.002176

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

Pollutant Name			Emission Factor
PM10	429.32	429.12	0.040697
PM2.5	229.55	229.44	0.02176

Entrained Roadway Dust

Pollutant Name			Emission Factor	
PM10	1468.81	1468.12	0.1392356	gm/mi
PM2.5	220.39	220.28	0.02089143	gm/mi

Total Emissions (lbs/day)

Pollutant Name	**No-Project**	**Project**	**Difference**			
ROG	**936**	**917**	**-19**			
TOG	**1084**	**1062**	**-22**			
CO	**9119**	**9040**	**-80**			
NOx	**2310**	**2274**	**-36**			
CO2	**3851138**	**3801843**	**-49294**	**637,610**	**629,448**	**(8,161)**
CH4	**104**	**102**	**-2**			-0.21%
PM10	**2018**	**2016**	**-1.54**			
PM2.5	**499**	**498**	**-0.79**			
Benzene	**17**	**17**	**-0.37**			
Acrolein	**1**	**1**	**-0.01**			
Acetaldehyde	**4**	**4**	**-0.11**			
Formaldehyde	**12**	**12**	**-0.31**			
Butadiene	**2**	**2**	**-0.06**			
Naphthalene	**0**	**0**	**-0.01**			
POM	**0**	**0**	**-0.01**			
Diesel PM	**6**	**6**	**-0.07**			
DEOG	**31**	**30**	**-0.91**			

GHG Metric Tons

File Name: Santa Clara (SF) - 2025 Charcot - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: ########
Area: Santa Clara (SF)
Analysis Year: 2025
Season: Annual

==========

Vehicle Category	VMT Fracti	Diesel VM	Gas VMT Fraction
	Across Cat	Within Cat	Within Category
Truck 1	0.026	0.502	0.498
Truck 2	0.036	0.936	0.048
Non-Truck	0.938	0.015	0.951

==========

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

==========

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.008696	0.005704	0.003902	0.002814	0.002158	0.001767	0.001548	0.001451	0.001449	0.001526	0.001678	0.001907	0.002222	0.002319	0.002319
PM10	0.009409	0.006163	0.004212	0.003035	0.002325	0.001901	0.001663	0.001556	0.00155	0.001629	0.001789	0.00203	0.002364	0.00247	0.00247
NOx	0.504329	0.396146	0.295359	0.243218	0.201478	0.1653	0.137039	0.116491	0.103529	0.098088	0.100147	0.109692	0.126737	0.128373	0.128373
CO	1.404999	1.205833	1.038232	0.916307	0.826955	0.754508	0.694001	0.643434	0.60162	0.568006	0.542669	0.526655	0.521941	0.525234	0.526583
HC	0.16104	0.105989	0.071168	0.050343	0.038132	0.030461	0.025526	0.022428	0.020661	0.019964	0.020247	0.021596	0.024217	0.026129	0.026234
TOG	0.17789	0.117255	0.078214	0.05494	0.041537	0.033163	0.027776	0.024395	0.02247	0.021717	0.022035	0.023524	0.026401	0.028512	0.028663
ROG	0.129483	0.084685	0.055857	0.038757	0.029087	0.023117	0.019319	0.016976	0.015691	0.015261	0.01562	0.016835	0.019084	0.020744	0.020878
1,3-Butadiene	0.000889	0.000576	0.000388	0.000275	0.000208	0.000165	0.000138	0.000122	0.000113	0.00011	0.000112	0.000121	0.000137	0.000137	0.000137
Acetaldehyde	0.00201	0.001397	0.000808	0.000475	0.000345	0.000275	0.000229	0.0002	0.000183	0.000176	0.000179	0.000192	0.000212	0.000221	0.000231
Acrolein	0.000197	0.000127	0.000086	0.000062	0.000047	0.000037	0.000031	0.000027	0.000025	0.000025	0.000025	0.000027	0.000031	0.000031	0.000031
Benzene	0.004086	0.002662	0.00177	0.00124	0.000932	0.000741	0.00062	0.000545	0.000504	0.00049	0.000502	0.000541	0.000611	0.000613	0.000616
Diesel PM	0.001179	0.000971	0.000758	0.000611	0.00053	0.0005	0.000509	0.000553	0.00063	0.00074	0.000882	0.001051	0.001244	0.001244	0.001244
Ethylbenzene	0.001683	0.00109	0.000735	0.000522	0.000394	0.000313	0.000262	0.00023	0.000213	0.000208	0.000213	0.00023	0.00026	0.00026	0.00026
Formaldehyde	0.005409	0.003688	0.002223	0.001384	0.001018	0.00081	0.000676	0.00059	0.000542	0.000525	0.000535	0.000573	0.00064	0.000657	0.000677
Naphthalene	0.000121	0.00008	0.000053	0.000037	0.000028	0.000023	0.000019	0.000017	0.000015	0.000015	0.000015	0.000016	0.000018	0.000017	0.000017
POM	0.000162	0.000106	0.000069	0.000047	0.000035	0.000028	0.000023	0.00002	0.000019	0.000018	0.000019	0.00002	0.000023	0.000023	0.000023
DEOG	0.018216	0.013087	0.006959	0.003562	0.002503	0.001992	0.001648	0.001419	0.001281	0.00122	0.00123	0.0013	0.001409	0.001528	0.001661
CO2	720.6496	587.8743	476.3237	397.7299	341.418	302.7086	279.5535	268.4842	267.035	273.2434	283.8861	296.091	307.7257	310.2255	310.2255
N2O	0.028275	0.023923	0.019284	0.016799	0.014924	0.013416	0.01237	0.011608	0.011144	0.011049	0.01127	0.011789	0.012573	0.012573	0.012573
CH4	0.028244	0.020273	0.014669	0.011123	0.008867	0.007348	0.006303	0.005593	0.005132	0.004873	0.004793	0.004915	0.005252	0.005483	0.005489
BC	0.002146	0.001399	0.000955	0.000687	0.000523	0.000423	0.000365	0.000334	0.000325	0.000333	0.000357	0.000397	0.000454	0.000454	0.000454

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.070626	0.057117	0.046737	0.038879	0.033236	0.029501	0.027323	0.026435	0.026542	0.027302	0.028446	0.029499	0.030383	0.030383	0.030383
Diesel	0.012453	0.010375	0.00804	0.006902	0.006039	0.005333	0.004841	0.004481	0.004267	0.004238	0.004361	0.004605	0.004996	0.004996	0.004996

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

Pollutant Name	Emission Factor
HC	1.183565
TOG	1.265384
ROG	1.265384
1,3-Butadiene	0
Benzene	0.012654
Ethylbenzene	0.020752
Naphthalene	0.001772
CH4	0.190397
HFC	0.017215

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

Pollutant Name	Emission Factor
PM2.5	0.002189
PM10	0.008758

==========

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

Pollutant Name	Emission Factor
PM2.5	0.01734
PM10	0.04046

==========

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

Pollutant Name	Emission Factor
PM2.5	0.0168
PM10	0.111998

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

Charcot Ave Emissions Modeling

2040

Measure	No-Project	Project	
Daily VMT	6080580	6092019	0.2%
Daily VHT	340160	336012	
Average Speed	17.88	18.13	

Emissions in lbs/day

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

Pollutant Name			**17.9**	**18.1**	5 mph	10 mph	**15 mph**	**20 mph**	25 mph	30 mph
ROG	428.64	422.63	**0.0320**	**0.0315**	0.09261	0.060946	0.039364	0.026674	0.019902	0.015803
TOG	597.18	589.32	**0.0446**	**0.0439**	0.124086	0.082555	0.054296	0.037558	0.028365	0.0227
CO	9122.00	9088.39	**0.6811**	**0.6773**	1.027278	0.872032	0.735941	0.64136	0.576873	0.525644
NOx	3085.23	3063.57	**0.2304**	**0.2283**	0.472448	0.361731	0.260028	0.208868	0.166985	0.130015
CO2	4526024.77	4501513.77	**337.9308**	**335.4696**	565.955818	461.73864	373.618	312.0884	267.9523	237.5748
CH4	121.54	120.45	**0.0091**	**0.0090**	0.019686	0.014371	0.0105	0.008042	0.006466	0.005394
PM10	23.16	22.91	**0.0017**	**0.0017**	0.004365	0.002927	0.002041	0.001503	0.001179	0.000998
PM2.5	21.53	21.30	**0.0016**	**0.0016**	0.004039	0.002714	0.001896	0.001398	0.001099	0.000932
Benzene	13.69	13.51	**0.0010**	**0.0010**	0.002908	0.001906	0.001248	0.000859	0.000644	0.000511
Acrolein	0.66	0.65	**0.0000**	**0.0000**	0.000134	0.000087	0.000059	0.000042	0.000032	0.000025
Acetaldehyde	7.14	6.97	**0.0005**	**0.0005**	0.001882	0.00132	0.000726	0.000393	0.000277	0.000218
Formaldehyde	18.75	18.36	**0.0014**	**0.0014**	0.004678	0.003231	0.001852	0.001072	0.00077	0.000608
Butadiene	3.01	2.98	**0.0002**	**0.0002**	0.000625	0.000407	0.000272	0.000191	0.000144	0.000115
Naphthalene	0.46	0.46	**0.0000**	**0.0000**	0.000095	0.000064	0.000042	0.000029	0.000022	0.000017
POM	0.47	0.46	**0.0000**	**0.0000**	0.000102	0.000067	0.000043	0.000029	0.000021	0.000017
Diesel PM	6.03	6.00	**0.0004**	**0.0004**	0.000667	0.000598	0.000494	0.000418	0.000377	0.000372
DEOG	62.76	60.90	**0.0047**	**0.0045**	0.018641	0.013457	0.006813	0.003145	0.002103	0.001642

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

Pollutant Name			Emission Factor
ROG	530.65	524.18	0.708245
TOG	530.65	524.18	0.708245
Benzene	5.31	5.24	0.007082
Butadiene	0.00	0.00	0
Naphthalene	0.74	0.73	0.000992

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

Pollutant Name			Emission Factor
PM10	117.53	117.75	0.008775
PM2.5	29.39	29.44	0.002194

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

Pollutant Name			Emission Factor
PM10	543.72	544.74	0.040596
PM2.5	233.02	233.46	0.017398

Entrained Roadway Dust

Pollutant Name			Emission Factor	
PM10	1864.83	1868.34	0.1392356	gm/mi
PM2.5	279.81	280.33	0.02089143	gm/mi

Total Emissions (lbs/day)

Pollutant Name	**No-Project**	**Project**	**Difference**		**GHG Metric Tons**	
ROG	**959**	**947**	**-12**			
TOG	**1128**	**1114**	**-14**			
CO	**9122**	**9088**	**-34**			
NOx	**3085**	**3064**	**-22**			
CO2	**4526025**	**4501514**	**-24511**	**749,347**	**745,289**	**(4,058)**
CH4	**122**	**120**	**-1**			-0.09%
PM10	**2549**	**2554**	**4.51**			
PM2.5	**564**	**565**	**0.79**			
Benzene	**19**	**19**	**-0.25**			
Acrolein	**1**	**1**	**-0.01**			
Acetaldehyde	**7**	**7**	**-0.17**			
Formaldehyde	**19**	**18**	**-0.38**			
Butadiene	**3**	**3**	**-0.04**			
Naphthalene	**0**	**0**	**-0.01**			
POM	**0**	**0**	**-0.01**			
Diesel PM	**6**	**6**	**-0.03**			
DEOG	**63**	**61**	**-1.85**			

File Name: Santa Clara (SF) - 2040 Charcot - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: ########
Area: Santa Clara (SF)
Analysis Year: 2040
Season: Annual

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Vehicle Category	VMT Fracti Across Cat	Diesel VM Within Cat	Gas VMT Fraction Within Category
Truck 1	0.027	0.543	0.457
Truck 2	0.038	0.931	0.053
Non-Truck	0.935	0.016	0.932

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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	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004039	0.002714	0.001896	0.001398	0.001099	0.000932	0.000856	0.000848	0.000895	0.000991	0.001133	0.001324	0.001568	0.001609	0.001609
PM10	0.004365	0.002927	0.002041	0.001503	0.001179	0.000998	0.000915	0.000903	0.000951	0.001051	0.001199	0.0014	0.001658	0.001702	0.001702
NOx	0.472448	0.361731	0.260028	0.208868	0.166985	0.130015	0.100637	0.078733	0.064231	0.057089	0.057288	0.064851	0.079782	0.080362	0.080362
CO	1.027278	0.872032	0.735941	0.64136	0.576873	0.525644	0.483036	0.447546	0.418316	0.394967	0.377589	0.367058	0.364853	0.368185	0.369834
HC	0.111213	0.073828	0.049088	0.034366	0.026042	0.020864	0.017524	0.015418	0.01421	0.013724	0.013901	0.014814	0.016599	0.017917	0.018046
TOG	0.124086	0.082555	0.054296	0.037558	0.028365	0.0227	0.019046	0.016744	0.015424	0.014896	0.015094	0.016101	0.018061	0.019526	0.019711
ROG	0.09261	0.060946	0.039364	0.026674	0.019902	0.015803	0.013201	0.011599	0.010723	0.010437	0.010697	0.011557	0.013141	0.014338	0.014501
1,3-Butadiene	0.000625	0.000407	0.000272	0.000191	0.000144	0.000115	0.000096	0.000085	0.000078	0.000077	0.000079	0.000085	0.000097	0.000097	0.000097
Acetaldehyde	0.001882	0.00132	0.000726	0.000393	0.000277	0.000218	0.00018	0.000155	0.00014	0.000133	0.000134	0.000145	0.000163	0.000174	0.000185
Acrolein	0.000134	0.000087	0.000059	0.000042	0.000032	0.000025	0.000021	0.000019	0.000017	0.000017	0.000017	0.000019	0.000022	0.000022	0.000022
Benzene	0.002908	0.001906	0.001248	0.000859	0.000644	0.000511	0.000428	0.000376	0.000348	0.000339	0.000348	0.000377	0.000428	0.000431	0.000434
Diesel PM	0.000667	0.000598	0.000494	0.000418	0.000377	0.000372	0.000398	0.000454	0.000539	0.00065	0.00079	0.00096	0.001156	0.001156	0.001156
Ethylbenzene	0.001175	0.000763	0.000511	0.000361	0.000272	0.000216	0.000181	0.00016	0.000148	0.000144	0.000148	0.000161	0.000183	0.000183	0.000184
Formaldehyde	0.004678	0.003231	0.001852	0.001072	0.00077	0.000608	0.000504	0.000437	0.000398	0.000382	0.000386	0.000418	0.000472	0.000494	0.000516
Naphthalene	0.000095	0.000064	0.000042	0.000029	0.000022	0.000017	0.000015	0.000013	0.000012	0.000011	0.000012	0.000012	0.000014	0.000013	0.000013
POM	0.000102	0.000067	0.000043	0.000029	0.000021	0.000017	0.000014	0.000012	0.000012	0.000011	0.000012	0.000013	0.000014	0.000014	0.000015
DEOG	0.018641	0.013457	0.006813	0.003145	0.002103	0.001642	0.001332	0.001123	0.00099	0.00092	0.000905	0.000977	0.001088	0.001233	0.001386
CO2	565.9558	461.7386	373.618	312.0884	267.9523	237.5748	219.4216	210.6617	209.441	214.312	222.6708	232.3049	241.627	243.5727	243.5727
N2O	0.022668	0.019145	0.015331	0.013325	0.011816	0.010605	0.009772	0.009159	0.008789	0.008727	0.008907	0.009318	0.009949	0.009949	0.009949
CH4	0.019686	0.014371	0.0105	0.008042	0.006466	0.005394	0.004646	0.004127	0.003779	0.003568	0.003478	0.003529	0.003725	0.003856	0.003864
BC	0.000986	0.000657	0.000457	0.000335	0.00026	0.000217	0.000193	0.000185	0.000187	0.0002	0.000222	0.000253	0.000296	0.000295	0.000295

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.054537	0.044106	0.03609	0.030021	0.025663	0.022779	0.021098	0.020413	0.020496	0.021084	0.021968	0.02278	0.023461	0.023461	0.023461
Diesel	0.010509	0.008745	0.006751	0.005785	0.005057	0.004465	0.00406	0.003762	0.003587	0.003572	0.003681	0.003889	0.004223	0.004223	0.004223

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

Pollutant Name	Emission Factor
HC	0.67224
TOG	0.718712
ROG	0.718712
1,3-Butadiene	0
Benzene	0.007187
Ethylbenzene	0.011787
Naphthalene	0.001006
CH4	0.120619
HFC	0.001598

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

Pollutant Name	Emission Factor
PM2.5	0.002203
PM10	0.00881

==========

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

Pollutant Name	Emission Factor
PM2.5	0.017356
PM10	0.040497

==========

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

Pollutant Name	Emission Factor
PM2.5	0.017032
PM10	0.113543

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

Attachment 3: Summary of Health Risk Computations and Dispersion Modeling

Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[6] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[7] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[8] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

6 OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
7 CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
8 BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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

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

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

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

Where:

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

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

Where:

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

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

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

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

* For worker exposures (adult) the exposure duration and frequency are 25 years 250 days/year and FAH is not applicable.

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Summary of Health Risk Computations and Dispersion Modeling

Charcot Avenue Road Extension, San Jose, California

DPM Emissions and Modeling Emission Rates - Without Mitigation

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2019-2020	Construction West Road	0.0182	DPM_WEST	36.4	0.01108	1.40E-03	8,735	**1.60E-07**
	Construction East Road	0.0142	DPM_EAST	28.4	0.00865	1.09E-03	9,922	**1.10E-07**
	Construction Bridge	0.0900	DPM_BRIDGE	180.0	0.05479	6.90E-03	3,584	**1.93E-06**

Construction Hours

hr/day = 9 (7am - 4pm)

days/yr = 365

hours/year = 3285

PM2.5 Fugitive Dust Emissions for Modeling - Without Mitigation

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2019-2020	Construction West Road	FUG_WEST	0.0302	60.4	0.01839	2.32E-03	8,735	**2.65E-07**
	Construction East Road	FUG_EAST	0.0254	50.8	0.01546	1.95E-03	9,922	**1.96E-07**
	Construction Bridge	FUG_BRIDGE	0.0653	130.6	0.03976	5.01E-03	3,584	**1.40E-06**

Construction Hours

hr/day = 9 (7am - 4pm)

days/yr = 365

hours/year = 3285

Charcot Avenue Road Extension, San Jose, California
Proposed Roadway Design (Project)

Maximum Impacts at Construction MEI (Residential) - Unmitigated (2019 rev)

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2019-2020	0.0182	0.0650	3.2	0.1	0.004	0.08

Maximum Impacts at Orchard School District

Construction Year	Unmitigated Emissions: Maximum Concentrations: Exhaust PM2.5/DPM ($\mu g/m^3$)	Unmitigated Emissions: Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2019-2020	0.0249	0.1260	1.1	0.00	0.15

Charcot Avenue Road Extension, San Jose, California
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 4 lane design (Project)
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
							Modeled						
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2019-2020	0.0182	10	0.25	2019-2020	0.0182	-	-			
1	1	0 - 1	2019-2020	0.0182	10	2.99	2019-2020	0.0182	1	0.05	0.004	0.0650	0.0818
2	1	1 - 2			10	0.00				0.00			
3	1	2 - 3			3	0.00				0.00			
4	1	3 - 4			3	0.00				0.00			
5	1	4 - 5			3	0.00				0.00			
6	1	5 - 6			3	0.00				0.00			
7	1	6 - 7			3	0.00				0.00			
8	1	7 - 8			3	0.00				0.00			
9	1	8 - 9			3	0.00				0.00			
10	1	9 - 10			3	0.00				0.00			
11	1	10 - 11			3	0.00				0.00			
12	1	11 - 12			3	0.00				0.00			
13	1	12 - 13			3	0.00				0.00			
14	1	13 - 14			3	0.00				0.00			
15	1	14 - 15			3	0.00				0.00			
16	1	15 - 16			3	0.00				0.00			
17	1	16-17			1	0.00				0.00			
18	1	17-18			1	0.00				0.00			
19	1	18-19			1	0.00				0.00			
20	1	19-20			1	0.00				0.00			
21	1	20-21			1	0.00				0.00			
22	1	21-22			1	0.00				0.00			
23	1	22-23			1	0.00				0.00			
24	1	23-24			1	0.00				0.00			
25	1	24-25			1	0.00				0.00			
26	1	25-26			1	0.00				0.00			
27	1	26-27			1	0.00				0.00			
28	1	27-28			1	0.00				0.00			
29	1	28-29			1	0.00				0.00			
30	1	29-30			1	0.00				0.00			
Total Increased Cancer Risk						**3.24**				**0.05**			

* Third trimester of pregnancy

Orchard School District, San Jose CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 4 lane design (Project)
School (K - 8th Grade) - 1.0 meters - Child Exposure

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

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

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

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

Values

	Infant	School Child	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	230
A =	1	1	1
EF =	350	180	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
2019	1	2019	0.0249	3	**1.1**

Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0.005	0.1260	0.1461

* Children assumed to be from 5 to 13 years of age

Proposed Project – Charcot Avenue and Oakland Road Traffic Emissions

CT-EMFAC2017 Emission Factors

```
          File Name:   Santa Clara (SF) - 2020_Charcot - Annual.EF
CT-EMFAC2017 Version:  1.0.2.27401
           Run Date:   1/15/2020 11:04:56 AM
               Area:   Santa Clara (SF)
      Analysis Year:   2020
             Season:   Annual

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

Vehicle Category        VMT Fraction            Diesel VMT Fraction     Gas VMT Fraction
                        Across Category         Within Category         Within Category
        Truck 1              0.026                   0.456                   0.544
        Truck 2              0.035                   0.944                   0.044
      Non-Truck              0.939                   0.013                   0.966

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

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

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

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

       Pollutant Name      <= 5 mph          10 mph          15 mph          20 mph          25 mph
                PM2.5      0.016688        0.012004        0.008271        0.005885        0.004640
                 PM10      0.017837        0.012796        0.008812        0.006267        0.004936
                  NOx      0.664905        0.546691        0.421748        0.352282        0.309023
                   CO      2.077345        1.786598        1.543769        1.362881        1.228127
                   HC      0.270491        0.180707        0.118340        0.081300        0.061343
                  TOG      0.309158        0.207867        0.134617        0.091284        0.068762
                  ROG      0.231203        0.155662        0.099699        0.066714        0.050072
        1,3-Butadiene      0.001397        0.000915        0.000610        0.000427        0.000322
         Acetaldehyde      0.006001        0.004405        0.002487        0.001393        0.001030
              Acrolein      0.000293        0.000189        0.000129        0.000092        0.000070
               Benzene      0.006931        0.004615        0.003001        0.002046        0.001539
            Diesel PM       0.007615        0.006330        0.004512        0.003257        0.002712
          Ethylbenzene      0.002629        0.001719        0.001148        0.000807        0.000609
          Formaldehyde      0.014115        0.010172        0.005899        0.003449        0.002561
           Naphthalene      0.000207        0.000142        0.000091        0.000061        0.000046
                   POM      0.000344        0.000237        0.000147        0.000094        0.000070
                  DEOG      0.068884        0.051655        0.028183        0.014888        0.010934
                   CO2    832.505859      680.535042      552.886520      461.453295      396.450592
                   N2O      0.033586        0.028782        0.023595        0.020625        0.018454
                   CH4      0.040639        0.028827        0.020406        0.015138        0.011954
                    BC      0.003686        0.002590        0.001783        0.001274        0.000997

Fleet Average Fuel Consumption (gallons/veh-mile)

             Fuel Type      <= 5 mph          10 mph          15 mph          20 mph          25 mph
              Gasoline      0.083275        0.067344        0.055107        0.045845        0.039192
                Diesel      0.013170        0.011141        0.008744        0.007512        0.006619

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

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

       Pollutant Name   Emission Factor
                   HC          1.479692
                  TOG          1.581982
                  ROG          1.581982
        1,3-Butadiene          0.000000
              Benzene          0.015820
          Ethylbenzene         0.025944
           Naphthalene         0.002215
                  CH4          0.229202
                  HFC          0.029147

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.002182
                 PM10          0.008729

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.017337
                 PM10          0.040454

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.016760
                 PM10          0.111737

============================END============================
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File Name: Santa Clara (SF) - 2025 Charcot - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 1/15/2020 11:10:52 AM
Area: Santa Clara (SF)
Analysis Year: 2025
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.026	0.502	0.498
Truck 2	0.036	0.936	0.048
Non-Truck	0.938	0.015	0.951

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

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph
PM2.5	0.008696	0.005704	0.003902	0.002814	0.002158
PM10	0.009409	0.006163	0.004212	0.003035	0.002325
NOx	0.504329	0.396146	0.295359	0.243218	0.201478
CO	1.404999	1.205833	1.038232	0.916307	0.826955
HC	0.161040	0.105989	0.071168	0.050343	0.038132
TOG	0.177890	0.117255	0.078214	0.054940	0.041537
ROG	0.129483	0.084685	0.055857	0.038757	0.029087
1,3-Butadiene	0.000889	0.000576	0.000388	0.000275	0.000208
Acetaldehyde	0.002010	0.001397	0.000808	0.000475	0.000345
Acrolein	0.000197	0.000127	0.000086	0.000062	0.000047
Benzene	0.004086	0.002662	0.001770	0.001240	0.000932
Diesel PM	0.001179	0.000971	0.000758	0.000611	0.000530
Ethylbenzene	0.001683	0.001090	0.000735	0.000522	0.000394
Formaldehyde	0.005409	0.003688	0.002223	0.001384	0.001018
Naphthalene	0.000121	0.000080	0.000053	0.000037	0.000028
POM	0.000162	0.000106	0.000069	0.000047	0.000035
DEOG	0.018216	0.013087	0.006959	0.003562	0.002503
CO2	720.649620	587.874262	476.323675	397.729862	341.417982
N2O	0.028275	0.023923	0.019284	0.016799	0.014924
CH4	0.028244	0.020273	0.014669	0.011123	0.008867
BC	0.002146	0.001399	0.000955	0.000687	0.000523

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph
Gasoline	0.070626	0.057117	0.046737	0.038879	0.033236
Diesel	0.012453	0.010375	0.008040	0.006902	0.006039

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

Pollutant Name	Emission Factor
HC	1.183565
TOG	1.265384
ROG	1.265384
1,3-Butadiene	0.000000
Benzene	0.012654
Ethylbenzene	0.020752
Naphthalene	0.001772
CH4	0.190397
HFC	0.017215

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

Pollutant Name	Emission Factor
PM2.5	0.002189
PM10	0.008758

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

Pollutant Name	Emission Factor
PM2.5	0.017340
PM10	0.040460

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

Pollutant Name	Emission Factor
PM2.5	0.016800
PM10	0.111998

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

File Name: Santa Clara (SF) - 2040 Charcot - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 1/15/2020 11:12:44 AM
Area: Santa Clara (SF)
Analysis Year: 2040
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.027	0.543	0.457
Truck 2	0.038	0.931	0.053
Non-Truck	0.935	0.016	0.932

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

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph
PM2.5	0.004039	0.002714	0.001896	0.001398	0.001099
PM10	0.004365	0.002927	0.002041	0.001503	0.001179
NOx	0.472448	0.361731	0.260028	0.208868	0.166985
CO	1.027278	0.872032	0.735941	0.641360	0.576873
HC	0.111213	0.073828	0.049088	0.034366	0.026042
TOG	0.124086	0.082555	0.054296	0.037558	0.028365
ROG	0.092610	0.060946	0.039364	0.026674	0.019902
1,3-Butadiene	0.000625	0.000407	0.000272	0.000191	0.000144
Acetaldehyde	0.001882	0.001320	0.000726	0.000393	0.000277
Acrolein	0.000134	0.000087	0.000059	0.000042	0.000032
Benzene	0.002908	0.001906	0.001248	0.000859	0.000644
Diesel PM	0.000667	0.000598	0.000494	0.000418	0.000377
Ethylbenzene	0.001175	0.000763	0.000511	0.000361	0.000272
Formaldehyde	0.004678	0.003231	0.001852	0.001072	0.000770
Naphthalene	0.000095	0.000064	0.000042	0.000029	0.000022
POM	0.000102	0.000067	0.000043	0.000029	0.000021
DEOG	0.018641	0.013457	0.006813	0.003145	0.002103
CO2	565.955818	461.738644	373.617981	312.088354	267.952259
N2O	0.022668	0.019145	0.015331	0.013325	0.011816
CH4	0.019686	0.014371	0.010500	0.008042	0.006466
BC	0.000986	0.000657	0.000457	0.000335	0.000260

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph
Gasoline	0.054537	0.044106	0.036090	0.030021	0.025663
Diesel	0.010509	0.008745	0.006751	0.005785	0.005057

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

Pollutant Name	Emission Factor
HC	0.672240
TOG	0.718712
ROG	0.718712
1,3-Butadiene	0.000000
Benzene	0.007187
Ethylbenzene	0.011787
Naphthalene	0.001006
CH4	0.120619
HFC	0.001598

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

Pollutant Name	Emission Factor
PM2.5	0.002203
PM10	0.008810

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

Pollutant Name	Emission Factor
PM2.5	0.017356
PM10	0.040497

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

Pollutant Name	Emission Factor
PM2.5	0.017032
PM10	0.113543

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

Charcot Avenue Traffic Emissions

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2020

North Segment

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
N_NB_DPM	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	3.4	25	4,000
N_SB_DPM	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	3.4	25	4,000
									Total	8,000

* Road segments north of Silk Wood Lane.

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00271			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2020

South Segment

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
S_NB_DPM	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	3.4	25	4,000
S_SB_DPM	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	3.4	25	4,000
									Total	8,000

* Road segments south of Silk Wood Lane.

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00271			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and DPM Emissions - N_NB_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	157	1.36E-05	9	6.47%	259	2.25E-05	17	5.49%	220	1.91E-05
2	2.54%	102	8.83E-06	10	7.16%	287	2.49E-05	18	3.29%	132	1.14E-05
3	2.83%	113	9.83E-06	11	6.35%	254	2.21E-05	19	2.43%	97	8.43E-06
4	3.41%	136	1.18E-05	12	6.93%	277	2.41E-05	20	0.98%	39	3.41E-06
5	2.20%	88	7.63E-06	13	6.12%	245	2.13E-05	21	3.06%	122	1.06E-05
6	3.35%	134	1.16E-05	14	6.12%	245	2.13E-05	22	4.16%	166	1.44E-05
7	6.07%	243	2.11E-05	15	5.14%	206	1.79E-05	23	2.37%	95	8.23E-06
8	4.79%	192	1.67E-05	16	3.93%	157	1.36E-05	24	0.87%	35	3.01E-06
								Total		4,000	

2020 Hourly Traffic Volumes Per Direction and DPM Emissions - N_SB_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.93%	157	1.36E-05	9	6.47%	259	2.25E-05	17	5.49%	220	1.91E-05
2	2.54%	102	8.83E-06	10	7.16%	287	2.49E-05	18	3.29%	132	1.14E-05
3	2.83%	113	9.83E-06	11	6.35%	254	2.21E-05	19	2.43%	97	8.43E-06
4	3.41%	136	1.18E-05	12	6.93%	277	2.41E-05	20	0.98%	39	3.41E-06
5	2.20%	88	7.63E-06	13	6.12%	245	2.13E-05	21	3.06%	122	1.06E-05
6	3.35%	134	1.16E-05	14	6.12%	245	2.13E-05	22	4.16%	166	1.44E-05
7	6.07%	243	2.11E-05	15	5.14%	206	1.79E-05	23	2.37%	95	8.23E-06
8	4.79%	192	1.67E-05	16	3.93%	157	1.36E-05	24	0.87%	35	3.01E-06
								Total		4,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2020

North Segment

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
N_NB_PM25	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	4,000
N_SB_PM25	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	4,000
									Total	8,000

* Road segments north of Silk Wood Lane.

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.004640			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2020

South Segment

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
S_NB_PM25	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	4,000
S_SB_PM25	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	4,000
									Total	8,000

* Road segments south of Silk Wood Lane.

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.004640			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and PM2.5 Emissions - S_NB_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	1.70E-05	9	7.11%	285	1.05E-04	17	7.38%	295	1.09E-04
2	0.42%	17	6.21E-06	10	4.39%	176	6.48E-05	18	8.17%	327	1.21E-04
3	0.41%	16	5.99E-06	11	4.67%	187	6.89E-05	19	5.70%	228	8.41E-05
4	0.27%	11	3.99E-06	12	5.89%	236	8.70E-05	20	4.27%	171	6.31E-05
5	0.50%	20	7.43E-06	13	6.15%	246	9.09E-05	21	3.26%	130	4.81E-05
6	0.91%	36	1.34E-05	14	6.03%	241	8.91E-05	22	3.30%	132	4.87E-05
7	3.80%	152	5.61E-05	15	7.01%	280	1.04E-04	23	2.46%	98	3.63E-05
8	7.76%	311	1.15E-04	16	7.13%	285	1.05E-04	24	1.87%	75	2.76E-05
								Total		4,000	

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - S_SB_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	1.70E-05	9	7.11%	285	1.05E-04	17	7.38%	295	1.09E-04
2	0.42%	17	6.21E-06	10	4.39%	176	6.48E-05	18	8.17%	327	1.21E-04
3	0.41%	16	5.99E-06	11	4.67%	187	6.89E-05	19	5.70%	228	8.41E-05
4	0.27%	11	3.99E-06	12	5.89%	236	8.70E-05	20	4.27%	171	6.31E-05
5	0.50%	20	7.43E-06	13	6.15%	246	9.09E-05	21	3.26%	130	4.81E-05
6	0.91%	36	1.34E-05	14	6.03%	241	8.91E-05	22	3.30%	132	4.87E-05
7	3.80%	152	5.61E-05	15	7.01%	280	1.04E-04	23	2.46%	98	3.63E-05
8	7.76%	311	1.15E-04	16	7.13%	285	1.05E-04	24	1.87%	75	2.76E-05
								Total		4,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2020

North Segment

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
N_NB_TEXH	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	4,000
N_SB_TEXH	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	4,000
									Total	8,000

* Road segments north of Silk Wood Lane.

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.06876			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2020

South Segment

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
S_NB_TEXH	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	4,000
S_SB_TEXH	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	4,000
									Total	8,000

* Road segments south of Silk Wood Lane.

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.06876			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and TOG Exhaust Emissions - S_NB_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	2.53E-04	9	7.11%	285	1.56E-03	17	7.38%	295	1.62E-03
2	0.42%	17	9.20E-05	10	4.39%	176	9.61E-04	18	8.17%	327	1.79E-03
3	0.41%	16	8.88E-05	11	4.67%	187	1.02E-03	19	5.70%	228	1.25E-03
4	0.27%	11	5.91E-05	12	5.89%	236	1.29E-03	20	4.27%	171	9.35E-04
5	0.50%	20	1.10E-04	13	6.15%	246	1.35E-03	21	3.26%	130	7.13E-04
6	0.91%	36	1.99E-04	14	6.03%	241	1.32E-03	22	3.30%	132	7.22E-04
7	3.80%	152	8.31E-04	15	7.01%	280	1.53E-03	23	2.46%	98	5.38E-04
8	7.76%	311	1.70E-03	16	7.13%	285	1.56E-03	24	1.87%	75	4.09E-04
								Total		4,000	

2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - S_SB_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	2.53E-04	9	7.11%	285	1.56E-03	17	7.38%	295	1.62E-03
2	0.42%	17	9.20E-05	10	4.39%	176	9.61E-04	18	8.17%	327	1.79E-03
3	0.41%	16	8.88E-05	11	4.67%	187	1.02E-03	19	5.70%	228	1.25E-03
4	0.27%	11	5.91E-05	12	5.89%	236	1.29E-03	20	4.27%	171	9.35E-04
5	0.50%	20	1.10E-04	13	6.15%	246	1.35E-03	21	3.26%	130	7.13E-04
6	0.91%	36	1.99E-04	14	6.03%	241	1.32E-03	22	3.30%	132	7.22E-04
7	3.80%	152	8.31E-04	15	7.01%	280	1.53E-03	23	2.46%	98	5.38E-04
8	7.76%	311	1.70E-03	16	7.13%	285	1.56E-03	24	1.87%	75	4.09E-04
								Total		4,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2020

North Segment

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
N_NB_TEVAP	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	4,000
N_SB_TEVAP	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	4,000
									Total	8,000

* Road segments north of Silk Wood Lane.

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.58198			
Emissions per Vehicle per Mile (g/VMT)	0.06328			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2020

South Segment

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
S_NB_TEVAP	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	4,000
S_SB_TEVAP	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	4,000
									Total	8,000

* Road segments south of Silk Wood Lane.

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.58198			
Emissions per Vehicle per Mile (g/VMT)	0.06328			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and TOG Evaporative Emissions - S_NB_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	2.32E-04	9	7.11%	285	1.43E-03	17	7.38%	295	1.49E-03
2	0.42%	17	8.47E-05	10	4.39%	176	8.84E-04	18	8.17%	327	1.65E-03
3	0.41%	16	8.18E-05	11	4.67%	187	9.40E-04	19	5.70%	228	1.15E-03
4	0.27%	11	5.44E-05	12	5.89%	236	1.19E-03	20	4.27%	171	8.61E-04
5	0.50%	20	1.01E-04	13	6.15%	246	1.24E-03	21	3.26%	130	6.56E-04
6	0.91%	36	1.83E-04	14	6.03%	241	1.22E-03	22	3.30%	132	6.64E-04
7	3.80%	152	7.65E-04	15	7.01%	280	1.41E-03	23	2.46%	98	4.95E-04
8	7.76%	311	1.56E-03	16	7.13%	285	1.44E-03	24	1.87%	75	3.76E-04
								Total		4,000	

2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - S_SB_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	2.32E-04	9	7.11%	285	1.43E-03	17	7.38%	295	1.49E-03
2	0.42%	17	8.47E-05	10	4.39%	176	8.84E-04	18	8.17%	327	1.65E-03
3	0.41%	16	8.18E-05	11	4.67%	187	9.40E-04	19	5.70%	228	1.15E-03
4	0.27%	11	5.44E-05	12	5.89%	236	1.19E-03	20	4.27%	171	8.61E-04
5	0.50%	20	1.01E-04	13	6.15%	246	1.24E-03	21	3.26%	130	6.56E-04
6	0.91%	36	1.83E-04	14	6.03%	241	1.22E-03	22	3.30%	132	6.64E-04
7	3.80%	152	7.65E-04	15	7.01%	280	1.41E-03	23	2.46%	98	4.95E-04
8	7.76%	311	1.56E-03	16	7.13%	285	1.44E-03	24	1.87%	75	3.76E-04
								Total		4,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2020

North Segment

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
N_NB_FUG	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	4,000
N_SB_FUG	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	4,000
									Total	8,000

* Road segments north of Silk Wood Lane.

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00218			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01676			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03628			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2020

South Segment

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
S_NB_FUG	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	4,000
S_SB_FUG	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	4,000
									Total	8,000

* Road segments south of Silk Wood Lane.

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00218			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01676			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03628			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - S_NB_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	1.33E-04	9	7.11%	285	8.22E-04	17	7.38%	295	8.52E-04
2	0.42%	17	4.85E-05	10	4.39%	176	5.07E-04	18	8.17%	327	9.44E-04
3	0.41%	16	4.69E-05	11	4.67%	187	5.39E-04	19	5.70%	228	6.58E-04
4	0.27%	11	3.12E-05	12	5.89%	236	6.80E-04	20	4.27%	171	4.93E-04
5	0.50%	20	5.81E-05	13	6.15%	246	7.11E-04	21	3.26%	130	3.76E-04
6	0.91%	36	1.05E-04	14	6.03%	241	6.97E-04	22	3.30%	132	3.81E-04
7	3.80%	152	4.39E-04	15	7.01%	280	8.10E-04	23	2.46%	98	2.84E-04
8	7.76%	311	8.97E-04	16	7.13%	285	8.24E-04	24	1.87%	75	2.16E-04
								Total		4,000	

2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - S_SB_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	1.33E-04	9	7.11%	285	8.22E-04	17	7.38%	295	8.52E-04
2	0.42%	17	4.85E-05	10	4.39%	176	5.07E-04	18	8.17%	327	9.44E-04
3	0.41%	16	4.69E-05	11	4.67%	187	5.39E-04	19	5.70%	228	6.58E-04
4	0.27%	11	3.12E-05	12	5.89%	236	6.80E-04	20	4.27%	171	4.93E-04
5	0.50%	20	5.81E-05	13	6.15%	246	7.11E-04	21	3.26%	130	3.76E-04
6	0.91%	36	1.05E-04	14	6.03%	241	6.97E-04	22	3.30%	132	3.81E-04
7	3.80%	152	4.39E-04	15	7.01%	280	8.10E-04	23	2.46%	98	2.84E-04
8	7.76%	311	8.97E-04	16	7.13%	285	8.24E-04	24	1.87%	75	2.16E-04
								Total		4,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025

North Segment

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
N_NB_DPM	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	3.4	25	5,000
N_SB_DPM	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	3.4	25	5,000
									Total	10,000

* Road segments north of Silk Wood Lane.

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00053			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025

South Segment

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
S_NB_DPM	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	3.4	25	5,000
S_SB_DPM	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	3.4	25	5,000
									Total	10,000

* Road segments south of Silk Wood Lane.

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00053			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - S_NB_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	197	8.30E-06	9	6.41%	320	1.35E-05	17	5.55%	278	1.17E-05
2	2.62%	131	5.53E-06	10	7.36%	368	1.55E-05	18	3.16%	158	6.66E-06
3	2.85%	143	6.01E-06	11	6.34%	317	1.34E-05	19	2.36%	118	4.97E-06
4	3.31%	165	6.98E-06	12	6.92%	346	1.46E-05	20	0.87%	43	1.83E-06
5	2.17%	108	4.57E-06	13	6.29%	315	1.33E-05	21	3.09%	154	6.52E-06
6	3.36%	168	7.10E-06	14	6.23%	312	1.32E-05	22	4.12%	206	8.68E-06
7	6.00%	300	1.26E-05	15	5.15%	258	1.09E-05	23	2.58%	129	5.43E-06
8	4.58%	229	9.66E-06	16	3.84%	192	8.10E-06	24	0.92%	46	1.95E-06
								Total		5,000	

2025 Hourly Traffic Volumes Per Direction and DPM Emissions - S_SB_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.93%	197	8.30E-06	9	6.41%	320	1.35E-05	17	5.55%	278	1.17E-05
2	2.62%	131	5.53E-06	10	7.36%	368	1.55E-05	18	3.16%	158	6.66E-06
3	2.85%	143	6.01E-06	11	6.34%	317	1.34E-05	19	2.36%	118	4.97E-06
4	3.31%	165	6.98E-06	12	6.92%	346	1.46E-05	20	0.87%	43	1.83E-06
5	2.17%	108	4.57E-06	13	6.29%	315	1.33E-05	21	3.09%	154	6.52E-06
6	3.36%	168	7.10E-06	14	6.23%	312	1.32E-05	22	4.12%	206	8.68E-06
7	6.00%	300	1.26E-05	15	5.15%	258	1.09E-05	23	2.58%	129	5.43E-06
8	4.58%	229	9.66E-06	16	3.84%	192	8.10E-06	24	0.92%	46	1.95E-06
								Total		5,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

North Segment

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
N_NB_PM25	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	5,000
N_SB_PM25	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	5,000
									Total	10,000

* Road segments north of Silk Wood Lane.

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.002158			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

South Segment

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
S_NB_PM25	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	5,000
S_SB_PM25	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	5,000
									Total	10,000

* Road segments south of Silk Wood Lane.

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.002158			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - S_NB_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	9.87E-06	9	7.11%	356	6.11E-05	17	7.39%	369	6.35E-05
2	0.42%	21	3.62E-06	10	4.39%	219	3.77E-05	18	8.18%	409	7.02E-05
3	0.41%	20	3.51E-06	11	4.66%	233	4.00E-05	19	5.69%	285	4.89E-05
4	0.26%	13	2.23E-06	12	5.89%	294	5.06E-05	20	4.28%	214	3.67E-05
5	0.50%	25	4.27E-06	13	6.15%	308	5.28E-05	21	3.25%	163	2.80E-05
6	0.91%	45	7.79E-06	14	6.04%	302	5.19E-05	22	3.30%	165	2.83E-05
7	3.79%	189	3.25E-05	15	7.01%	351	6.02E-05	23	2.46%	123	2.11E-05
8	7.77%	388	6.67E-05	16	7.14%	357	6.13E-05	24	1.86%	93	1.60E-05
								Total		5,000	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - S_SB_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	9.87E-06	9	7.11%	356	6.11E-05	17	7.39%	369	6.35E-05
2	0.42%	21	3.62E-06	10	4.39%	219	3.77E-05	18	8.18%	409	7.02E-05
3	0.41%	20	3.51E-06	11	4.66%	233	4.00E-05	19	5.69%	285	4.89E-05
4	0.26%	13	2.23E-06	12	5.89%	294	5.06E-05	20	4.28%	214	3.67E-05
5	0.50%	25	4.27E-06	13	6.15%	308	5.28E-05	21	3.25%	163	2.80E-05
6	0.91%	45	7.79E-06	14	6.04%	302	5.19E-05	22	3.30%	165	2.83E-05
7	3.79%	189	3.25E-05	15	7.01%	351	6.02E-05	23	2.46%	123	2.11E-05
8	7.77%	388	6.67E-05	16	7.14%	357	6.13E-05	24	1.86%	93	1.60E-05
								Total		5,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

North Segment

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
N_NB_TEXH	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	5,000
N_SB_TEXH	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	5,000
									Total	10,000

* Road segments north of Silk Wood Lane.

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.04154			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

South Segment

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
S_NB_TEXH	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	5,000
S_SB_TEXH	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	5,000
									Total	10,000

* Road segments south of Silk Wood Lane.

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.04154			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - S_NB_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	1.90E-04	9	7.11%	356	1.18E-03	17	7.39%	369	1.22E-03
2	0.42%	21	6.97E-05	10	4.39%	219	7.25E-04	18	8.18%	409	1.35E-03
3	0.41%	20	6.75E-05	11	4.66%	233	7.71E-04	19	5.69%	285	9.41E-04
4	0.26%	13	4.30E-05	12	5.89%	294	9.73E-04	20	4.28%	214	7.07E-04
5	0.50%	25	8.21E-05	13	6.15%	308	1.02E-03	21	3.25%	163	5.38E-04
6	0.91%	45	1.50E-04	14	6.04%	302	9.98E-04	22	3.30%	165	5.45E-04
7	3.79%	189	6.26E-04	15	7.01%	351	1.16E-03	23	2.46%	123	4.07E-04
8	7.77%	388	1.28E-03	16	7.14%	357	1.18E-03	24	1.86%	93	3.08E-04
								Total		5,000	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	1.90E-04	9	7.11%	356	1.18E-03	17	7.39%	369	1.22E-03
2	0.42%	21	6.97E-05	10	4.39%	219	7.25E-04	18	8.18%	409	1.35E-03
3	0.41%	20	6.75E-05	11	4.66%	233	7.71E-04	19	5.69%	285	9.41E-04
4	0.26%	13	4.30E-05	12	5.89%	294	9.73E-04	20	4.28%	214	7.07E-04
5	0.50%	25	8.21E-05	13	6.15%	308	1.02E-03	21	3.25%	163	5.38E-04
6	0.91%	45	1.50E-04	14	6.04%	302	9.98E-04	22	3.30%	165	5.45E-04
7	3.79%	189	6.26E-04	15	7.01%	351	1.16E-03	23	2.46%	123	4.07E-04
8	7.77%	388	1.28E-03	16	7.14%	357	1.18E-03	24	1.86%	93	3.08E-04
								Total		5,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

North Segment

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
N_NB_TEVAP	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	5,000
N_SB_TEVAP	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	5,000
									Total	10,000

* Road segments north of Silk Wood Lane.

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.26538			
Emissions per Vehicle per Mile (g/VMT)	0.05062			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

South Segment

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
S_NB_TEVAP	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	5,000
S_SB_TEVAP	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	5,000
									Total	10,000

* Road segments south of Silk Wood Lane.

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.26538			
Emissions per Vehicle per Mile (g/VMT)	0.05062			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - S_NB_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	2.32E-04	9	7.11%	356	1.43E-03	17	7.39%	369	1.49E-03
2	0.42%	21	8.50E-05	10	4.39%	219	8.84E-04	18	8.18%	409	1.65E-03
3	0.41%	20	8.22E-05	11	4.66%	233	9.39E-04	19	5.69%	285	1.15E-03
4	0.26%	13	5.24E-05	12	5.89%	294	1.19E-03	20	4.28%	214	8.61E-04
5	0.50%	25	1.00E-04	13	6.15%	308	1.24E-03	21	3.25%	163	6.56E-04
6	0.91%	45	1.83E-04	14	6.04%	302	1.22E-03	22	3.30%	165	6.64E-04
7	3.79%	189	7.63E-04	15	7.01%	351	1.41E-03	23	2.46%	123	4.96E-04
8	7.77%	388	1.56E-03	16	7.14%	357	1.44E-03	24	1.86%	93	3.76E-04
								Total		5,000	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	2.32E-04	9	7.11%	356	1.43E-03	17	7.39%	369	1.49E-03
2	0.42%	21	8.50E-05	10	4.39%	219	8.84E-04	18	8.18%	409	1.65E-03
3	0.41%	20	8.22E-05	11	4.66%	233	9.39E-04	19	5.69%	285	1.15E-03
4	0.26%	13	5.24E-05	12	5.89%	294	1.19E-03	20	4.28%	214	8.61E-04
5	0.50%	25	1.00E-04	13	6.15%	308	1.24E-03	21	3.25%	163	6.56E-04
6	0.91%	45	1.83E-04	14	6.04%	302	1.22E-03	22	3.30%	165	6.64E-04
7	3.79%	189	7.63E-04	15	7.01%	351	1.41E-03	23	2.46%	123	4.96E-04
8	7.77%	388	1.56E-03	16	7.14%	357	1.44E-03	24	1.86%	93	3.76E-04
								Total		5,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

North Segment

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
N_NB_FUG	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	5,000
N_SB_FUG	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	5,000
									Total	10,000

* Road segments north of Silk Wood Lane.

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00219			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01680			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03633			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

South Segment

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
S_NB_FUG	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	5,000
S_SB_FUG	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	5,000
									Total	10,000

* Road segments south of Silk Wood Lane.

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00219			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01680			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03633			

Emisson Factors from CT-EMFAC2017

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

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	1.66E-04	9	7.11%	356	1.03E-03	17	7.39%	369	1.07E-03
2	0.42%	21	6.10E-05	10	4.39%	219	6.34E-04	18	8.18%	409	1.18E-03
3	0.41%	20	5.90E-05	11	4.66%	233	6.74E-04	19	5.69%	285	8.23E-04
4	0.26%	13	3.76E-05	12	5.89%	294	8.51E-04	20	4.28%	214	6.18E-04
5	0.50%	25	7.18E-05	13	6.15%	308	8.89E-04	21	3.25%	163	4.71E-04
6	0.91%	45	1.31E-04	14	6.04%	302	8.73E-04	22	3.30%	165	4.77E-04
7	3.79%	189	5.48E-04	15	7.01%	351	1.01E-03	23	2.46%	123	3.56E-04
8	7.77%	388	1.12E-03	16	7.14%	357	1.03E-03	24	1.86%	93	2.70E-04
								Total		5,000	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	1.66E-04	9	7.11%	356	1.03E-03	17	7.39%	369	1.07E-03
2	0.42%	21	6.10E-05	10	4.39%	219	6.34E-04	18	8.18%	409	1.18E-03
3	0.41%	20	5.90E-05	11	4.66%	233	6.74E-04	19	5.69%	285	8.23E-04
4	0.26%	13	3.76E-05	12	5.89%	294	8.51E-04	20	4.28%	214	6.18E-04
5	0.50%	25	7.18E-05	13	6.15%	308	8.89E-04	21	3.25%	163	4.71E-04
6	0.91%	45	1.31E-04	14	6.04%	302	8.73E-04	22	3.30%	165	4.77E-04
7	3.79%	189	5.48E-04	15	7.01%	351	1.01E-03	23	2.46%	123	3.56E-04
8	7.77%	388	1.12E-03	16	7.14%	357	1.03E-03	24	1.86%	93	2.70E-04
								Total		5,000	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2040

North Segment

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
N_NB_DPM	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	3.4	25	6,600
N_SB_DPM	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	3.4	25	6,600
									Total	13,200

* Road segments north of Silk Wood Lane.

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00038			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2040

South Segment

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
S_NB_DPM	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	3.4	25	6,600
S_SB_DPM	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	3.4	25	6,600
									Total	13,200

* Road segments south of Silk Wood Lane.

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00038			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and DPM Emissions - S_NB_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	272	8.15E-06	9	6.54%	432	1.30E-05	17	5.65%	373	1.12E-05
2	2.80%	185	5.54E-06	10	7.60%	502	1.51E-05	18	3.11%	205	6.17E-06
3	2.85%	188	5.64E-06	11	6.39%	421	1.26E-05	19	2.11%	139	4.18E-06
4	3.11%	205	6.17E-06	12	7.07%	467	1.40E-05	20	0.84%	56	1.67E-06
5	2.06%	136	4.08E-06	13	6.33%	418	1.25E-05	21	3.06%	202	6.06E-06
6	3.22%	212	6.38E-06	14	6.17%	407	1.22E-05	22	4.27%	282	8.47E-06
7	5.96%	394	1.18E-05	15	5.22%	345	1.03E-05	23	2.69%	178	5.33E-06
8	4.22%	279	8.36E-06	16	3.75%	247	7.42E-06	24	0.84%	56	1.67E-06
								Total		6,600	

2040 Hourly Traffic Volumes Per Direction and DPM Emissions - S_SB_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.12%	272	8.15E-06	9	6.54%	432	1.30E-05	17	5.65%	373	1.12E-05
2	2.80%	185	5.54E-06	10	7.60%	502	1.51E-05	18	3.11%	205	6.17E-06
3	2.85%	188	5.64E-06	11	6.39%	421	1.26E-05	19	2.11%	139	4.18E-06
4	3.11%	205	6.17E-06	12	7.07%	467	1.40E-05	20	0.84%	56	1.67E-06
5	2.06%	136	4.08E-06	13	6.33%	418	1.25E-05	21	3.06%	202	6.06E-06
6	3.22%	212	6.38E-06	14	6.17%	407	1.22E-05	22	4.27%	282	8.47E-06
7	5.96%	394	1.18E-05	15	5.22%	345	1.03E-05	23	2.69%	178	5.33E-06
8	4.22%	279	8.36E-06	16	3.75%	247	7.42E-06	24	0.84%	56	1.67E-06
								Total		6,600	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2040

North Segment

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
N_NB_PM25	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	6,600
N_SB_PM25	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	6,600
									Total	13,200

* Road segments north of Silk Wood Lane.

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001099			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2040

South Segment

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
S_NB_PM25	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	6,600
S_SB_PM25	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	6,600
									Total	13,200

* Road segments south of Silk Wood Lane.

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001099			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and PM2.5 Emissions - S_NB_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	6.59E-06	9	7.12%	470	4.11E-05	17	7.40%	488	4.27E-05
2	0.42%	27	2.40E-06	10	4.38%	289	2.53E-05	18	8.19%	541	4.73E-05
3	0.40%	26	2.30E-06	11	4.66%	308	2.69E-05	19	5.71%	377	3.29E-05
4	0.24%	16	1.40E-06	12	5.89%	389	3.40E-05	20	4.28%	283	2.47E-05
5	0.49%	32	2.82E-06	13	6.16%	406	3.55E-05	21	3.25%	215	1.88E-05
6	0.89%	59	5.16E-06	14	6.03%	398	3.48E-05	22	3.30%	218	1.90E-05
7	3.78%	249	2.18E-05	15	7.02%	463	4.05E-05	23	2.46%	163	1.42E-05
8	7.77%	513	4.48E-05	16	7.15%	472	4.13E-05	24	1.87%	123	1.08E-05
								Total		6,600	

2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - S_SB_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	6.59E-06	9	7.12%	470	4.11E-05	17	7.40%	488	4.27E-05
2	0.42%	27	2.40E-06	10	4.38%	289	2.53E-05	18	8.19%	541	4.73E-05
3	0.40%	26	2.30E-06	11	4.66%	308	2.69E-05	19	5.71%	377	3.29E-05
4	0.24%	16	1.40E-06	12	5.89%	389	3.40E-05	20	4.28%	283	2.47E-05
5	0.49%	32	2.82E-06	13	6.16%	406	3.55E-05	21	3.25%	215	1.88E-05
6	0.89%	59	5.16E-06	14	6.03%	398	3.48E-05	22	3.30%	218	1.90E-05
7	3.78%	249	2.18E-05	15	7.02%	463	4.05E-05	23	2.46%	163	1.42E-05
8	7.77%	513	4.48E-05	16	7.15%	472	4.13E-05	24	1.87%	123	1.08E-05
								Total		6,600	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2040

North Segment

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
N_NB_TEXH	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	6,600
N_SB_TEXH	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	6,600
									Total	13,200

* Road segments north of Silk Wood Lane.

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02837			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2040

South Segment

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
S_NB_TEXH	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	6,600
S_SB_TEXH	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	6,600
									Total	13,200

* Road segments south of Silk Wood Lane.

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02837			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and TOG Exhaust Emissions - S_NB_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	1.70E-04	9	7.12%	470	1.06E-03	17	7.40%	488	1.10E-03
2	0.42%	27	6.19E-05	10	4.38%	289	6.53E-04	18	8.19%	541	1.22E-03
3	0.40%	26	5.93E-05	11	4.66%	308	6.95E-04	19	5.71%	377	8.50E-04
4	0.24%	16	3.62E-05	12	5.89%	389	8.77E-04	20	4.28%	283	6.38E-04
5	0.49%	32	7.28E-05	13	6.16%	406	9.17E-04	21	3.25%	215	4.85E-04
6	0.89%	59	1.33E-04	14	6.03%	398	8.99E-04	22	3.30%	218	4.92E-04
7	3.78%	249	5.63E-04	15	7.02%	463	1.05E-03	23	2.46%	163	3.67E-04
8	7.77%	513	1.16E-03	16	7.15%	472	1.07E-03	24	1.87%	123	2.78E-04
								Total		6,600	

2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - S_SB_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	1.70E-04	9	7.12%	470	1.06E-03	17	7.40%	488	1.10E-03
2	0.42%	27	6.19E-05	10	4.38%	289	6.53E-04	18	8.19%	541	1.22E-03
3	0.40%	26	5.93E-05	11	4.66%	308	6.95E-04	19	5.71%	377	8.50E-04
4	0.24%	16	3.62E-05	12	5.89%	389	8.77E-04	20	4.28%	283	6.38E-04
5	0.49%	32	7.28E-05	13	6.16%	406	9.17E-04	21	3.25%	215	4.85E-04
6	0.89%	59	1.33E-04	14	6.03%	398	8.99E-04	22	3.30%	218	4.92E-04
7	3.78%	249	5.63E-04	15	7.02%	463	1.05E-03	23	2.46%	163	3.67E-04
8	7.77%	513	1.16E-03	16	7.15%	472	1.07E-03	24	1.87%	123	2.78E-04
								Total		6,600	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2040

North Segment

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
N_NB_TEVAP	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	6,600
N_SB_TEVAP	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	6,600
									Total	13,200

* Road segments north of Silk Wood Lane.

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.71871			
Emissions per Vehicle per Mile (g/VMT)	0.02875			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2040

South Segment

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
S_NB_TEVAP	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	6,600
S_SB_TEVAP	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	6,600
									Total	13,200

* Road segments south of Silk Wood Lane.

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.71871			
Emissions per Vehicle per Mile (g/VMT)	0.02875			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and TOG Evaporative Emissions - S_NB_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	1.72E-04	9	7.12%	470	1.08E-03	17	7.40%	488	1.12E-03
2	0.42%	27	6.27E-05	10	4.38%	289	6.62E-04	18	8.19%	541	1.24E-03
3	0.40%	26	6.01E-05	11	4.66%	308	7.04E-04	19	5.71%	377	8.62E-04
4	0.24%	16	3.67E-05	12	5.89%	389	8.89E-04	20	4.28%	283	6.47E-04
5	0.49%	32	7.38E-05	13	6.16%	406	9.30E-04	21	3.25%	215	4.91E-04
6	0.89%	59	1.35E-04	14	6.03%	398	9.11E-04	22	3.30%	218	4.98E-04
7	3.78%	249	5.71E-04	15	7.02%	463	1.06E-03	23	2.46%	163	3.72E-04
8	7.77%	513	1.17E-03	16	7.15%	472	1.08E-03	24	1.87%	123	2.82E-04
								Total		6,600	

2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - S_SB_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	1.72E-04	9	7.12%	470	1.08E-03	17	7.40%	488	1.12E-03
2	0.42%	27	6.27E-05	10	4.38%	289	6.62E-04	18	8.19%	541	1.24E-03
3	0.40%	26	6.01E-05	11	4.66%	308	7.04E-04	19	5.71%	377	8.62E-04
4	0.24%	16	3.67E-05	12	5.89%	389	8.89E-04	20	4.28%	283	6.47E-04
5	0.49%	32	7.38E-05	13	6.16%	406	9.30E-04	21	3.25%	215	4.91E-04
6	0.89%	59	1.35E-04	14	6.03%	398	9.11E-04	22	3.30%	218	4.98E-04
7	3.78%	249	5.71E-04	15	7.02%	463	1.06E-03	23	2.46%	163	3.72E-04
8	7.77%	513	1.17E-03	16	7.15%	472	1.08E-03	24	1.87%	123	2.82E-04
								Total		6,600	

Charcot Ave, San Jose, CA
Operation - Proposed North Segment Charcot Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2040

North Segment

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
N_NB_FUG	Northbound Charcot Ave*	NW	2	186	0.12	12.71	41.7	1.3	25	6,600
N_SB_FUG	Southbound Charcot Ave*	SE	2	186	0.12	12.71	41.7	1.3	25	6,600
									Total	13,200

* Road segments north of Silk Wood Lane.

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00220			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01736			
Road Dust - Emissions per Vehicle (g/VMT)	0.01703			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03659			

Emisson Factors from CT-EMFAC2017

Charcot Ave, San Jose, CA
Operation - Proposed South Segment Charcot Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2040

South Segment

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
S_NB_FUG	Northbound Charcot Ave*	NW	1	461	0.29	9.35	30.7	1.3	25	6,600
S_SB_FUG	Southbound Charcot Ave*	SE	1	461	0.29	9.35	30.7	1.3	25	6,600
									Total	13,200

* Road segments south of Silk Wood Lane.

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00220			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01736			
Road Dust - Emissions per Vehicle (g/VMT)	0.01703			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03659			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - S_NB_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	2.20E-04	9	7.12%	470	1.37E-03	17	7.40%	488	1.42E-03
2	0.42%	27	7.98E-05	10	4.38%	289	8.43E-04	18	8.19%	541	1.57E-03
3	0.40%	26	7.65E-05	11	4.66%	308	8.96E-04	19	5.71%	377	1.10E-03
4	0.24%	16	4.67E-05	12	5.89%	389	1.13E-03	20	4.28%	283	8.23E-04
5	0.49%	32	9.40E-05	13	6.16%	406	1.18E-03	21	3.25%	215	6.25E-04
6	0.89%	59	1.72E-04	14	6.03%	398	1.16E-03	22	3.30%	218	6.34E-04
7	3.78%	249	7.26E-04	15	7.02%	463	1.35E-03	23	2.46%	163	4.73E-04
8	7.77%	513	1.49E-03	16	7.15%	472	1.37E-03	24	1.87%	123	3.59E-04
								Total		6,600	

2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - S_SB_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	2.20E-04	9	7.12%	470	1.37E-03	17	7.40%	488	1.42E-03
2	0.42%	27	7.98E-05	10	4.38%	289	8.43E-04	18	8.19%	541	1.57E-03
3	0.40%	26	7.65E-05	11	4.66%	308	8.96E-04	19	5.71%	377	1.10E-03
4	0.24%	16	4.67E-05	12	5.89%	389	1.13E-03	20	4.28%	283	8.23E-04
5	0.49%	32	9.40E-05	13	6.16%	406	1.18E-03	21	3.25%	215	6.25E-04
6	0.89%	59	1.72E-04	14	6.03%	398	1.16E-03	22	3.30%	218	6.34E-04
7	3.78%	249	7.26E-04	15	7.02%	463	1.35E-03	23	2.46%	163	4.73E-04
8	7.77%	513	1.49E-03	16	7.15%	472	1.37E-03	24	1.87%	123	3.59E-04
								Total		6,600	

Oakland Road Traffic Emissions

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2020

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
NB_OAK_DPM	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	3.4	25	2,500
SB_OAK_DPM	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	3.4	25	2,500
									Total	5,000

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00271			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and DPM Emissions - NB_OAK_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	98	2.96E-05	9	6.47%	162	4.88E-05	17	5.49%	137	4.14E-05
2	2.54%	64	1.92E-05	10	7.16%	179	5.40E-05	18	3.29%	82	2.48E-05
3	2.83%	71	2.13E-05	11	6.35%	159	4.79E-05	19	2.43%	61	1.83E-05
4	3.41%	85	2.57E-05	12	6.93%	173	5.22E-05	20	0.98%	25	7.40E-06
5	2.20%	55	1.65E-05	13	6.12%	153	4.62E-05	21	3.06%	77	2.31E-05
6	3.35%	84	2.53E-05	14	6.12%	153	4.62E-05	22	4.16%	104	3.13E-05
7	6.07%	152	4.57E-05	15	5.14%	129	3.87E-05	23	2.37%	59	1.79E-05
8	4.79%	120	3.61E-05	16	3.93%	98	2.96E-05	24	0.87%	22	6.53E-06
								Total		2,500	

2020 Hourly Traffic Volumes Per Direction and DPM Emissions - SB_OAK_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.93%	98	2.96E-05	9	6.47%	162	4.88E-05	17	5.49%	137	4.14E-05
2	2.54%	64	1.92E-05	10	7.16%	179	5.40E-05	18	3.29%	82	2.48E-05
3	2.83%	71	2.13E-05	11	6.35%	159	4.79E-05	19	2.43%	61	1.83E-05
4	3.41%	85	2.57E-05	12	6.93%	173	5.22E-05	20	0.98%	25	7.40E-06
5	2.20%	55	1.65E-05	13	6.12%	153	4.62E-05	21	3.06%	77	2.31E-05
6	3.35%	84	2.53E-05	14	6.12%	153	4.62E-05	22	4.16%	104	3.13E-05
7	6.07%	152	4.57E-05	15	5.14%	129	3.87E-05	23	2.37%	59	1.79E-05
8	4.79%	120	3.61E-05	16	3.93%	98	2.96E-05	24	0.87%	22	6.53E-06
								Total		2,500	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2020

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
NB_OAK_PM25	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	2,500
SB_OAK_PM25	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	2,500
									Total	5,000

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.004640			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and PM2.5 Emissions - NB_OAK_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	29	1.49E-05	9	7.11%	178	9.17E-05	17	7.38%	185	9.52E-05
2	0.42%	11	5.42E-06	10	4.39%	110	5.66E-05	18	8.17%	204	1.05E-04
3	0.41%	10	5.23E-06	11	4.67%	117	6.02E-05	19	5.70%	142	7.34E-05
4	0.27%	7	3.48E-06	12	5.89%	147	7.59E-05	20	4.27%	107	5.51E-05
5	0.50%	13	6.48E-06	13	6.15%	154	7.93E-05	21	3.26%	81	4.20E-05
6	0.91%	23	1.17E-05	14	6.03%	151	7.78E-05	22	3.30%	82	4.25E-05
7	3.80%	95	4.89E-05	15	7.01%	175	9.04E-05	23	2.46%	61	3.17E-05
8	7.76%	194	1.00E-04	16	7.13%	178	9.20E-05	24	1.87%	47	2.41E-05
								Total		2,500	

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB_OAK_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	29	1.49E-05	9	7.11%	178	9.17E-05	17	7.38%	185	9.52E-05
2	0.42%	11	5.42E-06	10	4.39%	110	5.66E-05	18	8.17%	204	1.05E-04
3	0.41%	10	5.23E-06	11	4.67%	117	6.02E-05	19	5.70%	142	7.34E-05
4	0.27%	7	3.48E-06	12	5.89%	147	7.59E-05	20	4.27%	107	5.51E-05
5	0.50%	13	6.48E-06	13	6.15%	154	7.93E-05	21	3.26%	81	4.20E-05
6	0.91%	23	1.17E-05	14	6.03%	151	7.78E-05	22	3.30%	82	4.25E-05
7	3.80%	95	4.89E-05	15	7.01%	175	9.04E-05	23	2.46%	61	3.17E-05
8	7.76%	194	1.00E-04	16	7.13%	178	9.20E-05	24	1.87%	47	2.41E-05
								Total		2,500	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2020

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
NB_OAK_TEXH	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	2,500
SB_OAK_TEXH	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	2,500
									Total	5,000

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.06876			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and TOG Exhaust Emissions - NB_OAK_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	29	2.20E-04	9	7.11%	178	1.36E-03	17	7.38%	185	1.41E-03
2	0.42%	11	8.03E-05	10	4.39%	110	8.39E-04	18	8.17%	204	1.56E-03
3	0.41%	10	7.75E-05	11	4.67%	117	8.91E-04	19	5.70%	142	1.09E-03
4	0.27%	7	5.16E-05	12	5.89%	147	1.13E-03	20	4.27%	107	8.16E-04
5	0.50%	13	9.60E-05	13	6.15%	154	1.18E-03	21	3.26%	81	6.22E-04
6	0.91%	23	1.74E-04	14	6.03%	151	1.15E-03	22	3.30%	82	6.30E-04
7	3.80%	95	7.25E-04	15	7.01%	175	1.34E-03	23	2.46%	61	4.69E-04
8	7.76%	194	1.48E-03	16	7.13%	178	1.36E-03	24	1.87%	47	3.57E-04
								Total		2,500	

2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SB_OAK_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	29	2.20E-04	9	7.11%	178	1.36E-03	17	7.38%	185	1.41E-03
2	0.42%	11	8.03E-05	10	4.39%	110	8.39E-04	18	8.17%	204	1.56E-03
3	0.41%	10	7.75E-05	11	4.67%	117	8.91E-04	19	5.70%	142	1.09E-03
4	0.27%	7	5.16E-05	12	5.89%	147	1.13E-03	20	4.27%	107	8.16E-04
5	0.50%	13	9.60E-05	13	6.15%	154	1.18E-03	21	3.26%	81	6.22E-04
6	0.91%	23	1.74E-04	14	6.03%	151	1.15E-03	22	3.30%	82	6.30E-04
7	3.80%	95	7.25E-04	15	7.01%	175	1.34E-03	23	2.46%	61	4.69E-04
8	7.76%	194	1.48E-03	16	7.13%	178	1.36E-03	24	1.87%	47	3.57E-04
								Total		2,500	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2020

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
NB_OAK_TEVAP	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	2,500
SB_OAK_TEVAP	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	2,500
									Total	5,000

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.58198			
Emissions per Vehicle per Mile (g/VMT)	0.06328			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and TOG Evaporative Emissions - NB_OAK_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	29	2.03E-04	9	7.11%	178	1.25E-03	17	7.38%	185	1.30E-03
2	0.42%	11	7.39E-05	10	4.39%	110	7.72E-04	18	8.17%	204	1.44E-03
3	0.41%	10	7.14E-05	11	4.67%	117	8.20E-04	19	5.70%	142	1.00E-03
4	0.27%	7	4.74E-05	12	5.89%	147	1.04E-03	20	4.27%	107	7.51E-04
5	0.50%	13	8.84E-05	13	6.15%	154	1.08E-03	21	3.26%	81	5.73E-04
6	0.91%	23	1.60E-04	14	6.03%	151	1.06E-03	22	3.30%	82	5.80E-04
7	3.80%	95	6.68E-04	15	7.01%	175	1.23E-03	23	2.46%	61	4.32E-04
8	7.76%	194	1.37E-03	16	7.13%	178	1.25E-03	24	1.87%	47	3.28E-04
								Total		2,500	

2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SB_OAK_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	29	2.03E-04	9	7.11%	178	1.25E-03	17	7.38%	185	1.30E-03
2	0.42%	11	7.39E-05	10	4.39%	110	7.72E-04	18	8.17%	204	1.44E-03
3	0.41%	10	7.14E-05	11	4.67%	117	8.20E-04	19	5.70%	142	1.00E-03
4	0.27%	7	4.74E-05	12	5.89%	147	1.04E-03	20	4.27%	107	7.51E-04
5	0.50%	13	8.84E-05	13	6.15%	154	1.08E-03	21	3.26%	81	5.73E-04
6	0.91%	23	1.60E-04	14	6.03%	151	1.06E-03	22	3.30%	82	5.80E-04
7	3.80%	95	6.68E-04	15	7.01%	175	1.23E-03	23	2.46%	61	4.32E-04
8	7.76%	194	1.37E-03	16	7.13%	178	1.25E-03	24	1.87%	47	3.28E-04
								Total		2,500	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2020

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
NB_OAK_FUG	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	2,500
SB_OAK_FUG	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	2,500
									Total	5,000

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00218			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01676			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03628			

Emisson Factors from CT-EMFAC2017

2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NB_OAK_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	29	1.16E-04	9	7.11%	178	7.17E-04	17	7.38%	185	7.44E-04
2	0.42%	11	4.24E-05	10	4.39%	110	4.43E-04	18	8.17%	204	8.24E-04
3	0.41%	10	4.09E-05	11	4.67%	117	4.70E-04	19	5.70%	142	5.74E-04
4	0.27%	7	2.72E-05	12	5.89%	147	5.94E-04	20	4.27%	107	4.31E-04
5	0.50%	13	5.07E-05	13	6.15%	154	6.20E-04	21	3.26%	81	3.28E-04
6	0.91%	23	9.16E-05	14	6.03%	151	6.08E-04	22	3.30%	82	3.32E-04
7	3.80%	95	3.83E-04	15	7.01%	175	7.07E-04	23	2.46%	61	2.48E-04
8	7.76%	194	7.83E-04	16	7.13%	178	7.19E-04	24	1.87%	47	1.88E-04
								Total		2,500	

2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SB_OAK_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	29	1.16E-04	9	7.11%	178	7.17E-04	17	7.38%	185	7.44E-04
2	0.42%	11	4.24E-05	10	4.39%	110	4.43E-04	18	8.17%	204	8.24E-04
3	0.41%	10	4.09E-05	11	4.67%	117	4.70E-04	19	5.70%	142	5.74E-04
4	0.27%	7	2.72E-05	12	5.89%	147	5.94E-04	20	4.27%	107	4.31E-04
5	0.50%	13	5.07E-05	13	6.15%	154	6.20E-04	21	3.26%	81	3.28E-04
6	0.91%	23	9.16E-05	14	6.03%	151	6.08E-04	22	3.30%	82	3.32E-04
7	3.80%	95	3.83E-04	15	7.01%	175	7.07E-04	23	2.46%	61	2.48E-04
8	7.76%	194	7.83E-04	16	7.13%	178	7.19E-04	24	1.87%	47	1.88E-04
								Total		2,500	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB_OAK_DPM	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	3.4	25	3,000
SB_OAK_DPM	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	3.4	25	3,000
									Total	6,000

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00053			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - NB_OAK_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	118	6.95E-06	9	6.41%	192	1.13E-05	17	5.55%	167	9.81E-06
2	2.62%	79	4.64E-06	10	7.36%	221	1.30E-05	18	3.16%	95	5.58E-06
3	2.85%	86	5.04E-06	11	6.34%	190	1.12E-05	19	2.36%	71	4.17E-06
4	3.31%	99	5.84E-06	12	6.92%	208	1.22E-05	20	0.87%	26	1.53E-06
5	2.17%	65	3.83E-06	13	6.29%	189	1.11E-05	21	3.09%	93	5.46E-06
6	3.36%	101	5.95E-06	14	6.23%	187	1.10E-05	22	4.12%	123	7.27E-06
7	6.00%	180	1.06E-05	15	5.15%	155	9.10E-06	23	2.58%	77	4.55E-06
8	4.58%	137	8.10E-06	16	3.84%	115	6.79E-06	24	0.92%	28	1.63E-06
								Total		3,000	

2025 Hourly Traffic Volumes Per Direction and DPM Emissions - SB_OAK_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.93%	118	6.95E-06	9	6.41%	192	1.13E-05	17	5.55%	167	9.81E-06
2	2.62%	79	4.64E-06	10	7.36%	221	1.30E-05	18	3.16%	95	5.58E-06
3	2.85%	86	5.04E-06	11	6.34%	190	1.12E-05	19	2.36%	71	4.17E-06
4	3.31%	99	5.84E-06	12	6.92%	208	1.22E-05	20	0.87%	26	1.53E-06
5	2.17%	65	3.83E-06	13	6.29%	189	1.11E-05	21	3.09%	93	5.46E-06
6	3.36%	101	5.95E-06	14	6.23%	187	1.10E-05	22	4.12%	123	7.27E-06
7	6.00%	180	1.06E-05	15	5.15%	155	9.10E-06	23	2.58%	77	4.55E-06
8	4.58%	137	8.10E-06	16	3.84%	115	6.79E-06	24	0.92%	28	1.63E-06
								Total		3,000	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB_OAK_PM25	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,000
SB_OAK_PM25	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,000
									Total	6,000

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.002158			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - NB_OAK_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	34	8.27E-06	9	7.11%	213	5.12E-05	17	7.39%	222	5.32E-05
2	0.42%	13	3.03E-06	10	4.39%	132	3.16E-05	18	8.18%	245	5.88E-05
3	0.41%	12	2.94E-06	11	4.66%	140	3.35E-05	19	5.69%	171	4.10E-05
4	0.26%	8	1.87E-06	12	5.89%	177	4.24E-05	20	4.28%	128	3.08E-05
5	0.50%	15	3.58E-06	13	6.15%	185	4.43E-05	21	3.25%	98	2.34E-05
6	0.91%	27	6.53E-06	14	6.04%	181	4.35E-05	22	3.30%	99	2.37E-05
7	3.79%	114	2.73E-05	15	7.01%	210	5.05E-05	23	2.46%	74	1.77E-05
8	7.77%	233	5.59E-05	16	7.14%	214	5.14E-05	24	1.86%	56	1.34E-05
								Total		3,000	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB_OAK_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	34	8.27E-06	9	7.11%	213	5.12E-05	17	7.39%	222	5.32E-05
2	0.42%	13	3.03E-06	10	4.39%	132	3.16E-05	18	8.18%	245	5.88E-05
3	0.41%	12	2.94E-06	11	4.66%	140	3.35E-05	19	5.69%	171	4.10E-05
4	0.26%	8	1.87E-06	12	5.89%	177	4.24E-05	20	4.28%	128	3.08E-05
5	0.50%	15	3.58E-06	13	6.15%	185	4.43E-05	21	3.25%	98	2.34E-05
6	0.91%	27	6.53E-06	14	6.04%	181	4.35E-05	22	3.30%	99	2.37E-05
7	3.79%	114	2.73E-05	15	7.01%	210	5.05E-05	23	2.46%	74	1.77E-05
8	7.77%	233	5.59E-05	16	7.14%	214	5.14E-05	24	1.86%	56	1.34E-05
								Total		3,000	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB_OAK_TEXH	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,000
SB_OAK_TEXH	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,000
									Total	6,000

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.04154			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - NB_OAK_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	34	1.59E-04	9	7.11%	213	9.85E-04	17	7.39%	222	1.02E-03
2	0.42%	13	5.84E-05	10	4.39%	132	6.08E-04	18	8.18%	245	1.13E-03
3	0.41%	12	5.65E-05	11	4.66%	140	6.46E-04	19	5.69%	171	7.89E-04
4	0.26%	8	3.60E-05	12	5.89%	177	8.15E-04	20	4.28%	128	5.92E-04
5	0.50%	15	6.88E-05	13	6.15%	185	8.52E-04	21	3.25%	98	4.51E-04
6	0.91%	27	1.26E-04	14	6.04%	181	8.36E-04	22	3.30%	99	4.57E-04
7	3.79%	114	5.25E-04	15	7.01%	210	9.71E-04	23	2.46%	74	3.41E-04
8	7.77%	233	1.08E-03	16	7.14%	214	9.89E-04	24	1.86%	56	2.58E-04
								Total		3,000	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	34	1.59E-04	9	7.11%	213	9.85E-04	17	7.39%	222	1.02E-03
2	0.42%	13	5.84E-05	10	4.39%	132	6.08E-04	18	8.18%	245	1.13E-03
3	0.41%	12	5.65E-05	11	4.66%	140	6.46E-04	19	5.69%	171	7.89E-04
4	0.26%	8	3.60E-05	12	5.89%	177	8.15E-04	20	4.28%	128	5.92E-04
5	0.50%	15	6.88E-05	13	6.15%	185	8.52E-04	21	3.25%	98	4.51E-04
6	0.91%	27	1.26E-04	14	6.04%	181	8.36E-04	22	3.30%	99	4.57E-04
7	3.79%	114	5.25E-04	15	7.01%	210	9.71E-04	23	2.46%	74	3.41E-04
8	7.77%	233	1.08E-03	16	7.14%	214	9.89E-04	24	1.86%	56	2.58E-04
								Total		3,000	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB_OAK_TEVAP	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,000
SB_OAK_TEVAP	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,000
									Total	6,000

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.26538			
Emissions per Vehicle per Mile (g/VMT)	0.05062			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - NB_OAK_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	34	1.94E-04	9	7.11%	213	1.20E-03	17	7.39%	222	1.25E-03
2	0.42%	13	7.12E-05	10	4.39%	132	7.40E-04	18	8.18%	245	1.38E-03
3	0.41%	12	6.89E-05	11	4.66%	140	7.87E-04	19	5.69%	171	9.61E-04
4	0.26%	8	4.39E-05	12	5.89%	177	9.94E-04	20	4.28%	128	7.22E-04
5	0.50%	15	8.39E-05	13	6.15%	185	1.04E-03	21	3.25%	98	5.49E-04
6	0.91%	27	1.53E-04	14	6.04%	181	1.02E-03	22	3.30%	99	5.56E-04
7	3.79%	114	6.39E-04	15	7.01%	210	1.18E-03	23	2.46%	74	4.15E-04
8	7.77%	233	1.31E-03	16	7.14%	214	1.21E-03	24	1.86%	56	3.15E-04
								Total		3,000	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	34	1.94E-04	9	7.11%	213	1.20E-03	17	7.39%	222	1.25E-03
2	0.42%	13	7.12E-05	10	4.39%	132	7.40E-04	18	8.18%	245	1.38E-03
3	0.41%	12	6.89E-05	11	4.66%	140	7.87E-04	19	5.69%	171	9.61E-04
4	0.26%	8	4.39E-05	12	5.89%	177	9.94E-04	20	4.28%	128	7.22E-04
5	0.50%	15	8.39E-05	13	6.15%	185	1.04E-03	21	3.25%	98	5.49E-04
6	0.91%	27	1.53E-04	14	6.04%	181	1.02E-03	22	3.30%	99	5.56E-04
7	3.79%	114	6.39E-04	15	7.01%	210	1.18E-03	23	2.46%	74	4.15E-04
8	7.77%	233	1.31E-03	16	7.14%	214	1.21E-03	24	1.86%	56	3.15E-04
								Total		3,000	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB_OAK_FUG	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,000
SB_OAK_FUG	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,000
									Total	6,000

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00219			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01734			
Road Dust - Emissions per Vehicle (g/VMT)	0.01680			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03633			

Emisson Factors from CT-EMFAC2017

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

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	34	1.39E-04	9	7.11%	213	8.62E-04	17	7.39%	222	8.95E-04
2	0.42%	13	5.11E-05	10	4.39%	132	5.31E-04	18	8.18%	245	9.91E-04
3	0.41%	12	4.95E-05	11	4.66%	140	5.65E-04	19	5.69%	171	6.90E-04
4	0.26%	8	3.15E-05	12	5.89%	177	7.13E-04	20	4.28%	128	5.18E-04
5	0.50%	15	6.02E-05	13	6.15%	185	7.45E-04	21	3.25%	98	3.94E-04
6	0.91%	27	1.10E-04	14	6.04%	181	7.32E-04	22	3.30%	99	3.99E-04
7	3.79%	114	4.59E-04	15	7.01%	210	8.49E-04	23	2.46%	74	2.98E-04
8	7.77%	233	9.41E-04	16	7.14%	214	8.65E-04	24	1.86%	56	2.26E-04
								Total		3,000	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	34	1.39E-04	9	7.11%	213	8.62E-04	17	7.39%	222	8.95E-04
2	0.42%	13	5.11E-05	10	4.39%	132	5.31E-04	18	8.18%	245	9.91E-04
3	0.41%	12	4.95E-05	11	4.66%	140	5.65E-04	19	5.69%	171	6.90E-04
4	0.26%	8	3.15E-05	12	5.89%	177	7.13E-04	20	4.28%	128	5.18E-04
5	0.50%	15	6.02E-05	13	6.15%	185	7.45E-04	21	3.25%	98	3.94E-04
6	0.91%	27	1.10E-04	14	6.04%	181	7.32E-04	22	3.30%	99	3.99E-04
7	3.79%	114	4.59E-04	15	7.01%	210	8.49E-04	23	2.46%	74	2.98E-04
8	7.77%	233	9.41E-04	16	7.14%	214	8.65E-04	24	1.86%	56	2.26E-04
								Total		3,000	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2040

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
NB_OAK_DPM	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	3.4	25	3,750
SB_OAK_DPM	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	3.4	25	3,750
									Total	7,500

Emission Factors

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00038			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and DPM Emissions - NB_OAK_DPM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	154	6.47E-06	9	6.54%	245	1.03E-05	17	5.65%	212	8.87E-06
2	2.80%	105	4.40E-06	10	7.60%	285	1.19E-05	18	3.11%	117	4.89E-06
3	2.85%	107	4.48E-06	11	6.39%	239	1.00E-05	19	2.11%	79	3.32E-06
4	3.11%	117	4.89E-06	12	7.07%	265	1.11E-05	20	0.84%	32	1.33E-06
5	2.06%	77	3.23E-06	13	6.33%	237	9.95E-06	21	3.06%	115	4.81E-06
6	3.22%	121	5.06E-06	14	6.17%	232	9.70E-06	22	4.27%	160	6.72E-06
7	5.96%	224	9.37E-06	15	5.22%	196	8.21E-06	23	2.69%	101	4.23E-06
8	4.22%	158	6.63E-06	16	3.75%	141	5.89E-06	24	0.84%	32	1.33E-06
								Total		3,750	

2040 Hourly Traffic Volumes Per Direction and DPM Emissions - SB_OAK_DPM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.12%	154	6.47E-06	9	6.54%	245	1.03E-05	17	5.65%	212	8.87E-06
2	2.80%	105	4.40E-06	10	7.60%	285	1.19E-05	18	3.11%	117	4.89E-06
3	2.85%	107	4.48E-06	11	6.39%	239	1.00E-05	19	2.11%	79	3.32E-06
4	3.11%	117	4.89E-06	12	7.07%	265	1.11E-05	20	0.84%	32	1.33E-06
5	2.06%	77	3.23E-06	13	6.33%	237	9.95E-06	21	3.06%	115	4.81E-06
6	3.22%	121	5.06E-06	14	6.17%	232	9.70E-06	22	4.27%	160	6.72E-06
7	5.96%	224	9.37E-06	15	5.22%	196	8.21E-06	23	2.69%	101	4.23E-06
8	4.22%	158	6.63E-06	16	3.75%	141	5.89E-06	24	0.84%	32	1.33E-06
								Total		3,750	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2040

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
NB_OAK_PM25	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,750
SB_OAK_PM25	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,750
									Total	7,500

Emission Factors - PM2.5

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001099			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and PM2.5 Emissions - NB_OAK_PM25

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	43	5.23E-06	9	7.12%	267	3.26E-05	17	7.40%	278	3.39E-05
2	0.42%	16	1.90E-06	10	4.38%	164	2.01E-05	18	8.19%	307	3.75E-05
3	0.40%	15	1.82E-06	11	4.66%	175	2.14E-05	19	5.71%	214	2.61E-05
4	0.24%	9	1.11E-06	12	5.89%	221	2.70E-05	20	4.28%	161	1.96E-05
5	0.49%	18	2.24E-06	13	6.16%	231	2.82E-05	21	3.25%	122	1.49E-05
6	0.89%	34	4.10E-06	14	6.03%	226	2.76E-05	22	3.30%	124	1.51E-05
7	3.78%	142	1.73E-05	15	7.02%	263	3.22E-05	23	2.46%	92	1.13E-05
8	7.77%	291	3.56E-05	16	7.15%	268	3.28E-05	24	1.87%	70	8.55E-06
								Total		3,750	

2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB_OAK_PM25

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	43	5.23E-06	9	7.12%	267	3.26E-05	17	7.40%	278	3.39E-05
2	0.42%	16	1.90E-06	10	4.38%	164	2.01E-05	18	8.19%	307	3.75E-05
3	0.40%	15	1.82E-06	11	4.66%	175	2.14E-05	19	5.71%	214	2.61E-05
4	0.24%	9	1.11E-06	12	5.89%	221	2.70E-05	20	4.28%	161	1.96E-05
5	0.49%	18	2.24E-06	13	6.16%	231	2.82E-05	21	3.25%	122	1.49E-05
6	0.89%	34	4.10E-06	14	6.03%	226	2.76E-05	22	3.30%	124	1.51E-05
7	3.78%	142	1.73E-05	15	7.02%	263	3.22E-05	23	2.46%	92	1.13E-05
8	7.77%	291	3.56E-05	16	7.15%	268	3.28E-05	24	1.87%	70	8.55E-06
								Total		3,750	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2040

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
NB_OAK_TEXH	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,750
SB_OAK_TEXH	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,750
									Total	7,500

Emission Factors - TOG Exhaust

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02837			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and TOG Exhaust Emissions - NB_OAK_TEXH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	43	1.35E-04	9	7.12%	267	8.42E-04	17	7.40%	278	8.75E-04
2	0.42%	16	4.91E-05	10	4.38%	164	5.18E-04	18	8.19%	307	9.69E-04
3	0.40%	15	4.70E-05	11	4.66%	175	5.51E-04	19	5.71%	214	6.75E-04
4	0.24%	9	2.87E-05	12	5.89%	221	6.96E-04	20	4.28%	161	5.06E-04
5	0.49%	18	5.78E-05	13	6.16%	231	7.28E-04	21	3.25%	122	3.85E-04
6	0.89%	34	1.06E-04	14	6.03%	226	7.13E-04	22	3.30%	124	3.90E-04
7	3.78%	142	4.47E-04	15	7.02%	263	8.30E-04	23	2.46%	92	2.91E-04
8	7.77%	291	9.18E-04	16	7.15%	268	8.45E-04	24	1.87%	70	2.21E-04
								Total		3,750	

2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SB_OAK_TEXH

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	43	1.35E-04	9	7.12%	267	8.42E-04	17	7.40%	278	8.75E-04
2	0.42%	16	4.91E-05	10	4.38%	164	5.18E-04	18	8.19%	307	9.69E-04
3	0.40%	15	4.70E-05	11	4.66%	175	5.51E-04	19	5.71%	214	6.75E-04
4	0.24%	9	2.87E-05	12	5.89%	221	6.96E-04	20	4.28%	161	5.06E-04
5	0.49%	18	5.78E-05	13	6.16%	231	7.28E-04	21	3.25%	122	3.85E-04
6	0.89%	34	1.06E-04	14	6.03%	226	7.13E-04	22	3.30%	124	3.90E-04
7	3.78%	142	4.47E-04	15	7.02%	263	8.30E-04	23	2.46%	92	2.91E-04
8	7.77%	291	9.18E-04	16	7.15%	268	8.45E-04	24	1.87%	70	2.21E-04
								Total		3,750	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2040

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
NB_OAK_TEVAP	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,750
SB_OAK_TEVAP	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,750
									Total	7,500

Emission Factors - PM2.5 - Evaporative TOG

Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.71871			
Emissions per Vehicle per Mile (g/VMT)	0.02875			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and TOG Evaporative Emissions - NB_OAK_TEVAP

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	43	1.37E-04	9	7.12%	267	8.53E-04	17	7.40%	278	8.87E-04
2	0.42%	16	4.98E-05	10	4.38%	164	5.25E-04	18	8.19%	307	9.82E-04
3	0.40%	15	4.77E-05	11	4.66%	175	5.59E-04	19	5.71%	214	6.84E-04
4	0.24%	9	2.91E-05	12	5.89%	221	7.06E-04	20	4.28%	161	5.13E-04
5	0.49%	18	5.86E-05	13	6.16%	231	7.38E-04	21	3.25%	122	3.90E-04
6	0.89%	34	1.07E-04	14	6.03%	226	7.23E-04	22	3.30%	124	3.95E-04
7	3.78%	142	4.53E-04	15	7.02%	263	8.41E-04	23	2.46%	92	2.95E-04
8	7.77%	291	9.31E-04	16	7.15%	268	8.57E-04	24	1.87%	70	2.24E-04
								Total		3,750	

2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SB_OAK_TEVAP

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	43	1.37E-04	9	7.12%	267	8.53E-04	17	7.40%	278	8.87E-04
2	0.42%	16	4.98E-05	10	4.38%	164	5.25E-04	18	8.19%	307	9.82E-04
3	0.40%	15	4.77E-05	11	4.66%	175	5.59E-04	19	5.71%	214	6.84E-04
4	0.24%	9	2.91E-05	12	5.89%	221	7.06E-04	20	4.28%	161	5.13E-04
5	0.49%	18	5.86E-05	13	6.16%	231	7.38E-04	21	3.25%	122	3.90E-04
6	0.89%	34	1.07E-04	14	6.03%	226	7.23E-04	22	3.30%	124	3.95E-04
7	3.78%	142	4.53E-04	15	7.02%	263	8.41E-04	23	2.46%	92	2.95E-04
8	7.77%	291	9.31E-04	16	7.15%	268	8.57E-04	24	1.87%	70	2.24E-04
								Total		3,750	

Charcot Ave, San Jose, CA
Operation - Oakland Road Emissions
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2040

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
NB_OAK_FUG	Northbound Oakland Road	N	3	644	0.40	16.06	52.7	1.3	25	3,750
SB_OAK_FUG	Southbound Oakland Road	S	3	644	0.40	16.06	52.7	1.3	25	3,750
									Total	7,500

Emission Factors - Fugitive PM2.5

Speed Category				
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00220			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01736			
Road Dust - Emissions per Vehicle (g/VMT)	0.01703			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03659			

Emisson Factors from CT-EMFAC2017

2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NB_OAK_FUG

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	43	1.74E-04	9	7.12%	267	1.09E-03	17	7.40%	278	1.13E-03
2	0.42%	16	6.33E-05	10	4.38%	164	6.69E-04	18	8.19%	307	1.25E-03
3	0.40%	15	6.07E-05	11	4.66%	175	7.11E-04	19	5.71%	214	8.70E-04
4	0.24%	9	3.70E-05	12	5.89%	221	8.98E-04	20	4.28%	161	6.53E-04
5	0.49%	18	7.45E-05	13	6.16%	231	9.39E-04	21	3.25%	122	4.96E-04
6	0.89%	34	1.36E-04	14	6.03%	226	9.20E-04	22	3.30%	124	5.03E-04
7	3.78%	142	5.76E-04	15	7.02%	263	1.07E-03	23	2.46%	92	3.76E-04
8	7.77%	291	1.18E-03	16	7.15%	268	1.09E-03	24	1.87%	70	2.85E-04
								Total		3,750	

2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SB_OAK_FUG

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	43	1.74E-04	9	7.12%	267	1.09E-03	17	7.40%	278	1.13E-03
2	0.42%	16	6.33E-05	10	4.38%	164	6.69E-04	18	8.19%	307	1.25E-03
3	0.40%	15	6.07E-05	11	4.66%	175	7.11E-04	19	5.71%	214	8.70E-04
4	0.24%	9	3.70E-05	12	5.89%	221	8.98E-04	20	4.28%	161	6.53E-04
5	0.49%	18	7.45E-05	13	6.16%	231	9.39E-04	21	3.25%	122	4.96E-04
6	0.89%	34	1.36E-04	14	6.03%	226	9.20E-04	22	3.30%	124	5.03E-04
7	3.78%	142	5.76E-04	15	7.02%	263	1.07E-03	23	2.46%	92	3.76E-04
8	7.77%	291	1.18E-03	16	7.15%	268	1.09E-03	24	1.87%	70	2.85E-04
								Total		3,750	

Proposed Project – Charcot Avenue and Oakland Road Modeling Information and Health Risk Calculations

Proposed - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5
Proposed Project
AERMOD Risk Modeling Parameters and Maximum Concentrations
30-Year Residential Exposure

Emissions Years	2020, 2025, and 2040
Receptor Information	
Number of Receptors	120
Receptor Height =	1.5 meters above ground level
Receptor distances =	at residential locations
Meteorological Conditions	
BAAQMD San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Emission Years	Concentration (µg/m^3)		
	DPM	**Exhaust TOG**	**Evaporative TOG**
2020	0.00827	0.2051	0.1889
2025	0.00199	0.1529	0.1865
2040	0.00182	0.1355	0.1371

Emission Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	**UTM-X (m)**	**UTM-Y (m)**
2020	0.1291	597332.4	4138725.3
2025	0.1488	597122.5	4138740.0
2040	**0.1916**	597122.5	4138740.0

Charcot Ave, San Jose, CA - Proposed - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks
Proposed Project
Residential Receptors (1.5 meter receptor heights)
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	2020	0.25	-0.25 - 0*	10	0.0083	0.2051	0.1889	0.112	0.016	0.001	0.13
1	2020	1	1	10	0.0083	0.2051	0.1889	1.36	0.192	0.010	1.56
2	2021	1	2	10	0.0083	0.2051	0.1889	1.36	0.192	0.010	1.56
3	2022	1	3	3	0.0083	0.2051	0.1889	0.21	0.030	0.002	0.25
4	2023	1	4	3	0.0083	0.2051	0.1889	0.21	0.030	0.002	0.25
5	2024	1	5	3	0.0083	0.2051	0.1889	0.21	0.030	0.002	0.25
6	2025	1	6	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
7	2026	1	7	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
8	2027	1	8	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
9	2028	1	9	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
10	2029	1	10	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
11	2030	1	11	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
12	2031	1	12	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
13	2032	1	13	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
14	2033	1	14	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
15	2034	1	15	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
16	2035	1	16	3	0.0020	0.1529	0.1865	0.05	0.023	0.002	0.08
17	2036	1	17	1	0.0020	0.1529	0.1865	0.01	0.0025	0.000	0.008
18	2037	1	18	1	0.0020	0.1529	0.1865	0.01	0.003	0.000	0.008
19	2038	1	19	1	0.0020	0.1529	0.1865	0.01	0.003	0.000	0.008
20	2039	1	20	1	0.0020	0.1529	0.1865	0.01	0.003	0.000	0.008
21	2040	1	21	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
22	2041	1	22	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
23	2042	1	23	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
24	2043	1	24	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
25	2044	1	25	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
26	2045	1	26	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
27	2046	1	27	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
28	2047	1	28	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
29	2048	1	29	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
30	2049	1	30	1	0.0018	0.1355	0.1371	0.01	0.002	0.000	0.008
Total Increased Cancer Risk			**Total**					4.11	0.772	0.047	**4.9**

* Third trimester of pregnancy

Proposed - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5
Proposed Project
AERMOD Risk Modeling Parameters and Maximum Concentrations
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)

Emissions Years	2020 and 2025
Receptor Information	
Number of Receptors	125
Receptor Height =	1.0 meters
Receptor distances =	receptors in school and yard areas
Meteorological Conditions	
BAAQMD San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

School MEI Maximum Concentrations

Emission Years	Concentration (µg/m^3)		
	DPM	**Exhaust TOG**	**Evaporative TOG**
2020	0.01047	0.3706	0.3413
2025	0.00254	0.2786	0.3399

Emission Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	**UTM-X (m)**	**UTM-Y (m)**
2020	0.2215	597181.3	4138753.6
2025	**0.2591**	597181.3	4138753.6

Charcot Ave, San Jose, CA - Proposed - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks
Proposed Project
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)
9-Year Child Exposure

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73 for construction modeling
= 1.0 for roadway modeling (continuous emisions)
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

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	Infant	School Child	Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
8-Hr BR* =	361	1200	520	230
A =	1	1	1	1
EF =	350	350	180	250
ED =	0.25	2	14	14
AT =	70	70	70	70
SAF =	1.00	1.00	1.00	1.00

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

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information: Age Sensitivity Factor	Annual TAC Conc (ug/m3): DPM	Exhaust TOG	Evaporative TOG	Cancer Risk (per million): DPM	Exhaust TOG	Evaporative TOG	Total
1	2020	1	5	3	0.0105	0.3706	0.3413	0.127	0.026	0.001	0.15
2	2021	1	6	3	0.0105	0.3706	0.3413	0.127	0.026	0.001	0.15
3	2022	1	7	3	0.0105	0.3706	0.3413	0.127	0.026	0.001	0.15
4	2023	1	8	3	0.0105	0.3706	0.3413	0.127	0.026	0.001	0.15
5	2024	1	9	3	0.0105	0.3706	0.3413	0.127	0.026	0.001	0.15
6	2025	1	10	3	0.0025	0.2786	0.3399	0.031	0.019	0.001	0.05
7	2026	1	11	3	0.0025	0.2786	0.3399	0.031	0.019	0.001	0.05
8	2027	1	12	3	0.0025	0.2786	0.3399	0.031	0.019	0.001	0.05
9	2028	1	13	3	0.0025	0.2786	0.3399	0.031	0.019	0.001	0.05
Total Increased Cancer Risk								0.756	0.205	0.012	**1.0**

Charcot Ave Extension- Construction & Operation Sources - TACs & PM2.5
Proposed Project
AERMOD Risk Modeling Parameters and Maximum Concentrations
Residential Receptors (1.5 meter receptor heights)

Emissions Years 2020, 2025, and 2040

Receptor Information

Number of Receptors 120
Receptor Height = 1.5 meters above ground level
Receptor distances = at residential locations

Meteorological Conditions

BAAQMD San Jose Airport Met Data 2006-2010
Land Use Classification urban
Wind speed = variable
Wind direction = variable

MEI Maximum Concentrations

Emission Years	Concentration (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2019 (constructiom)	0.01682	0.0000	0.0000
2020	0.00811	0.2134	0.1965
2025	0.00197	0.1608	0.1961
2040	0.00184	0.1443	0.1461

Emission Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	UTM-X (m)	UTM-Y (m)
2019 (constructiom)			
2020	0.1291	597332.4	4138725.3
2025	0.1488	597122.5	4138740.0
2040	**0.1916**	597122.5	4138740.0

Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Charcot Ave & Oakland Road
Proposed Project
Residential Receptors (1.5 meter receptor heights)
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	2019	0.25	-0.25 - 0*	10	0.0168	0.0000	0.0000	0.229	0.000	0.000	0.23
1	2019	1	1	10	0.0168	0.0000	0.0000	2.76	0.000	0.000	2.76
2	2020	1	2	10	0.0081	0.2134	0.1965	1.33	0.200	0.011	1.54
3	2021	1	3	3	0.0081	0.2134	0.1965	0.21	0.032	0.002	0.24
4	2022	1	4	3	0.0081	0.2134	0.1965	0.21	0.032	0.002	0.24
5	2023	1	5	3	0.0081	0.2134	0.1965	0.21	0.032	0.002	0.24
6	2024	1	6	3	0.0081	0.2134	0.1965	0.21	0.032	0.002	0.24
7	2025	1	7	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
8	2026	1	8	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
9	2027	1	9	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
10	2028	1	10	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
11	2029	1	11	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
12	2030	1	12	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
13	2031	1	13	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
14	2032	1	14	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
15	2033	1	15	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
16	2034	1	16	3	0.0020	0.1608	0.1961	0.05	0.024	0.002	0.08
17	2035	1	17	1	0.0020	0.1608	0.1961	0.01	0.0026	0.000	0.008
18	2036	1	18	1	0.0020	0.1608	0.1961	0.01	0.003	0.000	0.008
19	2037	1	19	1	0.0020	0.1608	0.1961	0.01	0.003	0.000	0.008
20	2038	1	20	1	0.0020	0.1608	0.1961	0.01	0.003	0.000	0.008
21	2039	1	21	1	0.0020	0.1608	0.1961	0.01	0.003	0.000	0.008
22	2040	1	22	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
23	2041	1	23	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
24	2042	1	24	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
25	2043	1	25	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
26	2044	1	26	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
27	2045	1	27	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
28	2046	1	28	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
29	2047	1	29	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
30	2048	1	30	1	0.0018	0.1443	0.1461	0.01	0.002	0.000	0.008
Total Increased Cancer Risk			**Total**					5.75	0.598	0.037	**6.4**

* Third trimester of pregnancy

Charcot Ave Extension- Construction & Operation Sources - TACs & PM2.5
Proposed Project
AERMOD Risk Modeling Parameters and Maximum Concentrations
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)

Emissions Years	2020 and 2025
Receptor Information	
Number of Receptors	125
Receptor Height =	1.0 meters
Receptor distances =	receptors in school and yard areas
Meteorological Conditions	
BAAQMD San Jose Airport Met Data	2006-2010
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

School MEI Maximum Concentrations

Emission Years	Concentration (µg/m^3)		
	DPM	Exhaust TOG	Evaporative TOG
2019 (construction)	0.02420	0.0000	0.0000
2020	0.00718	0.2296	0.2113
2025	0.00175	0.1732	0.2110

Emission Years	PM2.5 Concentrations (µg/m^3)		
	Total PM2.5	UTM-X (m)	UTM-Y (m)
2020	0.2215	597181.3	4138753.6
2025	**0.2591**	597181.3	4138753.6

Charcot Ave, San Jose, CA - Proposed -Construction & Operation Sources - Maximum Cancer Risks
Proposed Project
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)
9-Year Child Exposure

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
SAF_C = (24 hrs/9 hrs) x (7 days/5 days) = 3.73 for construction modeling
SAF_R = 1.0 for roadway modeling (continuous emisions)
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

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	Infant	School Child	Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
8-Hr BR* =	361	1200	520	230
A =	1	1	1	1
EF =	350	350	180	250
ED =	0.25	2	14	14
AT =	70	70	70	70
SAF_R =	1.00	1.00	1.00	1.00
SAF_C =	1.00	1.00	3.73	1.00

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

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information							
					Annual TAC Conc (ug/m3)			Cancer Risk (per million)			
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
1	2019	1	5	3	0.0242	0.0000	0.0000	1.091	0.000	0.000	1.09
2	2020	1	6	3	0.0072	0.2296	0.2113	0.087	0.016	0.001	0.10
3	2021	1	7	3	0.0072	0.2296	0.2113	0.087	0.016	0.001	0.10
4	2022	1	8	3	0.0072	0.2296	0.2113	0.087	0.016	0.001	0.10
5	2023	1	9	3	0.0072	0.2296	0.2113	0.087	0.016	0.001	0.10
6	2024	1	10	3	0.0072	0.2296	0.2113	0.087	0.016	0.001	0.10
7	2025	1	11	3	0.0018	0.1732	0.2110	0.021	0.012	0.001	0.03
8	2026	1	12	3	0.0018	0.1732	0.2110	0.021	0.012	0.001	0.03
9	2027	1	13	3	0.0018	0.1732	0.2110	0.021	0.012	0.001	0.03
Total Increased Cancer Risk								1.589	0.115	0.007	**1.7**