Appendix A

Air Quality Assessment

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, California 94954
Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

M E M O

Date: April 26, 2016
Revised April 14, 2017

To: **Bruce Grove**
Kimley-Horn *bruce.grove@kimley-horn.com*

From: James Reyff and Joshua Carman

RE: **740 and 777 W. San Carlos TAC Assessment**

SUBJECT: **Project Revisions and Application of New OEHHA Guidance to Cancer Risk Calculations** Job#16-089 and 15-081

Illingworth & Rodkin, Inc. prepared the community risk assessment for this project in 2015.[1] This study addressed community risk impacts to nearby sensitive receptors that would be attributable to construction activities and the effect of nearby air pollutant and toxic air contaminant (TAC) sources upon project residences (considered sensitive receptors).

The project has been modified to increase the number of dwelling units from 104 to 149 at the 777 West San Carlos development. The development at 740 W. San Carlos would not change. We understand that the forecasted construction schedule and equipment activity estimates previously provided would not change and that the building square footage would remain comparable with that analyzed in our previous assessment. The average unit sizes would decrease to accommodate the higher unit count. Because construction assumptions in terms of equipment usage and truck traffic generate would not change or change slightly, the emissions and dispersion modeling conducted to address community risk impacts from project construction would not be affected substantially.

The community risk assessment prepared for the project included cancer risk calculations attributable to emissions from on- or near-site construction. Those cancer risk calculations followed procedures from the most up to date published guidelines issued by the Bay Area Air Quality Management District (BAAQMD) as indicated in their BAAQMD Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines, dated January 2010, and their *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0, dated* May 2012. In March 2015, the Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for evaluating cancer risks. This update includes specific

[1] Illingworth & Rodkin, Inc. 2015. *740 & 777 West San Carlos Development Project Community Risk Assessment – San Jose, California*. June 8.

breathing rates and exposure periods for various age groups of sensitive receptors, which add complexity to the cancer risk calculations. OEHHA, which is the State agency that researches and recommends procedures for calculating health risks from TACs, provides the information that local air districts use to develop their risk management policy. BAAQMD is reviewing OEHHA's recommendations and has not formally adopted any new guidance for calculating cancer risk; however, planning staff at BAAQMD have recommended incorporating these methods into new cancer risk assessments conducted for review under CEQA.[2]

Application of the new OEHHA guidance would increase cancer risk predictions for this project. The risk would increase mostly because we would assume a greater intake of TACs by infants and children due to the use of a higher breathing rate. The cancer risk assessment conservatively assumes that infants and children would be present continuously at each residential receptor that is exposed to either construction emission of diesel particulate matter or emissions of diesel particulate matter from routine testing and maintenance of emergency generators powered by diesel engines. The effect of the new OEHHA guidance on cancer risk calculations included in our June 8, 2015 report are described below.

Construction Impacts

Our report assumed almost continuous infant/child exposure at receptors near the construction sites. The exposure period would be 2016 and 2017, where all construction emissions were conservatively assumed to occur within a 15-month period. The cancer risk calculations included age-sensitivity factors and higher breathing rates for infants/children. The primary effect of the new OEHHA guidance would be to increase the breathing rates substantially for infants. Predicted unmitigated cancer risk, assuming infant/children exposure to construction activities, would increase by a factor of about 1.5. Mitigation Measures AQ-1 and AQ-2 are aggressive measures in reducing TAC emissions from construction. These measures would reduce emissions by over 95 percent. Applied to a cancer risk prediction of almost 95 per million, adjusted upward to 142 chances per million with the new OEHHA guidance, the risk would be reduced to about 5 chances per million with mitigation, which is below the cancer risk threshold of 10.0 chances per million. In conclusion, had the construction risk assessment used the new OEHHA guidance, the same conclusions, in terms of significance, would have been identified and the mitigation measures would not have been different. The mitigation measures identified in our June 8, 2015 assessment are still adequate.

Operational Impacts

Our assessment also identified operational sources of TACs and air pollutants that can affect new occupants of the project. Our previous assessment identified numerous nearby sources, with the greatest being local traffic. The cancer risk associated with these sources is also affected by the new OEHHA cancer risk calculations. Based on conversations with the Bay Area Air Quality Management District (BAAQMD), the cancer risk calculated for continuous sources (e.g., traffic and trains) can be adjusted by a factor of 1.3744 to obtain the cancer risk with the new OEHHA

[2] Personal phone conversation between Virginia Lau (BAAQMD) and James Reyff (Illingworth & Rodkin, Inc.) on November 10, 2015.

methodology.[3] In addition to the new OEHHA guidance, a new traffic emission factor model was released by the California Air Resources Board. The emissions factors from this model were applied to traffic on local roadways. This results in a decrease in cancer risk, because of the lower emissions from traffic than the previous model. Table 2 of our report was revised to apply the new OEHHA guidance and the new traffic vehicle emission factors, or EMFAC2014 modeling. Application of the new OEHHA guidance and the lower EMFAC2014 traffic emission factors causes the cancer risk to decrease from that predicted in the previous assessment. The cumulative cancer risk also decreases. As a result, the significance conclusions of our June 8, 2015 report remain valid.

Revised Table 2. Impacts from Combined Sources

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
740 W. San Carlos			
W. San Carlos traffic	5.1	<0.03	0.2
Railroad traffic	4.0	<0.01	<0.1
Plant G11868, United Rentals Northwest Inc.	0.3	<0.01	--
Plant G7956, City of San Jose Fire Training Center	<0.1	<0.01	--
Plant G4113, Damar Petroleum #256231	0.8	<0.01	--
Combined Sources[1]	<10.3	<0.07	<0.3
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***
777 W. San Carlos			
W. San Carlos traffic	6.0	<0.03	0.2
Railroad traffic	2.5	<0.01	<0.1
Plant G11868, United Rentals Northwest Inc.	0.4	<0.01	--
Combined Sources[1]	8.9	<0.05	<0.3
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

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

[3] Personal phone conversation between Virginia Lau (BAAQMD) and James Reyff (Illingworth & Rodkin, Inc.) on November 10, 2015. Note this factor applies to sources that have continuous emissions that do not vary over time, unlike traffic emissions that decrease over time.

April 14, 2017 Update

We understand that the applicant has modified the 740/750 site (now known as 750 West San Ccarlos). In June 2016, the City of San Jose approved an Initial Study/Addendum to the DSAP EIR for two projects referenced as 740/750 and 777/815 West San Carlos Street Mixed-Use Projects within the DSAP area. The two projects are described as follows:

> Site I - 740 and 750 West San Carlos Street. The General Plan designation of this 1.06-acre site is Transit Residential (65-250 dwelling units/acre). The project proposed to construct 95 residential units and 2,735 square feet (sf) of ground-floor retail/commercial space in a seven-story structure.
>
> Site II - 777 and 815 West San Carlos Street. The western portion of this site is designated in the General Plan as Urban Residential (30-95 dwelling units per acre or du/ac) and the eastern portion of the site is designated as Mixed Use Commercial. The project proposes to construct a 149-unit, seven-story residential building with 2,990 sf of ground-floor retail/commercial space on the 1.3-acre site.

Since approval of the June 2016 Initial Study/Addendum, the 740/750 West San Carlos Street project (Site I) has been reduced in scale and intensity and is proposed as follows:

> Site I - 750 West San Carlos Street. The General Plan designation of this 0.44-acre site is Transit Residential (65-250 dwelling units/acre). The project proposes to construct 56 residential units in a seven-story structure.

The revised project results in a net unit reduction of 39 residential units (approximately 41 percent) compared to the original Site I concept, as well as the elimination of 2,735 sf of retail/commercial space onsite. The revised project would be constructed on a 0.44 acres (750 West San Carlos) adjacent to the former 740 West San Carlos property and is consistent with the General Plan designation for the site.

The proposed reduction in residential unit count would result in the significance determinations and mitigation measures from our June 8, 2015 assessment to remain adequate. We are not aware of any proposed changes to the anticipated construction duration or construction equipment. Therefore, community risk impacts and mitigation measures from the project would remain the same as previously analyzed or would slightly decrease, though the previously identified mitigation measures would still be needed.

740 & 777 WEST SAN CARLOS DEVELOPMENT PROJECT COMMUNITY RISK ASSESSMENT SAN JOSÉ, CALIFORNIA

June 8, 2015

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Prepared for:

Jodi Starbird
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San Jose, CA 95126

Prepared by:

Joshua D. Carman and
William Popenuck

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, CA 94954
(707) 794-0400

Project: 15-081

Introduction

The purpose of this report is to address toxic air contaminant (TAC) impacts associated with construction and operation of the proposed 740 & 777 W. San Carlos mixed-use residential development, located on W. San Carlos Street in San José, California. The project would replace the current uses on the 740 W. San Carlos site with 95 multi-family residential units and 2,885 square feet (sf) of ground floor retail space. The 777 W. San Carlos Street site is located on the northeast corner of the Sunol Street and W. San Carlos Street intersection. The project proposes to replace the current uses on this site with 104 multi-family residential units and 3,150 sf of ground floor retail space. The combined effects of the 740 and 777 W. San Carlos Street developments were analyzed together, since the two sites will be developed at approximately the same time by the same developer. Community risk impacts could occur due to temporary construction emissions and by placing new sensitive receptors near existing sources of TACs. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).

Setting

The project is located in the northern portion of the Santa Clara County, which is in the San Francisco Bay Area Air Basin. TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[1]

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 14, the

[1] Bay Area Air Quality Management District, 2011. *BAAQMD CEQA Air Quality Guidelines*. May.

elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. The closest off-site sensitive receptors to the740 W. San Carlos site are townhomes southeast of the project across the VTA Light Rail tracks. The closest off-site sensitive receptors to the 777 W. San Carlos site are single-family homes across Sunol Street from the project site. There is also a school, the Sunol Community School that is adjacent to the northern boundary of this site.

Significance Thresholds

The BAAQMD identified significance thresholds for exposure to TACs and fine particulate matter ($PM_{2.5}$) as part of its May 2011 CEQA Air Quality Guidelines[2] that were called into question by an order issued March 5, 2012, in *California Building Industry Association v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The order requires BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument to be considered is in regard to whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment). Those issues are not relevant to the scientific basis of BAAQMD's analysis of what levels of pollutants should be deemed significant. Therefore, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

The BAAQMD proposed "Thresholds of Significance" for local community risk and hazard impacts that apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ since emissions of these pollutants may cause significant health impacts at the local level. BAAQMD guidelines recommend:

The proposed project would result in a significant impact if emissions of TACs or $PM_{2.5}$ exceed any of the following Thresholds of Significance:

Single Source Impacts

- Non-compliance with a qualified risk reduction plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be significant; or
- An incremental increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ would be significant.

[2] *Ibid*.

Cumulative Source Impacts

A project would have a cumulatively considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000 foot radius of the fence line of a source or from the location of a receptor, plus the contribution from the project, exceeds the following thresholds:

- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$.

Project Operation

Operation of this residential project is not considered a source of TAC or $PM_{2.5}$ emissions. As a result, the project operation would not cause emissions that expose sensitive receptors to unhealthy air pollutant levels. Because the project would not be a source of TACs, it would not contribute cumulatively to unhealthy exposure to TACs.

The project would include new sensitive receptors. Substantial sources of air pollution can adversely affect sensitive receptors proposed as part of new projects. A review of the area indicates that several existing TAC sources could affect the project sites, including W. San Carlos Street, nearby railroad traffic, and stationary sources (e.g., emergency back-up generators or gas-dispensing facilities). Operational community risk impacts affecting the project sites are discussed below.

Railroad TAC Impacts

The 740 and 777 W. San Carlos sites are located about 260 feet and 600 feet west from Caltrain and other rail lines, respectively. These rail lines are used by trains for passenger and freight service. Due to the proximity of the rail line to the proposed project sites, potential community risks to future residents at the proposed project from DPM and $PM_{2.5}$ emissions from diesel locomotive engines were evaluated.

Passenger rail service long these rail lines includes diesel-fueled trains for Caltrain and the Amtrak Coast Starlight. Based on the current Caltrain schedule, there are 40 trains accessing the station during weekdays. The Amtrak Coast Starlight operates between Seattle and Los Angles with 2 daily trains. In addition to the passenger trains, there are up to 6 freight trains that use the rail lines on a daily basis.[3]

Currently Caltrain trains use diesel locomotives. As part of the program to modernize operation, Caltrain is planning to electrify the Caltrain Corridor from San Francisco to San Jose and switch from diesel locomotives to electric trains in the near future.[4] Nearly all of the trains in the future are planned to be electric multiple unit (EMU) trains, which are self-propelled electric rail vehicles that can accelerate and decelerate at faster rates than diesel power trains, even with

[3] Metropolitan Transportation Commission, 2006. *Bay Area Regional Rail Plan, Technical Memorandum 4a, Conditions, Configuration & Traffic on Existing System*. November 15.
[4] Caltrain, 2014. *Peninsula Corridor Electrification Project. Final Environmental Impact Report*. December.

longer trains. This plan was formally adopted on January 8, 2015 and electrified service is anticipated to begin in 2020 or 2021.[5]

Electrification of Caltrain would eliminate DPM emissions from these trains. Caltrain plans that, in 2020, service between San Jose and San Francisco would use a mixed-fleet of EMUs and diesel locomotives, with approximately 75 percent of the service being electric and 25 percent being diesel. In 2020, some peak service trains would be diesel on weekdays. All other service, including off-peak periods, would be EMU-based. Off-peak periods include early morning, midday, and after 7:00 p.m. After 2020, diesel locomotives would be replaced with EMUs over time as they reach the end of their service life. Caltrain's diesel-powered locomotives would continue to be used to provide service between the San Jose Diridon Station and Gilroy. It is expected that 100 percent of the San Jose to San Francisco fleet would be EMUs by 2026 to 2029.[6]

For calculation of emissions from Caltrain locomotives it was conservatively assumed that all trains traveling south of the Diridon Station near the project site would use diesel locomotives. All trains used for freight service were assumed to use diesel-powered locomotives.

DPM and $PM_{2.5}$ emissions from trains on the rail lines were calculated using EPA emission factors for locomotives[7] and CARB adjustment factors to account for fuels used in California.[8] Caltrain's current locomotive fleet consists of twenty-three 3,200 horsepower (hp) locomotives of model year or overhaul date of 1999 or earlier and six 3,600 hp locomotives of model year 2003.[9] The current fleet average locomotive engine size is about 3,285 hp. In estimating emissions for Caltrain the fleet average locomotive engine size of 3,285 hp was used. Each passenger train was assumed to use one locomotive and would be traveling at an average speed of 25 mph in the vicinity of the project site. Emissions from freight trains were calculated assuming they would use two locomotives with 2,300 hp engines (total of 4,600 hp) and would be traveling at about 25 mph.

Since the exposure duration used in calculating cancer risks is 70 years (in this case the period from 2018 through 2087), the Caltrain and freight train average DPM emissions were calculated based on EPA emission factors for the period 2018-2040, with 2040 emissions assumed to be representative of years 2041 through 2087. In order to account for the increased sensitivity to TACs of infants and children compared to adults, the average emission rates were weighted by age sensitivity factors recommended by BAAQMD.[10] $PM_{2.5}$ emissions for diesel locomotives for 2018 were assumed to represent maximum $PM_{2.5}$ emissions.

[5] Available online: http://www.caltrain.com/about/news/Caltrain_Board_Certifies_Final_Environmental_Impact_Report_and_Approves_Peninsula_Corridor_Electrification_Project.html. Accessed: May 8, 2015.
[6] *Ibid*.
[7] U.S. EPA, 2009. *Emission Factors for Locomotives* (EPA-420-F-09-025).
[8] CARB, *2006. Offroad Modeling, Change Technical Memo, Changes to the Locomotive Inventory*. July.
[9] Caltrain *Commute Fleets*. Available online: http://www.caltrain.com/about/statsandreports.html. Accessed May 8, 2014.
[10] BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May.

Modeling of locomotive emissions was conducted using the EPA's AERMOD dispersion model and five years (2006-2010) of hourly meteorological data from the San Jose Airport prepared for use with the AERMOD model by BAAQMD. Locomotive emissions from train travel within about 1,000 feet of the project site were modeled as two line sources comprised of a series of volume sources along the rail lines. The modeling included on-site receptors placed in the proposed residential areas of the project sites. Receptor heights of 8.8 meters (29 feet), representative of breathing heights on the third level of the project (which would be the lowest level with residences) were used. Figure 1 shows the railroad line segments used for the modeling and receptor locations at both project sites where concentrations were calculated. The locations where the maximum modeled long-term DPM and $PM_{2.5}$ concentrations occurred at each project site are shown in Figure 1.

Maximum excess cancer risks at each project site were calculated from the maximum modeled long-term average DPM concentrations using methods recommended by BAAQMD.[11] The factors used to compute cancer risk are highly dependent on modeled concentrations, exposure period or duration, and the type of receptor. The exposure level is determined by the modeled concentration; however, it has to be averaged over a representative exposure period. The averaging period is dependent on many factors, but mostly the type of sensitive receptor that would reside at a site. This assessment conservatively assumed long-term residential exposures. BAAQMD has developed exposure assumptions for typical types of sensitive receptors. For residential exposures this includes nearly continuous exposure over 70 years for 24 hours per day. The cancer risk calculations for 70-year residential exposures reflect use of BAAQMD's most recent cancer risk calculation method, adopted in January 2010. This method applies BAAQMD recommended age sensitivity factors to the cancer risks to account for age sensitivity to toxic air contaminants. Age sensitivity factors reflect the greater sensitivity of infants and children to cancer-causing TACs. For this evaluation, the age sensitivity factors were incorporated as weighting factors into the DPM emission rates used for modeling. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 1*.

The maximum increased cancer risk at the 740 W. San Carlos site was computed as 2.9 in one million and the maximum increased cancer risk at the 777 W. San Carlos site was computed as 1.8 in one million. The locations of maximum cancer risk are shown in Figure 1. Cancer risks in other areas and upper floor levels within the project sites would be lower than the maximum cancer risk for each site. Under the BAAQMD CEQA Air Quality Guidelines, an incremental cancer risk of greater than 10 cases per million from a single source would be a significant impact. Since the projected maximum increased cancer risk at each site would be below 10 in one million, this would be a *less-than-significant* impact for new occupants of the project.

Based on the rail line modeling, the maximum $PM_{2.5}$ concentration at the 740 W. San Carlos site was computed as 0.013 $\mu g/m^3$ and the maximum $PM_{2.5}$ concentration at the 777 W. San Carlos site was computed as 0.008 $\mu g/m^3$, occurring at the same receptors that had the maximum cancer risk. These concentrations are well below the BAAQMD $PM_{2.5}$ threshold of 0.3 $\mu g/m^3$.

[11] BAAQMD, 2010. *Air Toxics NSR Program Health Risk Screening Analysis (HSRA) Guidelines*. January.

Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. The chronic inhalation REL for DPM is 5 µg/m^3. The maximum modeled annual DPM concentrations at 740 and 777 W. San Carlos were 0.009 and 0.006 µg/m^3, respectively. These concentrations are much lower than the REL. The maximum computed hazard index for both project sites are less than 0.01 which is much lower than the BAAQMD significance criterion of a hazard index greater than 1.0. This would be considered a *less-than-significant* impact.

Table 1. Diesel Locomotive Community Risk Levels at Project Dwelling Units

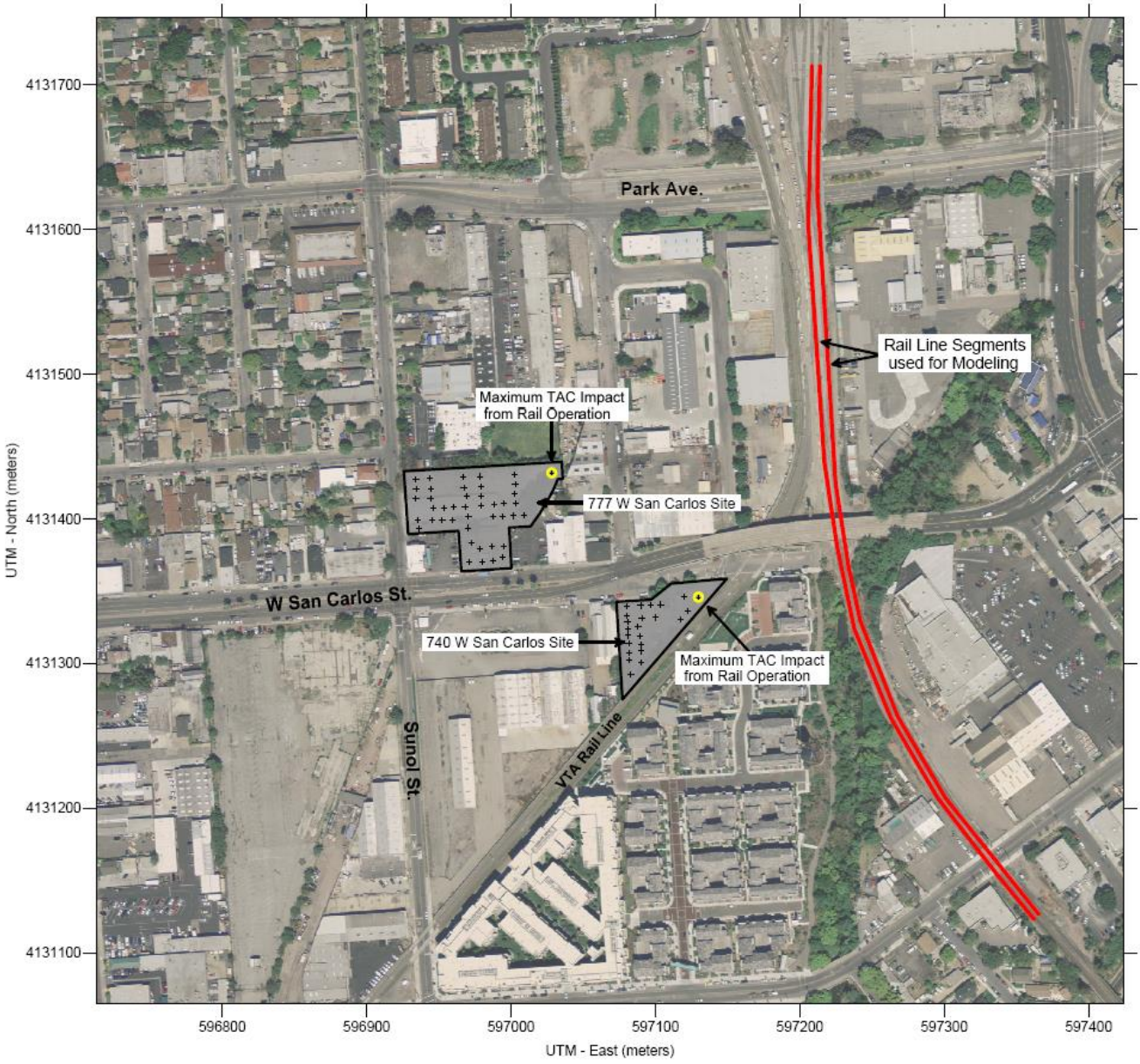
Location	**Cancer Risk (per million)**	**Annual $PM_{2.5}$ (µg/m^3)**	**Hazard Index**
740 W. San Carlos	2.9	0.013	<0.01
777 W. San Carlos	1.8	0.008	<0.01
BAAQMD Single Source Threshold	*10.0*	*0.3*	*1.0*
Significant?	***No***	***No***	***No***

Impacts from Local Surface Streets

Traffic on high volume roadways is a source of TAC emissions that may adversely affect sensitive receptors in close proximity to the roadway. The BAAQMD Roadway Screening Analysis Calculator is used to identify estimated screening risk and annual $PM_{2.5}$ impacts from local roadways throughout the Bay Area.[12] Screening level TAC impacts are provided by entering the county, roadway direction, side of the roadway, distance from the roadway, and the annual average daily traffic (AADT) volume. W. San Carlos Street AADT was estimated using the Background Plus Project p.m. peak hour traffic volume from the project traffic report. It was assumed that AADT is approximately ten times the p.m. peak hour volume. Using this method, W. San Carlos Street AADT was estimated at 17,720 vehicles. Based on these inputs, and a 70 foot residential setback from W. San Carlos Street to the 740 W. San Carlos site (including elevation rise to the 3rd floor receptors), the BAAQMD Roadway Screening Analysis Calculator indicates a screening level cancer risk of 7.3 in one million and $PM_{2.5}$ concentration of 0.2 µg/m^3, which are below BAAQMD thresholds of significance. For the 777 W. San Carlos site with a 40 foot setback from W. San Carlos Street (including elevation rise to the 3rd floor receptors), the BAAQMD Roadway Screening Analysis Calculator indicates a screening level cancer risk of 8.6 in one million and $PM_{2.5}$ concentration of 0.2 µg/m^3, which are also below BAAQMD thresholds of significance. The Hazard Index (HI) for surface streets in Santa Clara County is less than 0.03. *Attachment 1* includes the BAAQMD Roadway Screening Analysis Calculator for this segment of roadway.

[12] BAAQMD, 2015. Available online: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. Accessed: May 29, 2015.

Figure 1 - Project Site and On-site Residential Receptors, Rail Line Segments Evaluated, and Locations of Maximum TAC Impact



Impacts from Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated screening-level risk and hazard impacts. This tool identified eight sources that could affect the project site.

- Plant G11385 is a gas-dispensing facility located at 270 Sunol Street, operated by Qualified Maintenance Inc. The project would demolish and remove this use and, therefore, there would be no risk impacts to the project site in the future with implementation of the proposed project.
- Plant G11868 is a gas-dispensing facility located at 226 McEvoy Street, operated by United Rentals Northwest Inc. about 500 feet or greater northeast of the 777 W. San Carlos site and about 750 feet north of the 740 W. San Carlos site. At BAAQMD's direction, risk from the source was adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities (GDF)*. According to the BAAQMD screening data (and adjusted for the distances), this facility would result in an excess cancer risk of 0.3 per million, HI of <0.01, and no $PM_{2.5}$ concentration for the 777 W. San Carlos site, all of which would be below BAAQMD thresholds of significance. For the 740 W. San Carlos site, this facility would result in an excess cancer risk of 0.2 per million, HI of <0.01, and no $PM_{2.5}$ concentration.
- Plant G7956 is a gas-dispensing facility located at 245 S. Montgomery Street, operated by the City of San Jose Fire Training Center about 950 feet or greater northeast of the 740 W. San Carlos site and over 1,000 feet from the 777 W. San Carlos site. At BAAQMD's direction, risk from the source was adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities (GDF)*. According to the BAAQMD screening data (and adjusted for the 950-foot distance), this facility would result in an excess cancer risk of <0.1 per million, HI of <0.01, and no $PM_{2.5}$ concentration for the 740 W. San Carlos site, all of which would be below BAAQMD thresholds of significance.
- Plant G4113 is a gas-dispensing facility located at 602 W. San Carlos Street, operated by Damar Petroleum #256231 about 850 feet or greater east of the 740 W. San Carlos site and over 1,000 feet from the 777 W. San Carlos site. At BAAQMD's direction, risk from the source was adjusted for distance based on BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities (GDF)*. According to the BAAQMD screening data (and adjusted for the 850-foot distance), this facility would result in an excess cancer risk of 0.6 per million, HI of <0.01, and no $PM_{2.5}$ concentration for the 740 W. San Carlos site, all of which would be below BAAQMD thresholds of significance.

Combined Community Risk Impacts

As discussed above, the project site is affected by several sources of TACs. Table 2 shows the cancer and non-cancer risks associated with each source affecting the project site. The sum of impacts from combined sources (i.e., all sources within 1,000 feet of the project) would be below

the BAAQMD risk thresholds. Therefore, the impact from combined community risk would be considered *less than significant*.

Table 2. Impacts from Combined Sources

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
740 W. San Carlos			
W. San Carlos traffic	7.3	<0.03	0.2
Railroad traffic	2.9	<0.01	<0.1
Plant G11868, United Rentals Northwest Inc.	0.2	<0.01	--
Plant G7956, City of San Jose Fire Training Center	<0.1	<0.01	--
Plant G4113, Damar Petroleum #256231	0.6	<0.01	--
Combined Sources[1]	<11.1	<0.07	<0.3
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***
777 W. San Carlos			
W. San Carlos traffic	8.6	<0.03	0.2
Railroad traffic	1.8	<0.01	<0.1
Plant G11868, United Rentals Northwest Inc.	0.3	<0.01	--
Combined Sources[1]	10.7	<0.05	<0.3
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

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

Construction Community Risk Impacts

Construction activities, particularly during site preparation and grading would temporarily generate fugitive dust in the form of respirable particulate matter (PM_{10}) and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions. *Mitigation Measure 1 would implement BAAQMD-required best management practices*.

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known TAC. Diesel exhaust poses both potential health and nuisance impacts to nearby receptors. A community risk assessment of the project construction activities at both construction sites (740 W. San Carlos and 777 W. San Carlos) was conducted that evaluated potential health effects to sensitive receptors at nearby residences from construction emissions of diesel particulate matter (DPM) and $PM_{2.5}$.[13] A dispersion model was used to predict the off-site DPM concentrations resulting from project construction so that lifetime cancer risks could be

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

predicted. The closest off-site sensitive receptors to the 740 W. San Carlos site are townhomes southeast of the project site on the other side of the VTA Light Rail tracks adjacent to the site. The closest off-site sensitive receptors to the 777 W. San Carlos site are single-family homes across from the project site on Sunol Street. There is also a school, the Sunol Community School that is adjacent to the northern boundary of this site. Figure 2 shows the project construction sites and sensitive receptor locations (residences and school) used in the air quality dispersion modeling analysis where potential health impacts were evaluated.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict annual emissions for construction from both sites. 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 proposed project land uses were input into CalEEMod for the 740 W. San Carlos site, which included 95 residential units entered as "Apartments Mid Rise," 2,885 sf of commercial/retail entered as "Strip Mall," and 129 parking spaces entered as "Enclosed Parking with Elevator" on a 1.06-acre site. A construction build-out scenario, including equipment list and phasing schedule was provided by the project applicant. Construction is expected to start in June of 2016 and continue for approximately 15 months. The anticipated 4,228 sf of buildings for demolition was entered into the model. During the grading phase, 45,000 cubic yards (cy) for soil import and 90,000 cy for soil export are expected. Finally, 6,006 sf of cement is expected the building construction phase, which was entered into the model in terms of corresponding truck trips.

The CalEEMod model was also used to predict annual emissions from construction at the 777 W. San Carlos site. The land uses input into CalEEMod included 104 residential units entered as "Apartments Mid Ride," 3,150 sf of commercial/retail entered as "Strip Mall," and 179 parking spaces entered as "Enclosed Parking with Elevator" on a 1.3-acre site. A construction build-out scenario, including equipment list and phasing schedule was also provided by the project applicant. Construction is expected to start in June of 2016 and continue for approximately 15 months. The anticipated 16,675 sf of buildings for demolition was entered into the model. During the grading phase, 55.000 cy for soil import and 106,900 cy for soil export are expected. Finally, 5,882 sf of cement is expected the building construction phase, which was entered into the model in terms of corresponding truck trips. *Attachment 2* includes the CalEEMod input and output values for construction emissions and the project construction schedule.

Construction Emissions

The refined community risk assessment focused on modeling on-site construction activity. Construction period emissions were modeled using CalEEMod, as described above. The CalEEMod model provided total annual $PM_{2.5}$ exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles (i.e., haul trucks, vendor trucks, and worker vehicles), with total emissions of 0.1685 tons (337 pounds) for 740 W. San Carlos construction activities and 0.1779 tons (356 pounds) for 777 W. San Carlos construction activities. The on-road emissions are a result of haul truck travel during grading, worker travel, and vendor deliveries during construction activities. A trip length of 0.5 miles was used to represent vehicle travel while at or near the construction sites. It was assumed that

these emissions from on-road vehicles traveling at or near the sites would occur at the construction sites. Fugitive $PM_{2.5}$ dust emissions for the overall construction period were calculated by CalEEMod as 0.1023 tons (205 pounds) for 740 W. San Carlos construction activities and 0.1038 tons (208 pounds) for 777 W. San Carlos construction activities.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at existing sensitive receptors in the vicinity of the project construction areas. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[14] Emission sources for the construction site were grouped into two categories, exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions. For each construction site the dispersion modeling utilized two area sources to represent the on-site construction emissions, one for DPM exhaust emissions and the other for fugitive $PM_{2.5}$ dust emissions. For the exhaust emissions from construction equipment, an emission release height of six meters was used for the area sources. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of two meters was used for the area sources. Emissions from vehicle travel around the project sites were included in the modeled area sources. Construction emissions were modeled as occurring daily from 7 a.m. to 4 p.m., when the majority of construction activities is assumed to take place.

The modeling used a five-year data set (2006 - 2010) of hourly meteorological data from the San Jose Airport prepared by the BAAQMD for use with the AERMOD model. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2016 to 2017 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors (residences) at a receptor height of 1.5 meters (4.9 feet). Figure 2 shows the construction areas modeled and locations of nearby sensitive receptors.

Predicted Cancer Risk and Hazards

The maximum modeled DPM and $PM_{2.5}$ concentrations occurred southeast of the 740 W. San Carlos construction site at a residence adjacent to the VTA Light Rail line. The location of this receptor is identified in Figure 2. Increased cancer risks were calculated using the modeled concentrations and BAAQMD-recommended risk assessment methods for both a child exposure (3^{rd} trimester through 2 years of age) and adult exposure.[15] The cancer risk calculations were based on applying the BAAQMD-recommended age sensitivity factors to the DPM exposures. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. BAAQMD-recommended exposure parameters were used for the cancer risk

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

calculations.[16] Infant and child exposures were assumed to occur at all residences during the entire construction period.

Results of this assessment indicate that for project construction the incremental residential child cancer risk at the maximally exposed individual (MEI) receptor location would be 94.8 in one million and the incremental residential adult cancer risk would be 4.9 in one million. The child increased cancer risk is above the BAAQMD significance threshold of 10 in one million. This would be considered a *significant* impact.

Maximum increased cancer risks for students at the Sunol Community School were calculated as 7.3 in one million, which is below the BAAQMD significance threshold for cancer risk greater than 10 in one million. This would be considered *a less-than-significant* impact.

The maximum modeled annual $PM_{2.5}$ concentration for an off-site resident was 2.3 $\mu g/m^3$ occurring at the same location as the maximum cancer risk. This $PM_{2.5}$ concentration is above the BAAQMD significance threshold of greater than 0.3 $\mu g/m^3$ used to judge the significance of health impacts from $PM_{2.5}$. This would be considered a *significant* impact.

The maximum modeled annual $PM_{2.5}$ concentration at the Sunol Community School was 1.2 $\mu g/m^3$ occurring at the same location as the maximum cancer risk at the school. This $PM_{2.5}$ concentration is above the BAAQMD significance threshold of greater than 0.3 $\mu g/m^3$ and would be considered a *significant* impact.

Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. 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). California's Office of Environmental Health and Hazard Assessment (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 chronic inhalation REL for DPM is 5 $\mu g/m^3$. The maximum modeled annual residential DPM concentration was 1.08 $\mu g/m^3$, which is lower than the REL. The maximum computed hazard index based on this DPM concentration is 0.22 which is lower than the BAAQMD significance criterion of a hazard index greater than 1.0. The maximum HI at the Sunol Community School would be 0.11. The non-cancer health impacts would be below the BAAQMD significance threshold and would be a *less-than-significant* impact.

Attachment 2 includes the CalEEMod output and emission calculations used for the area source modeling and the cancer risk calculations.

Construction at the 740 and 777 W. San Carlos Street sites would have a *significant* impact with respect to community risk caused by construction activities.

Mitigation Measure 1: The contractor shall implement the following Best Management Practices that are required of all construction projects:

[16] Bay Area Air Quality Management District (BAAQMD), 2010, *Air Toxics NSR Program Health Risk Screening Analysis Guidelines*, January.

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

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered;

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;

4. All vehicle speeds on unpaved roads shall be limited to 15 mph;

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points;

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

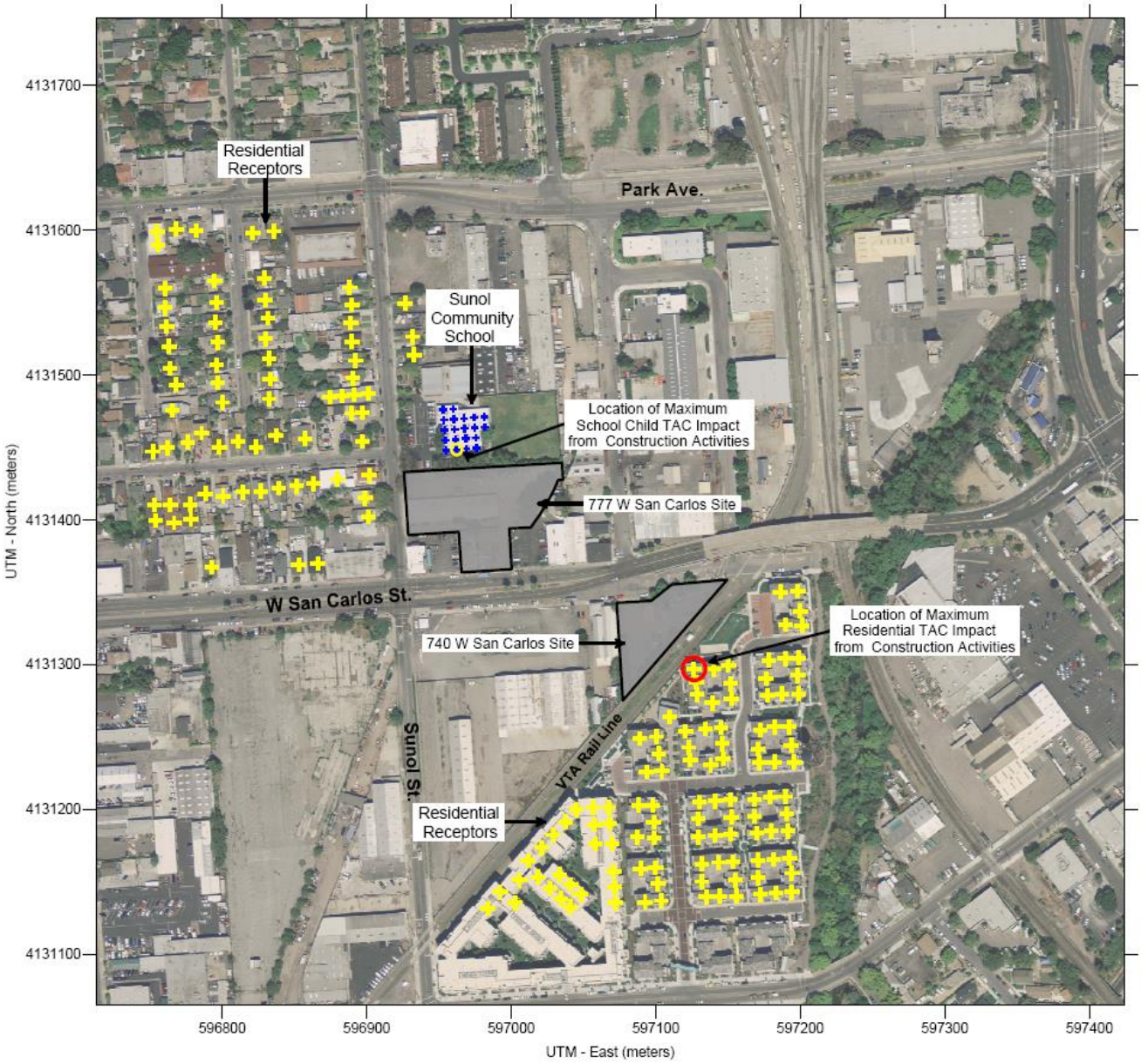
Mitigation Measure 2: Selection of equipment during construction to minimize emissions. Such equipment selection would include the following:

1. All mobile diesel-powered off-road equipment larger than 50 horsepower and operating on the project sites for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 4 engines or equivalent.

Note that the construction contractor could use other measures to minimize construction period DPM emissions to reduce the predicted cancer risk below the thresholds. Such measures may be the use of alternative powered equipment (e.g., LPG-powered lifts), alternative fuels (e.g., biofuels), added exhaust devices, or a combination of measures, provided that these measures are approved by the City and demonstrated to reduce community risk impacts to less than significant.

Implementation of *Mitigation Measure 1* is considered to reduce exhaust emissions by 5 percent and fugitive dust emissions by over 50 percent. Implementation of *Mitigation Measure 2* would further reduce on-site diesel exhaust emissions by over 96 percent at both construction sites. With mitigation, the computed maximum increased child cancer risk for construction of both sites would be less than 3.4 in one million and the maximum annual $PM_{2.5}$ concentration would be 0.3 $\mu g/m^3$. The cancer risk would be below the BAAQMD thresholds of 10 per one million for cancer risk and the $PM_{2.5}$ concentration would not exceed the threshold of 0.3 $\mu g/m^3$. Therefore, *after implementation of these recommended measures, the project would have a less-than-significant impact with respect to community risk caused by construction activities.*

Figure 2
740 and 777 W. San Carlos Street Construction Sites and Locations of Sensitive Receptors and Maximum TAC Impacts



Combined Construction Risk Impacts

As discussed above, the project area is affected by several sources of TACs, in addition to temporary construction impacts on nearby sensitive receptors. The construction MEI is located southeast of the 740 W. San Carlos site and, for the purposes of this combined risk assessment, was assumed to be the same distance or greater from nearby operational sources of TACs as the 740 W. San Carlos site. Table 3 shows the cancer and non-cancer risks associated with each source affecting the project site. The sum of impacts from combined sources (i.e., all sources within 1,000 feet of the project) would be above the BAAQMD cancer risk threshold, therefore this impact is considered *significant*. Implementation of Mitigation Measures 1 and 2 would reduce this impact to a level of *less than significant*.

Table 3. Impacts from Combined Sources

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Project MEI			
Construction	**94.8**	0.22	**2.3**
W. San Carlos traffic	7.3	<0.03	0.2
Railroad traffic	2.9	<0.01	<0.1
Plant G11868, United Rentals Northwest Inc.	0.2	<0.01	--
Plant G7956, City of San Jose Fire Training Center	<0.1	<0.01	--
Plant G4113, Damar Petroleum #256231	0.6	<0.01	--
Combined Sources[1]	***<105.9***	<0.29	**2.6**
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***
Project MEI with Mitigated Construction			
Construction	<3.4	<0.22	0.3
W. San Carlos traffic	7.3	<0.03	0.2
Railroad traffic	2.9	<0.01	<0.1
Plant G11868, United Rentals Northwest Inc.	0.2	<0.01	--
Plant G7956, City of San Jose Fire Training Center	<0.1	<0.01	--
Plant G4113, Damar Petroleum #256231	0.6	<0.01	--
Combined Sources[1]	<14.5	<0.29	<0.6
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

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

Attachment 1: Rail Line Emissions and Risk Calculations, and BAAQMD Roadway Screening Calculations

740 & 777 W San Carlos St, San Jose, CA
DPM Modeling - Rail Line Information and DPM Emission Rates
70-Year Cancer Risk Age Sensitivity Weighted DPM Emissions Starting in 2018

Year	Description	No. Lines	Link Width (ft)	Link Width (m)	Link Length (ft)	Link Length (miles)	Link Length (m)	Release Height (m)	No. Trains per Day	Train Travel Speed (mph)	Age Sensitivity Weighted Emission Rates: Average Daily Emission Rate (g/mi/day)	Average Daily Emission Rate (g/day)	Link Emission Rate (g/s)	Link Emission Rate (lb/hr)
2018-2087	Passenger	1	12	3.7	2,065	0.39	630	5.0	28	25	123.5	48.3	5.59E-04	4.44E-03
	Freight Trains	1	12	3.7	2,052	0.39	625	5.0	6	25	49.7	19.3	2.23E-04	1.77E-03
	Total								**34**			**68**	**7.82E-04**	**6.21E-03**

Notes: Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)
Average emissions calculated for 70-year period 2018-2087 incorporating age sensitivity factors for infants and children.
Fuel correction factors from Offroad Modeling Change Technical memo, Changes to the Locomotive Inventory, CARB July 2006.
DPM & PM2.5 calculated as 92% of PM emissions (CARB CEIDERS PM2.5 fractions)
Passenger trains assumed to operate for 24 hours per day
Freight trains assumed to operate for 24 hours per day

Caltrain - without electrification

Arrive/Depart Station	*Diesel*	*Electric*	*Total*
Passenger trains - weekday =	40	0	40
Passenger trains - weekend =	0	0	0
Passenger trains - Sat only =	0	0	0
Total Trains =	40	0	40
Annual average daily trains =	28	0	28
Locomotive horsepower =	3285		
Locomotives per train =	1		
Locomotive engine load =	0.6		

Other Passenger Trains*

Arrive/Depart Station	*Diesel*
Passenger trains - weekday =	2
Passenger trains - weekend =	2
Passenger trains - Sat only =	0
Total Trains =	4
Annual average daily trains =	2
Locomotive horsepower =	3200
Locomotives per train =	1
Locomotive engine load =	0.6

* Includes Amtrak Coast Starlight trains

Freight

Freight trains per day =	6
Locomotive horsepower =	2300
Locomotives per train =	2
Total horsepower =	4600
Locomotive engine load =	0.6

7 days/week

Locomotive Emission Factors (g/hp-hr) - age sensitivity weighted

Train Type	2018-2087
Passenger	0.084
Freight	0.097

Average EPA emission factor over exposure period, adjusted for age sensitivity for infants and children

PM2.5 to PM ratio = 0.92

	CARB Fuel Adj Factor	
	2010	2011+
Passenger	0.717	0.709
Freight	0.851	0.840

Diesel Locomotive Emission Factors and Age Sensitivity Weighted Emission Factor Calculations

EPA Locomotive Emission Factors[a]

Operation	Large Line Haul		Passenger/Commuter	
Year	(g/gal)	(g/hp-hr)[b]	(g/gal)	(g/hp-hr)[b]
2018	2.7	0.13	2.6	0.13
2019	2.5	0.12	2.3	0.11
2020	2.3	0.11	2.1	0.10
2021	2.2	0.11	2	0.10
2022	2	0.10	1.8	0.09
2023	1.9	0.09	1.7	0.08
2024	1.7	0.08	1.5	0.07
2025	1.6	0.08	1.4	0.07
2026	1.5	0.07	1.2	0.06
2027	1.4	0.07	1.1	0.05
2028	1.3	0.06	1	0.05
2029	1.1	0.05	0.9	0.04
2030	1	0.05	0.8	0.04
2031	1	0.05	0.7	0.03
2032	0.9	0.04	0.7	0.03
2033	0.8	0.04	0.6	0.03
2034	0.7	0.03	0.6	0.03
2035	0.7	0.03	0.5	0.02
2036	0.6	0.03	0.5	0.02
2037	0.6	0.03	0.4	0.02
2038	0.5	0.02	0.4	0.02
2039	0.5	0.02	0.4	0.02
2040	0.4	0.02	0.3	0.01
2041	0.4	0.02	0.3	0.01
2042	0.4	0.02	0.3	0.01
2043	0.4	0.02	0.3	0.01
2044	0.4	0.02	0.3	0.01
2045	0.4	0.02	0.3	0.01
2046	0.4	0.02	0.3	0.01
2047	0.4	0.02	0.3	0.01
2048	0.4	0.02	0.3	0.01
2049	0.4	0.02	0.3	0.01
2050	0.4	0.02	0.3	0.01
2051	0.4	0.02	0.3	0.01
2052	0.4	0.02	0.3	0.01
2053	0.4	0.02	0.3	0.01
2054	0.4	0.02	0.3	0.01
2055	0.4	0.02	0.3	0.01
2056	0.4	0.02	0.3	0.01
2057	0.4	0.02	0.3	0.01
2058	0.4	0.02	0.3	0.01
2059	0.4	0.02	0.3	0.01
2060	0.4	0.02	0.3	0.01
2061	0.4	0.02	0.3	0.01
2062	0.4	0.02	0.3	0.01
2063	0.4	0.02	0.3	0.01
2064	0.4	0.02	0.3	0.01
2065	0.4	0.02	0.3	0.01
2066	0.4	0.02	0.3	0.01
2067	0.4	0.02	0.3	0.01
2068	0.4	0.02	0.3	0.01
2069	0.4	0.02	0.3	0.01
2070	0.4	0.02	0.3	0.01
2071	0.4	0.02	0.3	0.01
2072	0.4	0.02	0.3	0.01
2073	0.4	0.02	0.3	0.01
2074	0.4	0.02	0.3	0.01
2075	0.4	0.02	0.3	0.01
2076	0.4	0.02	0.3	0.01
2077	0.4	0.02	0.3	0.01
2078	0.4	0.02	0.3	0.01
2079	0.4	0.02	0.3	0.01
2080	0.4	0.02	0.3	0.01
2081	0.4	0.02	0.3	0.01
2082	0.4	0.02	0.3	0.01
2083	0.4	0.02	0.3	0.01
2084	0.4	0.02	0.3	0.01
2085	0.4	0.02	0.3	0.01
2086	0.4	0.02	0.3	0.01
2087	0.4	0.02	0.3	0.01

[a] Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)

[b] grams per horsepower-hour calculated using fuel use of 20.8 hp-hr/gal (EPA, 2009)

Sensitivity Weighted Locomotive Emission Factors

Exposure	Age Sensitivity Factors (ASF)			ASF Adjustment	Large Line Haul Sensitivity Weighted Emission Rate	Passenger/ Commuter Sensitivity Weighted Emission Rate
Year	10	3	1	Factor	(g/hp-hr)	(g/hp-hr)
1	1.0			0.143	0.0185	0.0179
2	1.0			0.143	0.0172	0.0158
3	0.25	0.75		0.068	0.0075	0.0069
4		1.0		0.043	0.0045	0.0041
5		1.0		0.043	0.0041	0.0037
6		1.0		0.043	0.0039	0.0035
7		1.0		0.043	0.0035	0.0031
8		1.0		0.043	0.0033	0.0029
9		1.0		0.043	0.0031	0.0025
10		1.0		0.043	0.0029	0.0023
11		1.0		0.043	0.0027	0.0021
12		1.0		0.043	0.0023	0.0019
13		1.0		0.043	0.0021	0.0016
14		1.0		0.043	0.0021	0.0014
15		1.0		0.043	0.0019	0.0014
16		1.0		0.043	0.0016	0.0012
17		0.25	0.75	0.021	0.0007	0.0006
18			1.0	0.014	0.0005	0.0003
19			1.0	0.014	0.0004	0.0003
20			1.0	0.014	0.0004	0.0003
21			1.0	0.014	0.0003	0.0003
22			1.0	0.014	0.0003	0.0003
23			1.0	0.014	0.0003	0.0002
24			1.0	0.014	0.0003	0.0002
25			1.0	0.014	0.0003	0.0002
26			1.0	0.014	0.0003	0.0002
27			1.0	0.014	0.0003	0.0002
28			1.0	0.014	0.0003	0.0002
29			1.0	0.014	0.0003	0.0002
30			1.0	0.014	0.0003	0.0002
31			1.0	0.014	0.0003	0.0002
32			1.0	0.014	0.0003	0.0002
33			1.0	0.014	0.0003	0.0002
34			1.0	0.014	0.0003	0.0002
35			1.0	0.014	0.0003	0.0002
36			1.0	0.014	0.0003	0.0002
37			1.0	0.014	0.0003	0.0002
38			1.0	0.014	0.0003	0.0002
39			1.0	0.014	0.0003	0.0002
40			1.0	0.014	0.0003	0.0002
41			1.0	0.014	0.0003	0.0002
42			1.0	0.014	0.0003	0.0002
43			1.0	0.014	0.0003	0.0002
44			1.0	0.014	0.0003	0.0002
45			1.0	0.014	0.0003	0.0002
46			1.0	0.014	0.0003	0.0002
47			1.0	0.014	0.0003	0.0002
48			1.0	0.014	0.0003	0.0002
49			1.0	0.014	0.0003	0.0002
50			1.0	0.014	0.0003	0.0002
51			1.0	0.014	0.0003	0.0002
52			1.0	0.014	0.0003	0.0002
53			1.0	0.014	0.0003	0.0002
54			1.0	0.014	0.0003	0.0002
55			1.0	0.014	0.0003	0.0002
56			1.0	0.014	0.0003	0.0002
57			1.0	0.014	0.0003	0.0002
58			1.0	0.014	0.0003	0.0002
59			1.0	0.014	0.0003	0.0002
60			1.0	0.014	0.0003	0.0002
61			1.0	0.014	0.0003	0.0002
62			1.0	0.014	0.0003	0.0002
63			1.0	0.014	0.0003	0.0002
64			1.0	0.014	0.0003	0.0002
65			1.0	0.014	0.0003	0.0002
66			1.0	0.014	0.0003	0.0002
67			1.0	0.014	0.0003	0.0002
68			1.0	0.014	0.0003	0.0002
69			1.0	0.014	0.0003	0.0002
70			1.0	0.014	0.0003	0.0002
			70-Year Total		**0.097**	**0.084**

740 & 777 W San Carlos St, San Jose, CA
PM2.5 Modeling - Rail Line Information and PM2.5 Emission Rates
2018 PM2.5 Emissions

Year	Description	No. Lines	Link Width (ft)	Link Width (m)	Link Length (ft)	Link Length (miles)	Link Length (m)	Release Height (m)	No. Trains per Day	Train Travel Speed (mph)	2018 PM2.5 Emissions			
											Average Daily Emission Rate (g/mi/day)	Average Daily Emission Rate (g/day)	Link Emission Rate (g/s)	Link Emission Rate (lb/hr)
2018	Passenger	1	12	3.7	2,065	0.39	630	5.0	28	25	183.2	71.6	8.29E-04	6.58E-03
	Freight Trains	1	12	3.7	2,052	0.39	625	5.0	6	25	66.4	25.8	2.99E-04	2.37E-03
	Total								**34**			**97**	**1.13E-03**	**8.95E-03**

Notes: Emission based on Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)
Emissions for 2018 used as worst-case for PM2.5 emissions.
Fuel correction factors from Offroad Modeling Change Technical memo, Changes to the Locomotive Inventory, CARB July 2006.
DPM & PM2.5 calculated as 92% of PM emissions (CARB CEIDERS PM2.5 fractions)
Passenger trains assumed to operate for 24 hours per day
Freight trains assumed to operate for 24 hours per day

Caltrain - without electrification			
Arrive/Depart Station	*Diesel*	*Electric*	*Total*
Passenger trains - weekday =	40	0	40
Passenger trains - weekend =	0	0	0
Passenger trains - Sat only =	0	0	0
Total Trains =	40	0	40
Annual average daily trains =	28	0	28
Locomotive horsepower =	3285		
Locomotives per train =	1		
Locomotive engine load =	0.6		

Other Passenger Trains*	
Arrive/Depart Station	*Diesel*
Passenger trains - weekday =	2
Passenger trains - weekend =	2
Passenger trains - Sat only =	0
Total Trains =	4
Annual average daily trains =	2
Locomotive horsepower =	3200
Locomotives per train =	1
Locomotive engine load =	0.6

* Includes Amtrak Coast Starlight trains

Freight		
Freight trains per day =	6	7 days/week
Locomotive horsepower =	2300	
Locomotives per train =	2	
Total horsepower =	4600	
Locomotive engine load =	0.6	

PM2.5 Locomotive Emission Factors (g/hp-hr)

Train Type	2018
Passenger	0.125
Freight	0.130

PM2.5 to PM ratio = 0.92

	CARB Fuel Adj Factor	
	2010	2011+
Passenger	0.717	0.709
Freight	0.851	0.840

740 W. San Carlos St, San Jose, CA - Residential Receptors (8.8 meter receptor height)
AERMOD Railroad DPM & PM2.5 Modeling Parameters and Maximum Cancer Risk at Project Site
Freight and Passenger Trains

Receptor Information

Number of Receptors	23
Receptor Spacing =	variable
Receptor Height =	8.8 meters (1st residential level)

Meteorological Conditions

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

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air (µg/m^3)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
Exposure Type	**DBR (L/kg BW-day)**	**A (-)**	**Exposure (hr/day)**	**Exposure (days/week)**	**Exposure (week/year)**	**EF (days/yr)**	**ED (Years)**	**AT (days)**
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x SWF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor (mg/kg-day)$^{-1}$
SWFi = Sensitivity weighting factor dependent on emissions period i and duration of exposure
(note: sensitivity weighting factors were appied to the emissions for each period)
URF =Unit risk factor (cancer risk per µg/m^3)

Unit Risk Factors (unadjusted for age sensitivity) for DPM

Exposure Type	**CPF (mg/kg-day)$^{-1}$**	**URF *DPM***
Residential (70-Yr Exposure)	1.10E+00	318.5

MEI Cancer Risk Calculations

Meteorological Data Years	**Maximum Annual Age Sensitivity Weighted DPM Concentration (µg/m^3)**	**Maximum Annual PM2.5 Concentration (µg/m^3)**
	2018 - 2087	**2018**
2006 - 2010	0.0092	0.013
70-yr Cumulative Risk [a]	***2.93***	

Notes:
Receptor Heights = 8.8 m
Maximum DPM & PM2.5 concentrations occur at residence near nhortheast corner of site
a Cumulative cancer risk (per million) calculated assuming exposure over a 70-year period.

740 & 777 W San Carlos St, San Jose, CA - Residential Receptors (8.8 meter receptor height)
AERMOD Railroad DPM & PM2.5 Modeling Parameters and Maximum Cancer Risk at Project Site
Freight and Passenger Trains

Receptor Information

Number of Receptors	43
Receptor Spacing =	variable
Receptor Height =	8.8 meters (1st residential level)

Meteorological Conditions

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

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air (µg/m^3)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
Exposure Type	**DBR (L/kg BW-day)**	**A (-)**	**Exposure (hr/day)**	**Exposure (days/week)**	**Exposure (week/year)**	**EF (days/yr)**	**ED (Years)**	**AT (days)**
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x SWF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor (mg/kg-day)$^{-1}$
SWFi = Sensitivity weighting factor dependent on emissions period i and duration of exposure
(note: sensitivity weighting factors were appied to the emissions for each period)
URF =Unit risk factor (cancer risk per µg/m^3)

Unit Risk Factors (unadjusted for age sensitivity) for DPM

Exposure Type	**CPF (mg/kg-day)$^{-1}$**	**URF *DPM***
Residential (70-Yr Exposure)	1.10E+00	318.5

MEI Cancer Risk Calculations

Meteorological Data Years	**Maximum Annual Age Sensitivity Weighted DPM Concentration (µg/m^3)**	**Maximum Annual PM2.5 Concentration (µg/m^3)**
	2018 - 2087	**2018**
2006 - 2010	0.0058	0.008
70-yr Cumulative Risk [a]	***1.85***	

Notes:
Receptor Heights = 8.8 m
Maximum DPM & PM2.5 concentrations occur at residence near northeast corner of site
a Cumulative cancer risk (per million) calculated assuming exposure over a 70-year period.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	East-West
Side of the Roadway	South
Distance from Roadway	70 feet
Annual Average Daily Traffic (ADT)	17,720

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.185 ($\mu g/m^3$)

Cancer Risk

7.31 (per million)

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	East-West
Side of the Roadway	North
Distance from Roadway	40 feet
Annual Average Daily Traffic (ADT)	17,720

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.171 ($\mu g/m^3$)

Cancer Risk

8.56 (per million)

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Attachment 2: CalEEMod Input and Output Worksheets, Construction Schedule, and Risk Calculations

Project Name: 740 West San Carlos					
Construction Phase	**Equipment (*See next page for example of commonly used equipment*)**	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	**Fuel Type - if other than Diesel**
Demolition	• Concrete Saws	3	8	40	
	• Excavators	3	8	45	
	•				
Start Date: 6/2016	•				
End Date: 8/2016	•				
Site Preparation	• Dozer	2	8	30	
	• Backhoe	2	8	45	
	•				
Start Date: 9/2016	•				
End Date: 11/2016	•				
Grading/Excavation	• Excavator	2	8	45	
	• Grader	1	8	15	
	• Backhoe	2	8	40	
Start Date: 9/2016	•				
End Date: 11/2016	•				
Trenching	• Excavator	2	8	20	
	• Backhoe	2	8	20	
	•				
Start Date: 10/2016	•				
End Date: 12/2016	•				
Building – Exterior	• Forklift	3	8	120	
	•				
	• Loader	1	8	25	
Start Date: 12/2016	• Concrete Mixer	1	8	15	
End Date: 5/2017	•				
Building – Interior/ Architectural Coating	• Air Compressor	5	8	60	
	•				
	•				
	•				
Start Date: 5/2017					
End Date: 8/2017	•				
Paving	• Cement Mixer	1	8	15	
	• Paving Equipment	1	8	15	
	• Roller	3	8	15	
Start Date: 2/2017	• Backhoe	2	8	25	
End Date: 3/2017	•				
OTHER – Provide as Applicable					
Soil Hauling Volume	Export volume = 90,000 cubic yards? Import volume = 45,000 cubic yards?				
Demolition Volume	Square footage of buildings to be demolished, or total tons to be hauled. =4,228 SF square feet or				

Project Name: 740 West San Carlos					
Construction Phase	**Equipment (*See next page for example of commonly used equipment*)**	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	**Fuel Type - if other than Diesel**
	=___ hauling volume (tons) Pavement demolished and hauled =___ tons				
Power	Line Power (Y/N) _Y_ or Generator use (Y/N) ___? If generator use, then fuel type (diesel/gasoline/propane) ___				
Cement	Cement Trucks = ___ Total Round-Trips OR Cement =6,006.32 SF				
Asphalt	_____ cy or _____ round trips				

Example of Equipment Commonly Used for Each Construction Phase
Demolition
Concrete/Industrial Saws
Excavators
Rubber-Tired Dozers
Site Preparation
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Grading / Excavation
Excavators
Graders
Scrapers
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Trenching
Excavator
Tractor/Loader/Backhoe
Building - Exterior
Cranes
Forklifts
Generator Sets
Tractors/Loaders/Backhoes
Welders
Building – Interior/ Architectural Coating
Air Compressors
Aerial Lift
Paving
Cement and Mortar Mixers
Pavers
Paving Equipment
Rollers
Tractors/Loaders/Backhoes

Project Name: 777 West San Carlos					
Construction Phase	**Equipment (*See next page for example of commonly used equipment*)**	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	**Fuel Type - if other than Diesel**
Demolition	• Concrete Saws	3	8	40	
	• Excavators	3	8	45	
	•				
Start Date: 6/2016	•				
End Date: 8/2016	•				
Site Preparation	• Dozer	2	8	30	
	• Backhoe	2	8	45	
	•				
Start Date: 9/2016	•				
End Date: 11/2016	•				
Grading/Excavation	• Excavator	3	8	45	
	• Grader	1	8	15	
	• Backhoe	3	8	40	
Start Date: 9/2016	•				
End Date: 11/2016	•				
Trenching	• Excavator	2	8	20	
	• Backhoe	2	8	20	
	•				
Start Date: 10/2016	•				
End Date: 12/2016	•				
Building – Exterior	• Forklift	3	8	120	
	•				
	• Loader	1	8	25	
Start Date: 12/2016	• Concrete Mixer	1	8	15	
End Date: 5/2017	•				
Building – Interior/ Architectural Coating	• Air Compressor	5	8	60	
	•				
	•				
	•				
Start Date: 5/2017					
End Date: 8/2017	•				
Paving	• Cement Mixer	1	8	15	
	• Paving Equipment	1	8	15	
	• Roller	3	8	15	
Start Date: 2/2017	• Backhoe	2	8	25	
End Date: 3/2017	•				
OTHER – Provide as Applicable					
Soil Hauling Volume	Export volume = 106,900 cubic yards? Import volume = 55,000 cubic yards?				
Demolition Volume	Square footage of buildings to be demolished, or total tons to be hauled. =16,675 SF square feet or				

Project Name: 777 West San Carlos					
Construction Phase	**Equipment (*See next page for example of commonly used equipment*)**	**Quantity**	**Average Hours Used Per Day**	**How Many Work Days**	**Fuel Type - if other than Diesel**
	=___ hauling volume (tons) Pavement demolished and hauled =___ tons				
Power	Line Power (Y/N) _Y_ or Generator use (Y/N) ___? If generator use, then fuel type (diesel/gasoline/propane) ___				
Cement	Cement Trucks = __ Total Round-Trips OR Cement =5,881.57SF				
Asphalt	_____ cy or _____ round trips				

Example of Equipment Commonly Used for Each Construction Phase
Demolition
Concrete/Industrial Saws
Excavators
Rubber-Tired Dozers
Site Preparation
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Grading / Excavation
Excavators
Graders
Scrapers
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Trenching
Excavator
Tractor/Loader/Backhoe
Building - Exterior
Cranes
Forklifts
Generator Sets
Tractors/Loaders/Backhoes
Welders
Building – Interior/ Architectural Coating
Air Compressors
Aerial Lift
Paving
Cement and Mortar Mixers
Pavers
Paving Equipment
Rollers
Tractors/Loaders/Backhoes

740 W San Carlos - Construction Risk

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	129.00	Space	0.00	61,010.00	0
Apartments Mid Rise	95.00	Dwelling Unit	1.06	130,145.00	272
Strip Mall	2.88	1000sqft	0.00	2,885.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Lot acreage from plan drawings. Residential sf includes common area and amenities.

Construction Phase - Anticipated schedule provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Trips and VMT - Bldg: 222 CY cement @ 16 CY/truck = 28 one-way trips. 0.5 mile trip lengths to calculate risk from on- and near-site vehicle travel.

Demolition - 4,228 sf building demo

Grading - 45,000 CY soil import, 90,000 CY soil export.

Construction Off-road Equipment Mitigation - Tier 4 engines for equip > 50hp. BAAQMD BMPs.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	200.00	120.00
tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	NumDays	4.00	45.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	45.00
tblConstructionPhase	PhaseEndDate	5/30/2017	7/21/2017

tblConstructionPhase	PhaseEndDate	4/14/2017	5/17/2017
tblConstructionPhase	PhaseEndDate	1/4/2017	11/2/2016
tblConstructionPhase	PhaseEndDate	6/21/2017	3/7/2017
tblConstructionPhase	PhaseEndDate	10/4/2016	11/2/2016
tblConstructionPhase	PhaseEndDate	11/30/2016	10/28/2016
tblConstructionPhase	PhaseStartDate	3/8/2017	5/1/2017
tblConstructionPhase	PhaseStartDate	10/29/2016	12/1/2016
tblConstructionPhase	PhaseStartDate	11/3/2016	9/1/2016
tblConstructionPhase	PhaseStartDate	5/18/2017	2/1/2017
tblConstructionPhase	PhaseStartDate	8/3/2016	9/1/2016
tblConstructionPhase	PhaseStartDate	11/3/2016	10/1/2016
tblGrading	AcresOfGrading	7.59	1.50
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	MaterialExported	0.00	90,000.00
tblGrading	MaterialImported	0.00	45,000.00
tblLandUse	LandUseSquareFeet	51,600.00	61,010.00
tblLandUse	LandUseSquareFeet	95,000.00	130,145.00
tblLandUse	LandUseSquareFeet	2,880.00	2,885.00
tblLandUse	LotAcreage	1.16	0.00
tblLandUse	LotAcreage	2.50	1.06
tblLandUse	LotAcreage	0.07	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	4.80
tblOffRoadEquipment	UsageHours	8.00	7.10
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	7.00	4.80
tblOffRoadEquipment	UsageHours	7.00	5.30
tblOffRoadEquipment	UsageHours	6.00	1.70
tblOffRoadEquipment	UsageHours	7.00	7.10
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50

tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50

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					
2016	0.2760	2.0207	2.7889	2.1200e-003	0.1952	0.1070	0.3022	0.1016	0.1001	0.2017	0.0000	193.4722	193.4722	0.0435	0.0000	194.3856
2017	1.3888	0.9365	0.8675	1.1000e-003	2.5400e-003	0.0713	0.0738	6.9000e-004	0.0684	0.0691	0.0000	96.7631	96.7631	0.0178	0.0000	97.1366
Total	**1.6648**	**2.9572**	**3.6564**	**3.2200e-003**	**0.1977**	**0.1783**	**0.3760**	**0.1023**	**0.1685**	**0.2708**	**0.0000**	**290.2352**	**290.2352**	**0.0613**	**0.0000**	**291.5222**

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					

2016	0.1180	0.3412	2.6643	2.1200e-003	0.0904	4.1900e-003	0.0946	0.0239	4.0600e-003	0.0279	0.0000	193.4720	193.4720	0.0435	0.0000	194.3854
2017	1.2821	0.0821	0.8494	1.1000e-003	2.5400e-003	1.8900e-003	4.4300e-003	6.9000e-004	1.8800e-003	2.5700e-003	0.0000	96.7629	96.7629	0.0178	0.0000	97.1365
Total	**1.4001**	**0.4233**	**3.5138**	**3.2200e-003**	**0.0929**	**6.0800e-003**	**0.0990**	**0.0245**	**5.9400e-003**	**0.0305**	**0.0000**	**290.2349**	**290.2349**	**0.0613**	**0.0000**	**291.5219**

	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	**15.90**	**85.69**	**3.90**	**0.00**	**53.01**	**96.59**	**73.68**	**76.00**	**96.47**	**88.74**	**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	Demolition	Demolition	6/1/2016	8/2/2016	5	45	
2	Site Preparation	Site Preparation	9/1/2016	11/2/2016	5	45	
3	Grading	Grading	9/1/2016	11/2/2016	5	45	
4	Trenching	Trenching	10/1/2016	10/28/2016	5	20	
5	Building Construction	Building Construction	12/1/2016	5/17/2017	5	120	
6	Paving	Paving	2/1/2017	3/7/2017	5	25	
7	Architectural Coating	Architectural Coating	5/1/2017	7/21/2017	5	60	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 263,544; Residential Outdoor: 87,848; Non-Residential Indoor: 95,843; Non-Residential Outdoor: 31,948 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	3	7.10	81	0.73
Demolition	Excavators	3	8.00	162	0.38

Demolition	Rubber Tired Dozers	0	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	2	5.30	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	2.70	174	0.41
Grading	Rubber Tired Dozers	0	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.10	97	0.37
Trenching	Excavators	2	8.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	1.00	9	0.56
Building Construction	Cranes	0	6.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.70	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	4.80	9	0.56
Paving	Pavers	0	6.00	125	0.42
Paving	Paving Equipment	1	4.80	130	0.36
Paving	Rollers	3	4.80	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	5	8.00	78	0.48

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
Demolition	6	15.00	0.00	19.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	16,875.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

Trenching	4	10.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Construction	5	95.00	21.00	28.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Architectural Coating	5	19.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2016

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					2.0800e-003	0.0000	2.0800e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0649	0.5760	0.4576	7.3000e-004		0.0355	0.0355		0.0343	0.0343	0.0000	65.8833	65.8833	0.0133	0.0000	66.1620
Total	**0.0649**	**0.5760**	**0.4576**	**7.3000e-004**	**2.0800e-003**	**0.0355**	**0.0376**	**3.2000e-004**	**0.0343**	**0.0347**	**0.0000**	**65.8833**	**65.8833**	**0.0133**	**0.0000**	**66.1620**

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	1.0000e-004	2.7000e-004	1.5900e-003	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0311	0.0311	0.0000	0.0000	0.0311
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	8.9000e-004	2.5000e-004	3.2700e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1758	0.1758	2.0000e-005	0.0000	0.1762
Total	**9.9000e-004**	**5.2000e-004**	**4.8600e-003**	**0.0000**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.2069**	**0.2069**	**2.0000e-005**	**0.0000**	**0.2073**

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					9.4000e-004	0.0000	9.4000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1500e-003	0.0353	0.5023	7.3000e-004		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	65.8832	65.8832	0.0133	0.0000	66.1619
Total	**8.1500e-003**	**0.0353**	**0.5023**	**7.3000e-004**	**9.4000e-004**	**1.0900e-003**	**2.0300e-003**	**7.0000e-005**	**1.0900e-003**	**1.1600e-003**	**0.0000**	**65.8832**	**65.8832**	**0.0133**	**0.0000**	**66.1619**

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	1.0000e-004	2.7000e-004	1.5900e-003	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0311	0.0311	0.0000	0.0000	0.0311
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	8.9000e-004	2.5000e-004	3.2700e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1758	0.1758	2.0000e-005	0.0000	0.1762

Total	**9.9000e-004**	**5.2000e-004**	**4.8600e-003**	**0.0000**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.2069**	**0.2069**	**2.0000e-005**	**0.0000**	**0.2073**

3.3 Site Preparation - 2016

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					0.1801	0.0000	0.1801	0.0987	0.0000	0.0987	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0522	0.5600	0.4212	4.0000e-004		0.0305	0.0305		0.0281	0.0281	0.0000	38.1882	38.1882	0.0115	0.0000	38.4301
Total	**0.0522**	**0.5600**	**0.4212**	**4.0000e-004**	**0.1801**	**0.0305**	**0.2106**	**0.0987**	**0.0281**	**0.1268**	**0.0000**	**38.1882**	**38.1882**	**0.0115**	**0.0000**	**38.4301**

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	6.0000e-004	1.6000e-004	2.1800e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1172	0.1172	1.0000e-005	0.0000	0.1175
Total	**6.0000e-004**	**1.6000e-004**	**2.1800e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1172**	**0.1172**	**1.0000e-005**	**0.0000**	**0.1175**

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					0.0810	0.0000	0.0810	0.0222	0.0000	0.0222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9300e-003	0.0214	0.2234	4.0000e-004		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	38.1882	38.1882	0.0115	0.0000	38.4301
Total	**4.9300e-003**	**0.0214**	**0.2234**	**4.0000e-004**	**0.0810**	**6.6000e-004**	**0.0817**	**0.0222**	**6.6000e-004**	**0.0229**	**0.0000**	**38.1882**	**38.1882**	**0.0115**	**0.0000**	**38.4301**

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	6.0000e-004	1.6000e-004	2.1800e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1172	0.1172	1.0000e-005	0.0000	0.1175
Total	**6.0000e-004**	**1.6000e-004**	**2.1800e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1172**	**0.1172**	**1.0000e-005**	**0.0000**	**0.1175**

3.4 Grading - 2016

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					8.4300e-003	0.0000	8.4300e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0388	0.4082	0.2881	4.1000e-004		0.0243	0.0243		0.0223	0.0223	0.0000	38.6503	38.6503	0.0117	0.0000	38.8951
Total	**0.0388**	**0.4082**	**0.2881**	**4.1000e-004**	**8.4300e-003**	**0.0243**	**0.0327**	**1.2400e-003**	**0.0223**	**0.0236**	**0.0000**	**38.6503**	**38.6503**	**0.0117**	**0.0000**	**38.8951**

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	0.0897	0.2424	1.4098	3.2000e-004	3.7400e-003	1.3200e-003	5.0600e-003	1.0400e-003	1.2000e-003	2.2400e-003	0.0000	27.6370	27.6370	5.1000e-004	0.0000	27.6476
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	7.8000e-004	2.1000e-004	2.8300e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1524	0.1524	1.0000e-005	0.0000	0.1527
Total	**0.0905**	**0.2426**	**1.4127**	**3.2000e-004**	**3.8500e-003**	**1.3200e-003**	**5.1700e-003**	**1.0700e-003**	**1.2000e-003**	**2.2700e-003**	**0.0000**	**27.7894**	**27.7894**	**5.2000e-004**	**0.0000**	**27.8003**

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					3.7900e-003	0.0000	3.7900e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0200e-003	0.0218	0.3097	4.1000e-004		6.7000e-004	6.7000e-004		6.7000e-004	6.7000e-004	0.0000	38.6502	38.6502	0.0117	0.0000	38.8950
Total	**5.0200e-003**	**0.0218**	**0.3097**	**4.1000e-004**	**3.7900e-003**	**6.7000e-004**	**4.4600e-003**	**2.8000e-004**	**6.7000e-004**	**9.5000e-004**	**0.0000**	**38.6502**	**38.6502**	**0.0117**	**0.0000**	**38.8950**

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	0.0897	0.2424	1.4098	3.2000e-004	3.7400e-003	1.3200e-003	5.0600e-003	1.0400e-003	1.2000e-003	2.2400e-003	0.0000	27.6370	27.6370	5.1000e-004	0.0000	27.6476
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	7.8000e-004	2.1000e-004	2.8300e-003	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1524	0.1524	1.0000e-005	0.0000	0.1527
Total	**0.0905**	**0.2426**	**1.4127**	**3.2000e-004**	**3.8500e-003**	**1.3200e-003**	**5.1700e-003**	**1.0700e-003**	**1.2000e-003**	**2.2700e-003**	**0.0000**	**27.7894**	**27.7894**	**5.2000e-004**	**0.0000**	**27.8003**

3.5 Trenching - 2016

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	0.0146	0.1537	0.1168	1.7000e-004		9.3700e-003	9.3700e-003		8.6200e-003	8.6200e-003	0.0000	15.8503	15.8503	4.7800e-003	0.0000	15.9507
Total	**0.0146**	**0.1537**	**0.1168**	**1.7000e-004**		**9.3700e-003**	**9.3700e-003**		**8.6200e-003**	**8.6200e-003**	**0.0000**	**15.8503**	**15.8503**	**4.7800e-003**	**0.0000**	**15.9507**

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	2.7000e-004	7.0000e-005	9.7000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0521	0.0521	0.0000	0.0000	0.0522
Total	**2.7000e-004**	**7.0000e-005**	**9.7000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0521**	**0.0521**	**0.0000**	**0.0000**	**0.0522**

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	2.0600e-003	8.9400e-003	0.1272	1.7000e-004		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	15.8502	15.8502	4.7800e-003	0.0000	15.9506
Total	**2.0600e-003**	**8.9400e-003**	**0.1272**	**1.7000e-004**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**15.8502**	**15.8502**	**4.7800e-003**	**0.0000**	**15.9506**

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	2.7000e-004	7.0000e-005	9.7000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0521	0.0521	0.0000	0.0000	0.0522

Total	**2.7000e-004**	**7.0000e-005**	**9.7000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0521**	**0.0521**	**0.0000**	**0.0000**	**0.0522**

3.6 Building Construction - 2016

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	8.3700e-003	0.0726	0.0477	6.0000e-005		6.0000e-003	6.0000e-003		5.5200e-003	5.5200e-003	0.0000	5.5011	5.5011	1.6500e-003	0.0000	5.5356
Total	**8.3700e-003**	**0.0726**	**0.0477**	**6.0000e-005**		**6.0000e-003**	**6.0000e-003**		**5.5200e-003**	**5.5200e-003**	**0.0000**	**5.5011**	**5.5011**	**1.6500e-003**	**0.0000**	**5.5356**

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	3.0000e-005	7.0000e-005	4.3000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.4100e-003	8.4100e-003	0.0000	0.0000	8.4100e-003
Vendor	1.9400e-003	6.0300e-003	0.0264	1.0000e-005	1.1000e-004	4.0000e-005	1.5000e-004	3.0000e-005	4.0000e-005	7.0000e-005	0.0000	0.6808	0.6808	1.0000e-005	0.0000	0.6810
Worker	2.7700e-003	7.6000e-004	0.0101	1.0000e-005	3.9000e-004	1.0000e-005	4.0000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	0.5444	0.5444	5.0000e-005	0.0000	0.5455
Total	**4.7400e-003**	**6.8600e-003**	**0.0369**	**2.0000e-005**	**5.0000e-004**	**5.0000e-005**	**5.6000e-004**	**1.4000e-004**	**5.0000e-005**	**1.9000e-004**	**0.0000**	**1.2336**	**1.2336**	**6.0000e-005**	**0.0000**	**1.2348**

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	7.9000e-004	3.5900e-003	0.0442	6.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	5.5011	5.5011	1.6500e-003	0.0000	5.5356
Total	**7.9000e-004**	**3.5900e-003**	**0.0442**	**6.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**5.5011**	**5.5011**	**1.6500e-003**	**0.0000**	**5.5356**

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	3.0000e-005	7.0000e-005	4.3000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.4100e-003	8.4100e-003	0.0000	0.0000	8.4100e-003
Vendor	1.9400e-003	6.0300e-003	0.0264	1.0000e-005	1.1000e-004	4.0000e-005	1.5000e-004	3.0000e-005	4.0000e-005	7.0000e-005	0.0000	0.6808	0.6808	1.0000e-005	0.0000	0.6810
Worker	2.7700e-003	7.6000e-004	0.0101	1.0000e-005	3.9000e-004	1.0000e-005	4.0000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	0.5444	0.5444	5.0000e-005	0.0000	0.5455
Total	**4.7400e-003**	**6.8600e-003**	**0.0369**	**2.0000e-005**	**5.0000e-004**	**5.0000e-005**	**5.6000e-004**	**1.4000e-004**	**5.0000e-005**	**1.9000e-004**	**0.0000**	**1.2336**	**1.2336**	**6.0000e-005**	**0.0000**	**1.2348**

3.6 Building Construction - 2017

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	0.0347	0.3024	0.2104	2.6000e-004		0.0246	0.0246		0.0227	0.0227	0.0000	24.1246	24.1246	7.3300e-003	0.0000	24.2786
Total	**0.0347**	**0.3024**	**0.2104**	**2.6000e-004**		**0.0246**	**0.0246**		**0.0227**	**0.0227**	**0.0000**	**24.1246**	**24.1246**	**7.3300e-003**	**0.0000**	**24.2786**

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	1.0000e-004	3.1000e-004	1.7600e-003	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0367	0.0367	0.0000	0.0000	0.0367
Vendor	7.3800e-003	0.0250	0.1084	3.0000e-005	4.8000e-004	1.5000e-004	6.3000e-004	1.4000e-004	1.4000e-004	2.8000e-004	0.0000	2.9774	2.9774	4.0000e-005	0.0000	2.9783
Worker	0.0114	3.0100e-003	0.0405	3.0000e-005	1.7500e-003	5.0000e-005	1.8000e-003	4.7000e-004	5.0000e-005	5.2000e-004	0.0000	2.3333	2.3333	2.0000e-004	0.0000	2.3376
Total	**0.0189**	**0.0283**	**0.1506**	**6.0000e-005**	**2.2400e-003**	**2.0000e-004**	**2.4400e-003**	**6.1000e-004**	**1.9000e-004**	**8.0000e-004**	**0.0000**	**5.3474**	**5.3474**	**2.4000e-004**	**0.0000**	**5.3526**

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	3.5200e-003	0.0160	0.1970	2.6000e-004		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	24.1246	24.1246	7.3300e-003	0.0000	24.2786
Total	**3.5200e-003**	**0.0160**	**0.1970**	**2.6000e-004**		**5.1000e-004**	**5.1000e-004**		**5.1000e-004**	**5.1000e-004**	**0.0000**	**24.1246**	**24.1246**	**7.3300e-003**	**0.0000**	**24.2786**

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	1.0000e-004	3.1000e-004	1.7600e-003	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0367	0.0367	0.0000	0.0000	0.0367
Vendor	7.3800e-003	0.0250	0.1084	3.0000e-005	4.8000e-004	1.5000e-004	6.3000e-004	1.4000e-004	1.4000e-004	2.8000e-004	0.0000	2.9774	2.9774	4.0000e-005	0.0000	2.9783
Worker	0.0114	3.0100e-003	0.0405	3.0000e-005	1.7500e-003	5.0000e-005	1.8000e-003	4.7000e-004	5.0000e-005	5.2000e-004	0.0000	2.3333	2.3333	2.0000e-004	0.0000	2.3376
Total	**0.0189**	**0.0283**	**0.1506**	**6.0000e-005**	**2.2400e-003**	**2.0000e-004**	**2.4400e-003**	**6.1000e-004**	**1.9000e-004**	**8.0000e-004**	**0.0000**	**5.3474**	**5.3474**	**2.4000e-004**	**0.0000**	**5.3526**

3.7 Paving - 2017

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	0.0175	0.1683	0.1260	1.7000e-004		0.0118	0.0118		0.0108	0.0108	0.0000	15.8275	15.8275	4.7800e-003	0.0000	15.9279
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0175**	**0.1683**	**0.1260**	**1.7000e-004**		**0.0118**	**0.0118**		**0.0108**	**0.0108**	**0.0000**	**15.8275**	**15.8275**	**4.7800e-003**	**0.0000**	**15.9279**

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	5.5000e-004	1.5000e-004	1.9600e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1128	0.1128	1.0000e-005	0.0000	0.1130
Total	**5.5000e-004**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1128**	**0.1128**	**1.0000e-005**	**0.0000**	**0.1130**

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	2.4900e-003	0.0116	0.1284	1.7000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	15.8275	15.8275	4.7800e-003	0.0000	15.9279
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4900e-003**	**0.0116**	**0.1284**	**1.7000e-004**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**15.8275**	**15.8275**	**4.7800e-003**	**0.0000**	**15.9279**

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	5.5000e-004	1.5000e-004	1.9600e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1128	0.1128	1.0000e-005	0.0000	0.1130

Total	**5.5000e-004**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1128**	**0.1128**	**1.0000e-005**	**0.0000**	**0.1130**

3.8 Architectural Coating - 2017

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					
Archit. Coating	1.2493					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0665	0.4370	0.3736	5.9000e-004		0.0347	0.0347		0.0347	0.0347	0.0000	51.0651	51.0651	5.3900e-003	0.0000	51.1783
Total	**1.3158**	**0.4370**	**0.3736**	**5.9000e-004**		**0.0347**	**0.0347**		**0.0347**	**0.0347**	**0.0000**	**51.0651**	**51.0651**	**5.3900e-003**	**0.0000**	**51.1783**

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	1.3900e-003	3.7000e-004	4.9600e-003	0.0000	2.1000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.2857	0.2857	2.0000e-005	0.0000	0.2862
Total	**1.3900e-003**	**3.7000e-004**	**4.9600e-003**	**0.0000**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**	**6.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**0.2857**	**0.2857**	**2.0000e-005**	**0.0000**	**0.2862**

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					
Archit. Coating	1.2493					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9400e-003	0.0258	0.3665	5.9000e-004		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	51.0650	51.0650	5.3900e-003	0.0000	51.1782
Total	**1.2553**	**0.0258**	**0.3665**	**5.9000e-004**		**7.9000e-004**	**7.9000e-004**		**7.9000e-004**	**7.9000e-004**	**0.0000**	**51.0650**	**51.0650**	**5.3900e-003**	**0.0000**	**51.1782**

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	1.3900e-003	3.7000e-004	4.9600e-003	0.0000	2.1000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.2857	0.2857	2.0000e-005	0.0000	0.2862
Total	**1.3900e-003**	**3.7000e-004**	**4.9600e-003**	**0.0000**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**	**6.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**0.2857**	**0.2857**	**2.0000e-005**	**0.0000**	**0.2862**

777 W San Carlos - Construction Risk

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	179.00	Space	0.00	78,475.00	0
Apartments Mid Rise	104.00	Dwelling Unit	1.30	186,225.00	297
Strip Mall	3.15	1000sqft	0.00	3,150.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Lot acreage from plan drawings. Residential sf includes common area and amenities.

Construction Phase - Anticipated schedule provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Off-road Equipment - Proposed equipment list provided by applicant

Trips and VMT - Bldg: 218 CY cement @ 16 CY/truck = 28 one-way trips. 0.5 mile trip lengths to calculate risk from on- and near-site vehicle travel.

Demolition - 16,675 sf building demo

Grading - 55,000 CY soil import, 106,900 CY soil export.

Construction Off-road Equipment Mitigation - Tier 4 engines for equip > 50hp. BAAQMD BMPs.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	200.00	120.00
tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	NumDays	4.00	45.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	45.00
tblConstructionPhase	PhaseEndDate	5/30/2017	7/21/2017

tblConstructionPhase	PhaseEndDate	4/14/2017	5/17/2017
tblConstructionPhase	PhaseEndDate	1/4/2017	11/2/2016
tblConstructionPhase	PhaseEndDate	6/21/2017	3/7/2017
tblConstructionPhase	PhaseEndDate	10/4/2016	11/2/2016
tblConstructionPhase	PhaseEndDate	11/30/2016	10/28/2016
tblConstructionPhase	PhaseStartDate	3/8/2017	5/1/2017
tblConstructionPhase	PhaseStartDate	10/29/2016	12/1/2016
tblConstructionPhase	PhaseStartDate	11/3/2016	9/1/2016
tblConstructionPhase	PhaseStartDate	5/18/2017	2/1/2017
tblConstructionPhase	PhaseStartDate	8/3/2016	9/1/2016
tblConstructionPhase	PhaseStartDate	11/3/2016	10/1/2016
tblGrading	AcresOfGrading	7.59	1.50
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	MaterialExported	0.00	106,900.00
tblGrading	MaterialImported	0.00	55,000.00
tblLandUse	LandUseSquareFeet	71,600.00	78,475.00
tblLandUse	LandUseSquareFeet	104,000.00	186,225.00
tblLandUse	LotAcreage	1.61	0.00
tblLandUse	LotAcreage	2.74	1.30
tblLandUse	LotAcreage	0.07	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	4.80
tblOffRoadEquipment	UsageHours	8.00	7.10
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	7.00	4.80
tblOffRoadEquipment	UsageHours	7.00	5.30
tblOffRoadEquipment	UsageHours	6.00	1.70
tblOffRoadEquipment	UsageHours	7.00	7.10
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	28.00
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50

tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50

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					
2016	0.3107	2.2356	3.2063	2.3700e-003	0.2037	0.1172	0.3209	0.1030	0.1095	0.2125	0.0000	216.3976	216.3976	0.0488	0.0000	217.4217
2017	1.8789	0.9406	0.8898	1.1100e-003	2.9000e-003	0.0713	0.0742	7.9000e-004	0.0684	0.0692	0.0000	97.5774	97.5774	0.0178	0.0000	97.9518
Total	**2.1896**	**3.1761**	**4.0960**	**3.4800e-003**	**0.2066**	**0.1885**	**0.3951**	**0.1038**	**0.1779**	**0.2817**	**0.0000**	**313.9750**	**313.9750**	**0.0666**	**0.0000**	**315.3735**

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					

2016	0.1394	0.4010	3.0936	2.3700e-003	0.0947	4.7600e-003	0.0994	0.0244	4.6100e-003	0.0290	0.0000	216.3974	216.3974	0.0488	0.0000	217.4215
2017	1.7723	0.0862	0.8717	1.1100e-003	2.9000e-003	1.9200e-003	4.8200e-003	7.9000e-004	1.9000e-003	2.7000e-003	0.0000	97.5773	97.5773	0.0178	0.0000	97.9517
Total	**1.9117**	**0.4872**	**3.9652**	**3.4800e-003**	**0.0976**	**6.6800e-003**	**0.1043**	**0.0251**	**6.5100e-003**	**0.0317**	**0.0000**	**313.9747**	**313.9747**	**0.0666**	**0.0000**	**315.3732**

	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	**12.69**	**84.66**	**3.19**	**0.00**	**52.77**	**96.46**	**73.61**	**75.77**	**96.34**	**88.76**	**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	Demolition	Demolition	6/1/2016	8/2/2016	5	45	
2	Site Preparation	Site Preparation	9/1/2016	11/2/2016	5	45	
3	Grading	Grading	9/1/2016	11/2/2016	5	45	
4	Trenching	Trenching	10/1/2016	10/28/2016	5	20	
5	Building Construction	Building Construction	12/1/2016	5/17/2017	5	120	
6	Paving	Paving	2/1/2017	3/7/2017	5	25	
7	Architectural Coating	Architectural Coating	5/1/2017	7/21/2017	5	60	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 377,106; Residential Outdoor: 125,702; Non-Residential Indoor: 122,438; Non-Residential Outdoor: 40,813

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	3	7.10	81	0.73
Demolition	Excavators	3	8.00	162	0.38

Demolition	Rubber Tired Dozers	0	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	2	5.30	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	3	8.00	162	0.38
Grading	Graders	1	2.70	174	0.41
Grading	Rubber Tired Dozers	0	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	7.10	97	0.37
Trenching	Excavators	2	8.00	162	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	1.00	9	0.56
Building Construction	Cranes	0	6.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	1.70	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	4.80	9	0.56
Paving	Pavers	0	6.00	125	0.42
Paving	Paving Equipment	1	4.80	130	0.36
Paving	Rollers	3	4.80	80	0.38
Paving	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	5	8.00	78	0.48

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
Demolition	6	15.00	0.00	76.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	20,238.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

Trenching	4	10.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Construction	5	109.00	24.00	28.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Architectural Coating	5	22.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2016

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					8.2100e-003	0.0000	8.2100e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0649	0.5760	0.4576	7.3000e-004		0.0355	0.0355		0.0343	0.0343	0.0000	65.8833	65.8833	0.0133	0.0000	66.1620
Total	**0.0649**	**0.5760**	**0.4576**	**7.3000e-004**	**8.2100e-003**	**0.0355**	**0.0437**	**1.2400e-003**	**0.0343**	**0.0356**	**0.0000**	**65.8833**	**65.8833**	**0.0133**	**0.0000**	**66.1620**

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	4.0000e-004	1.0900e-003	6.3500e-003	0.0000	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	0.1245	0.1245	0.0000	0.0000	0.1245
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	8.9000e-004	2.5000e-004	3.2700e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1758	0.1758	2.0000e-005	0.0000	0.1762
Total	**1.2900e-003**	**1.3400e-003**	**9.6200e-003**	**0.0000**	**1.5000e-004**	**1.0000e-005**	**1.5000e-004**	**3.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.3003**	**0.3003**	**2.0000e-005**	**0.0000**	**0.3007**

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					3.6900e-003	0.0000	3.6900e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1500e-003	0.0353	0.5023	7.3000e-004		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	65.8832	65.8832	0.0133	0.0000	66.1619
Total	**8.1500e-003**	**0.0353**	**0.5023**	**7.3000e-004**	**3.6900e-003**	**1.0900e-003**	**4.7800e-003**	**2.8000e-004**	**1.0900e-003**	**1.3700e-003**	**0.0000**	**65.8832**	**65.8832**	**0.0133**	**0.0000**	**66.1619**

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	4.0000e-004	1.0900e-003	6.3500e-003	0.0000	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	0.1245	0.1245	0.0000	0.0000	0.1245
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	8.9000e-004	2.5000e-004	3.2700e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1758	0.1758	2.0000e-005	0.0000	0.1762

Total	**1.2900e-003**	**1.3400e-003**	**9.6200e-003**	**0.0000**	**1.5000e-004**	**1.0000e-005**	**1.5000e-004**	**3.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.3003**	**0.3003**	**2.0000e-005**	**0.0000**	**0.3007**

3.3 Site Preparation - 2016

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					0.1801	0.0000	0.1801	0.0987	0.0000	0.0987	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0522	0.5600	0.4212	4.0000e-004		0.0305	0.0305		0.0281	0.0281	0.0000	38.1882	38.1882	0.0115	0.0000	38.4301
Total	**0.0522**	**0.5600**	**0.4212**	**4.0000e-004**	**0.1801**	**0.0305**	**0.2106**	**0.0987**	**0.0281**	**0.1268**	**0.0000**	**38.1882**	**38.1882**	**0.0115**	**0.0000**	**38.4301**

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	6.0000e-004	1.6000e-004	2.1800e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1172	0.1172	1.0000e-005	0.0000	0.1175
Total	**6.0000e-004**	**1.6000e-004**	**2.1800e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1172**	**0.1172**	**1.0000e-005**	**0.0000**	**0.1175**

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					0.0810	0.0000	0.0810	0.0222	0.0000	0.0222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9300e-003	0.0214	0.2234	4.0000e-004		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	38.1882	38.1882	0.0115	0.0000	38.4301
Total	**4.9300e-003**	**0.0214**	**0.2234**	**4.0000e-004**	**0.0810**	**6.6000e-004**	**0.0817**	**0.0222**	**6.6000e-004**	**0.0229**	**0.0000**	**38.1882**	**38.1882**	**0.0115**	**0.0000**	**38.4301**

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	6.0000e-004	1.6000e-004	2.1800e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1172	0.1172	1.0000e-005	0.0000	0.1175
Total	**6.0000e-004**	**1.6000e-004**	**2.1800e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1172**	**0.1172**	**1.0000e-005**	**0.0000**	**0.1175**

3.4 Grading - 2016

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					9.9500e-003	0.0000	9.9500e-003	1.4700e-003	0.0000	1.4700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0543	0.5729	0.4134	5.9000e-004		0.0342	0.0342		0.0314	0.0314	0.0000	55.7385	55.7385	0.0168	0.0000	56.0916
Total	**0.0543**	**0.5729**	**0.4134**	**5.9000e-004**	**9.9500e-003**	**0.0342**	**0.0441**	**1.4700e-003**	**0.0314**	**0.0329**	**0.0000**	**55.7385**	**55.7385**	**0.0168**	**0.0000**	**56.0916**

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	0.1076	0.2907	1.6908	3.9000e-004	4.4800e-003	1.5900e-003	6.0700e-003	1.2500e-003	1.4400e-003	2.6900e-003	0.0000	33.1447	33.1447	6.1000e-004	0.0000	33.1575
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	1.0700e-003	2.9000e-004	3.9200e-003	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.2110	0.2110	2.0000e-005	0.0000	0.2114
Total	**0.1087**	**0.2910**	**1.6947**	**3.9000e-004**	**4.6300e-003**	**1.5900e-003**	**6.2300e-003**	**1.2900e-003**	**1.4400e-003**	**2.7400e-003**	**0.0000**	**33.3557**	**33.3557**	**6.3000e-004**	**0.0000**	**33.3689**

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					4.4800e-003	0.0000	4.4800e-003	3.3000e-004	0.0000	3.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2500e-003	0.0314	0.4468	5.9000e-004		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	55.7385	55.7385	0.0168	0.0000	56.0915
Total	**7.2500e-003**	**0.0314**	**0.4468**	**5.9000e-004**	**4.4800e-003**	**9.7000e-004**	**5.4500e-003**	**3.3000e-004**	**9.7000e-004**	**1.3000e-003**	**0.0000**	**55.7385**	**55.7385**	**0.0168**	**0.0000**	**56.0915**

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	0.1076	0.2907	1.6908	3.9000e-004	4.4800e-003	1.5900e-003	6.0700e-003	1.2500e-003	1.4400e-003	2.6900e-003	0.0000	33.1447	33.1447	6.1000e-004	0.0000	33.1575
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	1.0700e-003	2.9000e-004	3.9200e-003	0.0000	1.5000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.2110	0.2110	2.0000e-005	0.0000	0.2114
Total	**0.1087**	**0.2910**	**1.6947**	**3.9000e-004**	**4.6300e-003**	**1.5900e-003**	**6.2300e-003**	**1.2900e-003**	**1.4400e-003**	**2.7400e-003**	**0.0000**	**33.3557**	**33.3557**	**6.3000e-004**	**0.0000**	**33.3689**

3.5 Trenching - 2016

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	0.0146	0.1537	0.1168	1.7000e-004		9.3700e-003	9.3700e-003		8.6200e-003	8.6200e-003	0.0000	15.8503	15.8503	4.7800e-003	0.0000	15.9507
Total	**0.0146**	**0.1537**	**0.1168**	**1.7000e-004**		**9.3700e-003**	**9.3700e-003**		**8.6200e-003**	**8.6200e-003**	**0.0000**	**15.8503**	**15.8503**	**4.7800e-003**	**0.0000**	**15.9507**

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	2.7000e-004	7.0000e-005	9.7000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0521	0.0521	0.0000	0.0000	0.0522
Total	**2.7000e-004**	**7.0000e-005**	**9.7000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0521**	**0.0521**	**0.0000**	**0.0000**	**0.0522**

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	2.0600e-003	8.9400e-003	0.1272	1.7000e-004		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	15.8502	15.8502	4.7800e-003	0.0000	15.9506
Total	**2.0600e-003**	**8.9400e-003**	**0.1272**	**1.7000e-004**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**15.8502**	**15.8502**	**4.7800e-003**	**0.0000**	**15.9506**

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	2.7000e-004	7.0000e-005	9.7000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0521	0.0521	0.0000	0.0000	0.0522

Total	**2.7000e-004**	**7.0000e-005**	**9.7000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0521**	**0.0521**	**0.0000**	**0.0000**	**0.0522**

3.6 Building Construction - 2016

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	8.3700e-003	0.0726	0.0477	6.0000e-005		6.0000e-003	6.0000e-003		5.5200e-003	5.5200e-003	0.0000	5.5011	5.5011	1.6500e-003	0.0000	5.5356
Total	**8.3700e-003**	**0.0726**	**0.0477**	**6.0000e-005**		**6.0000e-003**	**6.0000e-003**		**5.5200e-003**	**5.5200e-003**	**0.0000**	**5.5011**	**5.5011**	**1.6500e-003**	**0.0000**	**5.5356**

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	3.0000e-005	7.0000e-005	4.3000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.4100e-003	8.4100e-003	0.0000	0.0000	8.4100e-003
Vendor	2.2100e-003	6.8900e-003	0.0301	1.0000e-005	1.2000e-004	4.0000e-005	1.7000e-004	4.0000e-005	4.0000e-005	8.0000e-005	0.0000	0.7780	0.7780	1.0000e-005	0.0000	0.7782
Worker	3.1800e-003	8.7000e-004	0.0116	1.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	0.6246	0.6246	6.0000e-005	0.0000	0.6259
Total	**5.4200e-003**	**7.8300e-003**	**0.0422**	**2.0000e-005**	**5.7000e-004**	**5.0000e-005**	**6.4000e-004**	**1.6000e-004**	**5.0000e-005**	**2.1000e-004**	**0.0000**	**1.4110**	**1.4110**	**7.0000e-005**	**0.0000**	**1.4125**

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	7.9000e-004	3.5900e-003	0.0442	6.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	5.5011	5.5011	1.6500e-003	0.0000	5.5356
Total	**7.9000e-004**	**3.5900e-003**	**0.0442**	**6.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**5.5011**	**5.5011**	**1.6500e-003**	**0.0000**	**5.5356**

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	3.0000e-005	7.0000e-005	4.3000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.4100e-003	8.4100e-003	0.0000	0.0000	8.4100e-003
Vendor	2.2100e-003	6.8900e-003	0.0301	1.0000e-005	1.2000e-004	4.0000e-005	1.7000e-004	4.0000e-005	4.0000e-005	8.0000e-005	0.0000	0.7780	0.7780	1.0000e-005	0.0000	0.7782
Worker	3.1800e-003	8.7000e-004	0.0116	1.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	0.6246	0.6246	6.0000e-005	0.0000	0.6259
Total	**5.4200e-003**	**7.8300e-003**	**0.0422**	**2.0000e-005**	**5.7000e-004**	**5.0000e-005**	**6.4000e-004**	**1.6000e-004**	**5.0000e-005**	**2.1000e-004**	**0.0000**	**1.4110**	**1.4110**	**7.0000e-005**	**0.0000**	**1.4125**

3.6 Building Construction - 2017

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	0.0347	0.3024	0.2104	2.6000e-004		0.0246	0.0246		0.0227	0.0227	0.0000	24.1246	24.1246	7.3300e-003	0.0000	24.2786
Total	**0.0347**	**0.3024**	**0.2104**	**2.6000e-004**		**0.0246**	**0.0246**		**0.0227**	**0.0227**	**0.0000**	**24.1246**	**24.1246**	**7.3300e-003**	**0.0000**	**24.2786**

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	1.0000e-004	3.1000e-004	1.7600e-003	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0367	0.0367	0.0000	0.0000	0.0367
Vendor	8.4400e-003	0.0285	0.1238	4.0000e-005	5.5000e-004	1.7000e-004	7.2000e-004	1.6000e-004	1.6000e-004	3.1000e-004	0.0000	3.4028	3.4028	5.0000e-005	0.0000	3.4038
Worker	0.0131	3.4600e-003	0.0465	4.0000e-005	2.0100e-003	6.0000e-005	2.0700e-003	5.4000e-004	5.0000e-005	5.9000e-004	0.0000	2.6772	2.6772	2.3000e-004	0.0000	2.6821
Total	**0.0216**	**0.0323**	**0.1720**	**8.0000e-005**	**2.5700e-003**	**2.3000e-004**	**2.8000e-003**	**7.0000e-004**	**2.1000e-004**	**9.0000e-004**	**0.0000**	**6.1166**	**6.1166**	**2.8000e-004**	**0.0000**	**6.1226**

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	3.5200e-003	0.0160	0.1970	2.6000e-004		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	24.1246	24.1246	7.3300e-003	0.0000	24.2786
Total	**3.5200e-003**	**0.0160**	**0.1970**	**2.6000e-004**		**5.1000e-004**	**5.1000e-004**		**5.1000e-004**	**5.1000e-004**	**0.0000**	**24.1246**	**24.1246**	**7.3300e-003**	**0.0000**	**24.2786**

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	1.0000e-004	3.1000e-004	1.7600e-003	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0367	0.0367	0.0000	0.0000	0.0367
Vendor	8.4400e-003	0.0285	0.1238	4.0000e-005	5.5000e-004	1.7000e-004	7.2000e-004	1.6000e-004	1.6000e-004	3.1000e-004	0.0000	3.4028	3.4028	5.0000e-005	0.0000	3.4038
Worker	0.0131	3.4600e-003	0.0465	4.0000e-005	2.0100e-003	6.0000e-005	2.0700e-003	5.4000e-004	5.0000e-005	5.9000e-004	0.0000	2.6772	2.6772	2.3000e-004	0.0000	2.6821
Total	**0.0216**	**0.0323**	**0.1720**	**8.0000e-005**	**2.5700e-003**	**2.3000e-004**	**2.8000e-003**	**7.0000e-004**	**2.1000e-004**	**9.0000e-004**	**0.0000**	**6.1166**	**6.1166**	**2.8000e-004**	**0.0000**	**6.1226**

3.7 Paving - 2017

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	0.0175	0.1683	0.1260	1.7000e-004		0.0118	0.0118		0.0108	0.0108	0.0000	15.8275	15.8275	4.7800e-003	0.0000	15.9279
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0175**	**0.1683**	**0.1260**	**1.7000e-004**		**0.0118**	**0.0118**		**0.0108**	**0.0108**	**0.0000**	**15.8275**	**15.8275**	**4.7800e-003**	**0.0000**	**15.9279**

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	5.5000e-004	1.5000e-004	1.9600e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1128	0.1128	1.0000e-005	0.0000	0.1130
Total	**5.5000e-004**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1128**	**0.1128**	**1.0000e-005**	**0.0000**	**0.1130**

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	2.4900e-003	0.0116	0.1284	1.7000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	15.8275	15.8275	4.7800e-003	0.0000	15.9279
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4900e-003**	**0.0116**	**0.1284**	**1.7000e-004**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**15.8275**	**15.8275**	**4.7800e-003**	**0.0000**	**15.9279**

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	5.5000e-004	1.5000e-004	1.9600e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1128	0.1128	1.0000e-005	0.0000	0.1130

Total	**5.5000e-004**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1128**	**0.1128**	**1.0000e-005**	**0.0000**	**0.1130**

3.8 Architectural Coating - 2017

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					
Archit. Coating	1.7365					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0665	0.4370	0.3736	5.9000e-004		0.0347	0.0347		0.0347	0.0347	0.0000	51.0651	51.0651	5.3900e-003	0.0000	51.1783
Total	**1.8030**	**0.4370**	**0.3736**	**5.9000e-004**		**0.0347**	**0.0347**		**0.0347**	**0.0347**	**0.0000**	**51.0651**	**51.0651**	**5.3900e-003**	**0.0000**	**51.1783**

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	1.6100e-003	4.3000e-004	5.7400e-003	0.0000	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.3308	0.3308	3.0000e-005	0.0000	0.3314
Total	**1.6100e-003**	**4.3000e-004**	**5.7400e-003**	**0.0000**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**7.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**0.3308**	**0.3308**	**3.0000e-005**	**0.0000**	**0.3314**

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					
Archit. Coating	1.7365					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9400e-003	0.0258	0.3665	5.9000e-004		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	51.0650	51.0650	5.3900e-003	0.0000	51.1782
Total	**1.7425**	**0.0258**	**0.3665**	**5.9000e-004**		**7.9000e-004**	**7.9000e-004**		**7.9000e-004**	**7.9000e-004**	**0.0000**	**51.0650**	**51.0650**	**5.3900e-003**	**0.0000**	**51.1782**

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	1.6100e-003	4.3000e-004	5.7400e-003	0.0000	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.3308	0.3308	3.0000e-005	0.0000	0.3314
Total	**1.6100e-003**	**4.3000e-004**	**5.7400e-003**	**0.0000**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**7.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**0.3308**	**0.3308**	**3.0000e-005**	**0.0000**	**0.3314**

740 W San Carlos St, San Jose, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2016-2017	Construction	0.1685	CON1_DPM	337.0	0.10259	1.29E-02	2,670	4.84E-06

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

PM2.5 Fugitive Dust Construction Emissions for Modeling

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 $g/s/m^2$
2016-2017	Construction	CON1_FUG	0.1023	204.6	0.06228	7.85E-03	2,670	2.94E-06

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

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2016-2017	Construction	0.0059	CON_DPM	11.9	0.00362	4.56E-04	2,670	1.71E-07

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

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

Construction Year	Activity	Area Source	PM2.5 Emissions (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 $g/s/m^2$
2016-2017	Construction	CON_FUG	0.0245	49.0	0.01492	1.88E-03	2,670	7.04E-07

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

777 W San Carlos St, San Jose, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2017-2018	Construction	0.1779	CON1_DPM	355.8	0.10831	1.36E-02	5,314	2.57E-06

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

PM2.5 Fugitive Dust Construction Emissions for Modeling

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 $g/s/m^2$
2017-2018	Construction	CON1_FUG	0.1038	207.6	0.06320	7.96E-03	5,314	1.50E-06

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

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2017-2018	Construction	0.0065	CON_DPM	13.0	0.00396	4.99E-04	5,314	9.40E-08

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

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

Construction Year	Activity	Area Source	PM2.5 Emissions (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 $g/s/m^2$
2017-2018	Construction	CON_FUG	0.0251	50.2	0.01528	1.93E-03	5,314	3.62E-07

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

740 & 777 W. San Carlos St, San Jose, CA - Construction Health Impact Summary
Off-Site Receptors - Residential and School

Maximum Residential Impacts - Unmitigated

	UNMITIGATED					
	Maximum Concentrations		Cancer Risk (per million)			
Construction Year	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2016-2017	1.0831	1.2142	**94.8**	**4.9**	**0.22**	**2.3**

Maximum Residential Impacts - Mitigated

	MITIGATED					
	Maximum Concentrations		Cancer Risk (per million)			
Construction Year	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2016-2017	3.3592	0.2909	**3.4**	**0.2**	**0.01**	**0.3**

Maximum Impacts Sunol Community School Student Receptors - Unmitigated

	UNMITIGATED				
	Maximum Concentrations				
Construction Year	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Student Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2016-2017	0.5371	0.6227	**7.3**	**0.11**	**1.2**

Maximum Impacts Sunol Community School Student Receptors - Mitigated

	MITIGATED				
	Maximum Concentrations				
Construction Year	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Student Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2016-2017	0.0196	0.1502	**0.3**	**0.00**	**0.2**

740 & 777 W San Carlos St, San Jose, CA - Construction Impacts - Unmitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 1.5 meters

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

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)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	350	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Maximum Impact Receptor Location

		Infant/Child-Exposure Information				Adult - Exposure Information					
						Modeled					
Exposure Year	Exposure Duration (years)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Exposure Adjust Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Exposure Adjust Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
1	1	2016-2017	1.0831	10	94.82	2016-2017	1.0831	1	4.93	1.2142	2.297
2	1		0.0000	10	0.00		0.0000	1	0.00		
3	1		0.0000	4.75	0.00		0.0000	1	0.00		
4	1		0.0000	3	0.00		0.0000	1	0.00		
5	1		0.0000	3	0.00		0.0000	1	0.00		
6	1		0.0000	3	0.00		0.0000	1	0.00		
7	1		0.0000	3	0.00		0.0000	1	0.00		
8	1		0.0000	3	0.00		0.0000	1	0.00		
9	1		0.0000	3	0.00		0.0000	1	0.00		
10	1		0.0000	3	0.00		0.0000	1	0.00		
11	1		0.0000	3	0.00		0.0000	1	0.00		
12	1		0.0000	3	0.00		0.0000	1	0.00		
13	1		0.0000	3	0.00		0.0000	1	0.00		
14	1		0.0000	3	0.00		0.0000	1	0.00		
15	1		0.0000	3	0.00		0.0000	1	0.00		
16	1		0.0000	3	0.00		0.0000	1	0.00		
17	1		0.0000	1.5	0.00		0.0000	1	0.00		
18	1		0.0000	1	0.00		0.0000	1	0.00		
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65	1		0.0000	1	0.00		0.0000	1	0.00		
66	1		0.0000	1	0.00		0.0000	1	0.00		
67	1		0.0000	1	0.00		0.0000	1	0.00		
68	1		0.0000	1	0.00		0.0000	1	0.00		
69	1		0.0000	1	0.00		0.0000	1	0.00		
70	1		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk					**94.82**				**4.93**		

740 & 777 W. San Carlos St, San Jose, CA - Construction Impacts - Mitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 1.5 meters

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

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)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	350	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Maximum Impact Receptor Location

		Infant/Child-Exposure Information				Adult - Exposure Information					
						Modeled					
Exposure Year	Exposure Duration (years)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Exposure Adjust Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Exposure Adjust Factor	Adult Cancer Risk (per million)	Mitigated Fugitive PM2.5	Total PM2.5
1	1	2016-2017	0.0384	10	3.36	2016-2017	0.0384	1	0.17	0.2909	0.329
2	1		0.0000	10	0.00		0.0000	1	0.00		
3	1		0.0000	4.75	0.00		0.0000	1	0.00		
4	1		0.0000	3	0.00		0.0000	1	0.00		
5	1		0.0000	3	0.00		0.0000	1	0.00		
6	1		0.0000	3	0.00		0.0000	1	0.00		
7	1		0.0000	3	0.00		0.0000	1	0.00		
8	1		0.0000	3	0.00		0.0000	1	0.00		
9	1		0.0000	3	0.00		0.0000	1	0.00		
10	1		0.0000	3	0.00		0.0000	1	0.00		
11	1		0.0000	3	0.00		0.0000	1	0.00		
12	1		0.0000	3	0.00		0.0000	1	0.00		
13	1		0.0000	3	0.00		0.0000	1	0.00		
14	1		0.0000	3	0.00		0.0000	1	0.00		
15	1		0.0000	3	0.00		0.0000	1	0.00		
16	1		0.0000	3	0.00		0.0000	1	0.00		
17	1		0.0000	1.5	0.00		0.0000	1	0.00		
18	1		0.0000	1	0.00		0.0000	1	0.00		
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65	1		0.0000	1	0.00		0.0000	1	0.00		
66	1		0.0000	1	0.00		0.0000	1	0.00		
67	1		0.0000	1	0.00		0.0000	1	0.00		
68	1		0.0000	1	0.00		0.0000	1	0.00		
69	1		0.0000	1	0.00		0.0000	1	0.00		
70	1		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk					**3.36**				**0.17**		

740 & 777 W. San Carlos St, San Jose, CA - Construction Impacts - Unmitigated
Maximum DPM Cancer Risk Calculations From Construction
Sunol Community School - 1.5 meter Receptor Height

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

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)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	180	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Student Exposure

Year	Exposure Exposure Duration (years)	Student - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Conc	Exposure Adjust Factor*	Student Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
1	1	2016-2017	0.5371	3	7.25	0.6227	1.160
2	1		0.0000	3	0.00		
3	1		0.0000	3	0.00		
4	1		0.000	3	0.00		
5	1		0.000	3	0.00		
6	1		0.000	3	0.00		
7	1		0.000	1	0.00		
8	1		0.000	1	0.00		
9	1		0.000	1	0.00		
10	1		0.000	1	0.00		
11	1		0.000	1	0.00		
12	1		0.000	1	0.00		
13	1		0.000	1	0.00		
14	1		0.000	1	0.00		
15	1		0.000	1	0.00		
16	1		0.000	1	0.00		
17	1		0.000	1	0.00		
18	1		0.000	1	0.00		
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65	1		0.000	1	0.00		
66	1		0.000	1	0.00		
67	1		0.000	1	0.00		
68	1		0.000	1	0.00		
69	1		0.000	1	0.00		
70	1		0.000	1	0.00		
Total Increased Cancer Risk					**7.3**		

* Assumes that students at school are 16 years of age or younger for entire construction period

740 & 777 W. San Carlos St, San Jose, CA - Construction Impacts - Mitigated
Maximum DPM Cancer Risk Calculations From Construction
Sunol Community School - 1.5 meter Receptor Height

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

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)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	180	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Student Exposure

Year	Exposure Duration (years)	Student - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Conc	Exposure Adjust Factor*	Student Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
1	1	2016-2017	0.0196	3	0.26	0.1502	0.170
2	1		0.0000	3	0.00		
3	1		0.0000	3	0.00		
4	1		0.000	3	0.00		
5	1		0.000	3	0.00		
6	1		0.000	3	0.00		
7	1		0.000	1	0.00		
8	1		0.000	1	0.00		
9	1		0.000	1	0.00		
10	1		0.000	1	0.00		
11	1		0.000	1	0.00		
12	1		0.000	1	0.00		
13	1		0.000	1	0.00		
14	1		0.000	1	0.00		
15	1		0.000	1	0.00		
16	1		0.000	1	0.00		
17	1		0.000	1	0.00		
18	1		0.000	1	0.00		
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65	1		0.000	1	0.00		
66	1		0.000	1	0.00		
67	1		0.000	1	0.00		
68	1		0.000	1	0.00		
69	1		0.000	1	0.00		
70	1		0.000	1	0.00		
Total Increased Cancer Risk					**0.3**		

* Assumes that students at school are 16 years of age or younger for entire construction period