Cupertino Civic Center Master Plan Community Risk Assessment Cupertino, California

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Project: 14-217

Introduction

The purpose of this report is to address community health risk impacts associated with construction of the Cupertino Civic Center Master Plan project in Cupertino, California. The proposed Civic Center Master Plan includes replacing the existing City Hall building with a new 40,000-square-foot City Hall building and expanding the existing library to include a new Program Room. The new City Hall building would be located on the northwest portion of the Civic Center site in the same general location of the existing City Hall building. The library would be expanded to the south onto an existing grass area. The existing Civic Center Community Hall building and turf field would remain unchanged. Existing surface parking would remain unchanged. One level of below grade parking would be constructed beneath the new City Hall building. The below grade parking garage would provide up to 118 parking spaces.

As an option, 68 additional surface parking spaces and an access driveway may be constructed in the southeastern portion of the project site. This optional surface parking would allow the Library expansion to be implemented before the proposed basement parking garage in the new City Hall. A portion of the turf field would be removed to construct the surface parking and it could be restored after the basement parking garage is built.

The proposed project would include measures to reduce air pollutant emissions to avoid any significant impacts to local air quality. These include the following:

The contractor shall implement the following Best Management Practices to reduce fugitive dust and equipment exhaust emissions:

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 and feasible. Building pads shall be laid as soon as possible and feasible, as well, 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.

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.

The Contractor will also implement "Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold"

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
9. Minimizing the idling time of diesel powered construction equipment to two minutes.
10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOX reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

11. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
12. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
13. Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Additional measures are included to reduce localized construction equipment exhaust emissions:

1. All mobile diesel-powered off-road equipment larger than 50 horsepower and operating on the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent;
2. All portable diesel-powered off-road equipment (e.g., air compressors) operating on the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 4 engines or equivalent; and

Note that the construction contractor could use other measures to minimize construction period DPM emissions. 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

This analysis includes a community risk assessment to address exposure of existing sensitive receptors to project construction activities. The community risk assessment includes the modeling of construction emissions using the California Emissions Estimator Model Version 2013.2.2 (CalEEMod). A dispersion model was used to predict the off-site diesel particulate matter (DPM) concentrations resulting from project construction so that lifetime excess cancer risks could be predicted. This analysis evaluated both the proposed project and the project with the additional surface parking lot. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).

Discussion of TACs

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by motor vehicle and equipment fuel combustion, industry, agriculture, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., DPM near a highway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that for criteria air pollutants that have established ambient air quality standards. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

Diesel Particulate Matter

Diesel exhaust, in the form of diesel particulate matter (DPM), is the predominant TAC in urban air with the potential to cause cancer.[1] It is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide 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. California has adopted a comprehensive diesel risk reduction program. The U.S. Environmental Protection Agency (EPA) and the CARB have adopted low-sulfur diesel fuel standards in 2006 that reduce DPM substantially. The CARB recently adopted new regulations requiring the retrofit and/or replacement of construction equipment, on-highway diesel trucks and diesel buses in order to lower fine particulate matter ($PM_{2.5}$) emissions and reduce statewide cancer risk from diesel exhaust.

Fine Particulate Matter ($PM_{2.5}$)

Particulate matter in excess of state and federal standards represents another challenge for the Bay Area. Elevated concentrations of $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

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 elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are single-family residences to the north, east and west of the project site.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under California Environmental Quality Act (CEQA). These Thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2011).

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

BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) 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. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. 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.

This analysis considers the science informing the thresholds as being supported by substantial evidence. Scientific information supporting the thresholds was documented in BAAQMD's proposed thresholds of significance analysis.[2] Accordingly, this report uses the thresholds and methodologies from BAAQMD's May 2011 CEQA Air Quality Guidelines to determine whether there would be any project construction health risk impacts.

If an existing single-source that has emissions of TACs or $PM_{2.5}$ exceeds any of the thresholds of significance listed below, the proposed project would result in a significant impact and mitigation would be required:

- An excess cancer risk level of more than 10 in 1 million, or a non-cancer (chronic or acute) hazard index greater than 1.0.
- An incremental increase of more than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$.

If the aggregate of sources within 1,000 feet that have emissions of TACs or $PM_{2.5}$ exceeds any of the thresholds of significance listed below, the proposed project would result in a significant impact and mitigation would be required:

- An excess cancer risk level of more than 100 in 1 million, or a non-cancer (chronic or acute) hazard index greater than 10.0.
- An incremental increase of more than 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

Project Construction Activity

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict annual emissions for construction. 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 haul truck travel and worker and vendor traffic. The proposed project land uses were input into CalEEMod, which included 40,000 square feet entered as "Government (Civic Center)," 2,000 square feet entered as "Library" and 118

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[2] BAAQMD, 2009. *California Environmental Quality Act Guidelines Update Proposed Thresholds of Significance*. December.

spaces of "Enclosed Parking with Elevator." The area of the site was entered as 10 acres. A construction build-out scenario, including equipment list and phasing schedule was provided by the project applicant. *Attachment 1* includes the CalEEMod output values for construction emissions and the project construction schedule.

Construction activities, particularly during demolition, site preparation, grading, and excavation, would temporarily generate fugitive dust in the form of 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. Fugitive dust emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. Fugitive dust emissions would also depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions. These practices are incorporated into the project.

Construction equipment and heavy-duty truck traffic generates diesel exhaust, which is a known TAC. Diesel exhaust poses both a health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects of sensitive receptors from construction emissions of DPM.[3] A dispersion model was used to predict the off-site DPM concentrations resulting from project construction at sensitive receptors so that lifetime cancer risks could be predicted. The closest off-site sensitive receptors are residences located across Rodrigues Avenue, north of the City Hall construction area Additional residences are located at farther distances from the City Hall and Library construction areas in all directions from the project site. Figure 1 shows the project site and sensitive receptor locations (residences) used in the air quality dispersion modeling analysis where potential health impacts were evaluated.

Construction Emissions

The refined health risk assessment focused on modeling on-site construction activity. Construction period emissions were modeled using CalEEMod defaults for a project of this type and size, as described above. Construction of the project is expected to occur over approximately a 16-month period beginning in March 2016. 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 (haul trucks, vendor trucks, and worker vehicles), with total emissions of 0.0720 tons (144 pounds). The on-road emissions are a result of haul truck travel, worker travel, and vendor deliveries during construction activities. A trip length of 0.3 miles was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 15 pounds for the overall construction period. Note that the project-proposed measures to reduce construction emissions were incorporated into the CalEEMod modeling. The only way to enter

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

these features in CalEEMod is through the Mitigation inputs, so the project construction emissions are provided in the CalEEMod output as "Mitigated Construction" emissions.

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 area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[4] Emission sources for the construction site were grouped into two categories, exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions. The AERMOD 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 source. 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 source. Emissions from vehicle travel around the project site were included in the modeled area sources. Construction emissions were modeled as occurring daily between 7 a.m. and 4 p.m. when the majority of the construction activity involving equipment usage would occur.

The modeling used a five-year data set (2006 - 2010) of hourly meteorological data from the Mineta San José International Airport prepared by the BAAQMD for use with the AERMOD model. Annual DPM and $PM_{2.5}$ concentrations from construction activities in 2016 through 2017 were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors at a receptor height of 1.5 meters (4.9 feet).

Cumulative Sources

There are no other sources of substantial TAC emissions identified within 1,000 feet of the project site.

Predicted Cancer Risk and Hazards – Proposed Project Construction

The maximum modeled DPM and $PM_{2.5}$ concentrations for construction of the proposed project occurred at a residence north of the City Hall construction area on the north side of Rodrigues Avenue. The location of this receptor is identified on Figure 1. Increased cancer risks were calculated using the modeled DPM concentrations and BAAQMD recommended risk assessment methods for both a child exposure (3rd trimester through 2 years of age) and adult exposure.[5] 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

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

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

were used for the cancer risk calculations.[6] Infant and child exposures were assumed to occur at all residences during the entire construction period. Modeling results and assumptions are provided in *Attachment 1*.

Results of this assessment indicate that for project construction the incremental residential child cancer risk at the maximally exposed individual (MEI) receptor would be 9.4 in one million and the incremental residential adult cancer risk would be 0.5 in one million. This increased cancer risk would be lower than the BAAQMD significance threshold of a cancer risk of 10 in one million or greater and considered a *less-than-significant impact*.

The maximum modeled annual $PM_{2.5}$ concentration was 0.09 $\mu g/m^3$ occurring at the same location where the maximum cancer risk would occur. This $PM_{2.5}$ concentration is below to the BAAQMD significance threshold of 0.3 $\mu g/m^3$ used to judge the significance of health impacts from $PM_{2.5}$. 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 0.075 $\mu g/m^3$, which is much lower than the REL. The maximum computed HI based on this DPM concentration is 0.015 which is much lower than the BAAQMD significance criterion of a HI greater than 1.0. This would be considered a *less than significant impact.*

Predicted Cancer Risk and Hazards – Proposed Project Construction with Additional Parking

Construction activity associated with the proposed project and additional parking would involve more intensive construction. A modified construction equipment list and schedule was used to model emissions and those emissions were used in dispersion modeling.

The CalEEMod model run was modified to include the additional construction activity that is projected with this construction scenario. The CalEEMod model predicted total annual $PM_{2.5}$ exhaust emissions of 0.0747 tons (149 pounds). The on-road emissions are a result of haul truck travel, worker travel, and vendor deliveries during construction activities. A trip length of 0.3 miles was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 17 pounds for the overall construction period.

The same AERMOD model run was used with these emissions to predict the maximum modeled DPM and $PM_{2.5}$ concentrations and associated community risk impacts. The incremental residential child cancer risk at the MEI receptor would be 9.9 in one million and the incremental residential adult cancer risk would be 0.5 in one million. The maximum modeled annual $PM_{2.5}$

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

concentration is 0.10 μg/m^3. The non-cancer hazard HI would be 0.02. These community risk levels would be below the significance thresholds, as a result, the project would have a *less-than-significant* impact.

Attachment 2 includes the emission calculations used for the area source modeling and the cancer risk calculations for the Project with Additional Parking scenario.

Figure 1 – Project Construction Site and Locations of Sensitive Receptors and Maximum Cancer Risks
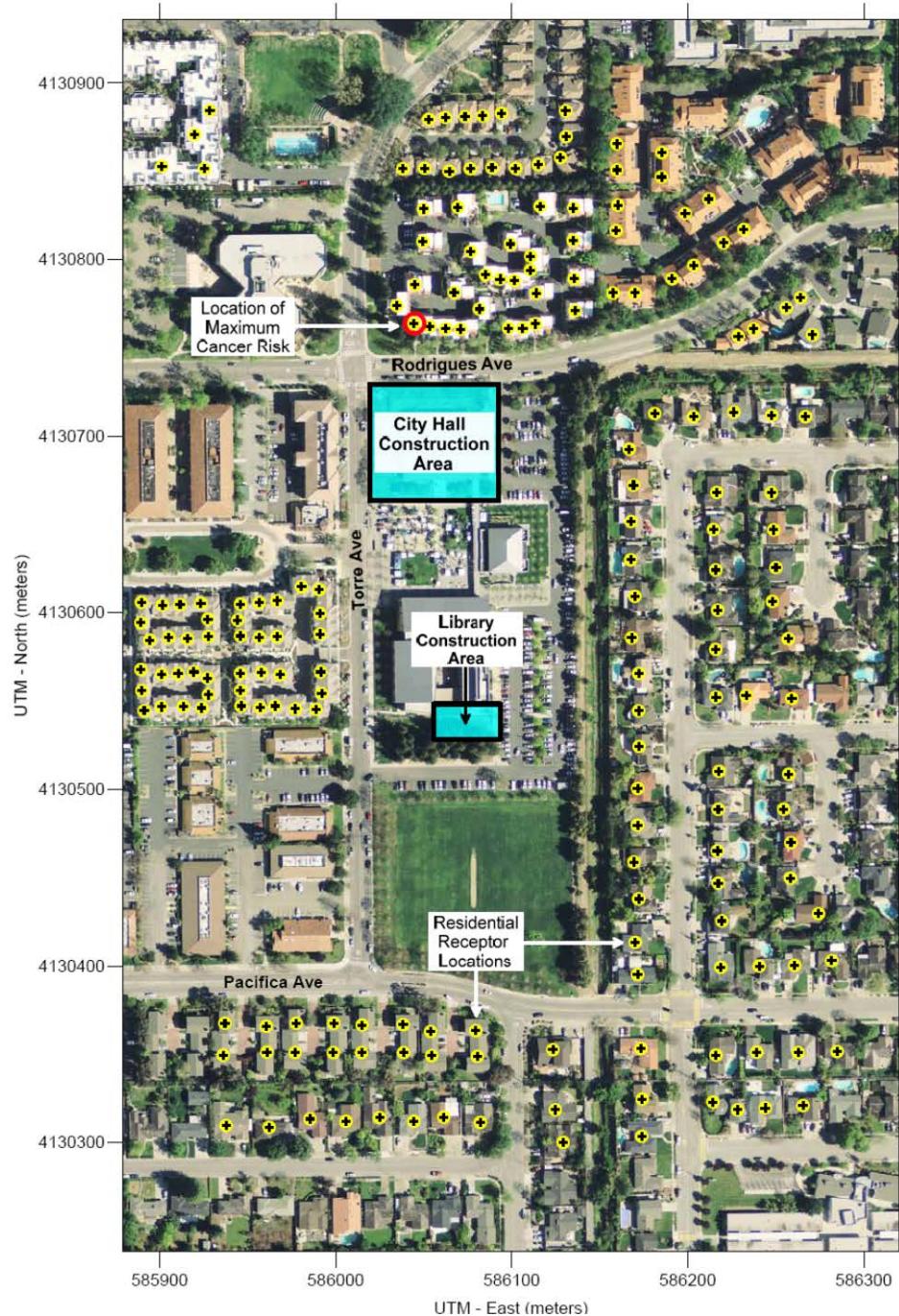
Attachment 1:   **Proposed Project –**
                        Construction Health Risk Modeling Emissions and Risk Calculations

Cuptertino Civic Center, Cupertino, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m²)	DPM Emission Rate (g/s/m²)
2016	Const - C Hall	0.0374	CON1_DPM	74.9	0.02279	2.87E-03	4,833	5.94E-07
	Const -Library	0.0125	CON2_DPM	25.0	0.00760	9.57E-04	761	1.26E-06
		0.0499					5,594	
2017	Const - C Hall	0.0166	CON1_DPM	33.2	0.01009	1.27E-03	4,833	2.63E-07
	Const -Library	0.0055	CON2_DPM	11.1	0.00336	4.24E-04	761	5.57E-07
		0.0221					5,594	
Total		*0.0720*		*144*	*0.0438*	*0.0055*		

Note: Assumes 75% of the annual emissions are for the City Hall and 25% are for Library construction

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

Cuptertino Civic Center, Cupertino, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m²)	PM2.5 Emission Rate g/s/m²
2016	Const - C Hall	CON1_FUG	0.0053	10.6	0.00323	4.07E-04	4,833	8.42E-08
	Const -Library	CON2_FUG	0.0018	3.5	0.00108	1.36E-04	761	1.78E-07
			0.0071				5,594	
2017	Const - C Hall	CON1_FUG	0.0001	0.3	0.00008	9.78E-06	4,833	2.02E-09
	Const -Library	CON2_FUG	0.0000	0.1	0.00003	3.26E-06	761	4.28E-09
			0.0002				5,594	
Total			*0.0072*	*14.5*	*0.0044*	*0.0006*		

Note: Assumes 75% of the annual emissions are for the City Hall and 25% are for Library construction

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

Cuptertino Civic Center, Cupertino, CA

Construction Health Impact Summary

| Construction Year | Maximum Concentrations | | Cancer Risk (per million) | | Hazard Index | Maximum Annual PM2.5 Concentration |
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2016	0.0746	0.0155	6.5	0.3	0.015	0.090
2017	0.0330	0.0004	2.9	0.2	0.007	0.033
Total	-	-	**9.4**	**0.5**	-	-
Maximum Annual	0.0746	0.0155	-	-	**0.015**	**0.090**

Cuptertino Civic Center, Cupertino, CA - Construction Impacts
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

Exposure Year	Exposure Duration (years)	Child - Exposure Information		Exposure Adjust Factor	Child Cancer Risk (per million)	Adult - Exposure Information		Exposure Adjust Factor	Adult Cancer Risk (per million)	Mitigated Fugitive PM2.5	Total PM2.5
		DPM Conc (ug/m3)				Modeled DPM Conc (ug/m3)					
		Year	Annual			Year	Annual				
1	1	2016	0.0746	10	6.53	2016	0.0746	1	0.34	0.0155	0.090
2	1	2017	0.0330	10	2.89	2017	0.0330	1	0.15	0.0004	0.033
3	1	0	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					**9.42**				**0.49**		

Project Name: Cupertino Civic Center Master Plan				
Construction Phase	**Equipment** (*See next page for example of commonly used equipment*)	**Quantity**	**Hours Used Per Day**	**How Many Work Days**
Demolition **Start Date:** _March 1_____ **End Date**: _May 1_____	• Excavator	1	6	30
	• Concrete/Industrial Saws	2	6	20
	• Rubber-Tired Dozers	2	6	40
	•			
	•			
Site Preparation **Start Date:** ____May 1___ **End Date**: _May 15_____	• Rubber Tired Dozers	1	6	10
	• Tractors/Loaders/Backhoes	3	8	3
	•			
	•			
	•			
Grading/Excavation **Start Date:** _May 1_____ **End Date**: ___June 15_____	Excavators	2	8	30
	Graders	1	8	10
	Tractors/Loaders/Backhoes	3	6	30
	Rubber Tired Dozers	1	6	10
	Dump Truck (off-haul)	4	4 at site	30
Trenching **Start Date:** ___July 1____ **End Date**: _____August 1___	• Tractor/Loader/Backhoe	2	6	30
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	•			
	•			
Building – Exterior **Start Date:** ___July 1____ **End Date**: ___March 1_____	Cranes	1	6	120
	Welders	4	6	90
	Forklifts	2	6	200
	Tractors/Loaders/Backhoes	2	6	200
	Generator Sets	4	6	200
Building – Interior/ Architectural Coating **Start Date:** _____ **End Date**: _____	•			
	•			
	•			
	•			
	•			
Paving	• Cement and Mortar Mixers	2	4	20
	• Pavers	1	6	5

Cupertino Civic Center
Santa Clara County, Annual

Proposed Project

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government (Civic Center)	40.00	1000sqft	10.00	40,000.00	0
Library	2.00	1000sqft	0.00	2,000.00	0
Enclosed Parking with Elevator	118.00	Space	0.00	47,000.00	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

Project Characteristics -

Land Use - Land uses, s.f. and acreage from PD.

Construction Phase - Anticipated construction schedule provided by project applicant. Default Arch Coating phase.

Off-road Equipment - Default

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Trips and VMT - 5,000 CY concrete during Bldg Constr. @ 16 CY/truck = 313 trucks or 626 truck trips. 0.3 mile trip lengths to calculate risk from on-site vehicle travel.

Demolition - 24,260 s.f. building demo.

Grading - 3,000 CY soil import, 23,367 CY soil export.

Architectural Coating -

Construction Off-road Equipment Mitigation - Tier 4 portable, Tier 2 rest for equipment > 50hp. BAAQMD BMPs.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	200.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	PhaseEndDate	5/4/2017	3/23/2017
tblConstructionPhase	PhaseEndDate	5/18/2017	4/6/2017
tblConstructionPhase	PhaseEndDate	4/29/2016	5/1/2016
tblConstructionPhase	PhaseEndDate	6/29/2016	6/15/2016
tblConstructionPhase	PhaseEndDate	5/25/2017	7/1/2017
tblConstructionPhase	PhaseEndDate	5/13/2016	5/15/2016
tblConstructionPhase	PhaseEndDate	7/27/2016	8/11/2016
tblConstructionPhase	PhaseStartDate	4/7/2017	2/24/2017
tblConstructionPhase	PhaseStartDate	8/12/2016	7/1/2016
tblConstructionPhase	PhaseStartDate	5/16/2016	5/1/2016
tblConstructionPhase	PhaseStartDate	3/24/2017	5/1/2017
tblConstructionPhase	PhaseStartDate	5/2/2016	5/1/2016
tblConstructionPhase	PhaseStartDate	6/16/2016	7/1/2016
tblGrading	AcresOfGrading	4.95	50.00
tblGrading	MaterialExported	0.00	23,367.00
tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	47,200.00	47,000.00
tblLandUse	LotAcreage	0.92	10.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	1.06	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	7.00	3.60
tblOffRoadEquipment	UsageHours	8.00	4.10
tblOffRoadEquipment	UsageHours	8.00	7.30
tblOffRoadEquipment	UsageHours	8.00	6.00

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.40
tblOffRoadEquipment	UsageHours	8.00	0.70
tblOffRoadEquipment	UsageHours	8.00	0.90
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	2.40
tblOffRoadEquipment	UsageHours	8.00	2.70
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripNumber	0.00	626.00
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30

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	0.3862	2.9726	2.5904	3.1100e-003	0.0864	0.1883	0.2747	0.0300	0.1800	0.2100	0.0000	275.9017	275.9017	0.0550	0.0000	277.0563
2017	0.6166	1.1474	0.9535	1.3700e-003	6.0000e-004	0.0778	0.0784	1.7000e-004	0.0747	0.0749	0.0000	119.5867	119.5867	0.0215	0.0000	120.0381
Total	**1.0029**	**4.1200**	**3.5439**	**4.4800e-003**	**0.0870**	**0.2661**	**0.3531**	**0.0302**	**0.2547**	**0.2849**	**0.0000**	**395.4884**	**395.4884**	**0.0765**	**0.0000**	**397.0944**

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	0.1463	1.4175	2.4248	3.1100e-003	0.0397	0.0499	0.0896	7.0700e-003	0.0499	0.0570	0.0000	275.9014	275.9014	0.0550	0.0000	277.0560
2017	0.5228	0.5394	0.9791	1.3700e-003	6.0000e-004	0.0221	0.0227	1.7000e-004	0.0221	0.0223	0.0000	119.5866	119.5866	0.0215	0.0000	120.0380
Total	**0.6692**	**1.9569**	**3.4039**	**4.4800e-003**	**0.0403**	**0.0720**	**0.1123**	**7.2400e-003**	**0.0720**	**0.0792**	**0.0000**	**395.4879**	**395.4879**	**0.0765**	**0.0000**	**397.0940**

	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	**33.28**	**52.50**	**3.95**	**0.00**	**53.69**	**72.94**	**68.20**	**76.01**	**71.74**	**72.19**	**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	3/1/2016	5/1/2016	5	44	
2	Site Preparation	Site Preparation	5/1/2016	5/15/2016	5	10	
3	Grading	Grading	5/1/2016	6/15/2016	5	33	
4	Trenching	Trenching	7/1/2016	8/11/2016	5	30	
5	Building Construction	Building Construction	7/1/2016	4/6/2017	5	200	
6	Architectural Coating	Architectural Coating	2/24/2017	3/23/2017	5	20	
7	Paving	Paving	5/1/2017	7/1/2017	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 50

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 133,500; Non-Residential Outdoor: 44,500 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	2.70	81	0.73
Demolition	Excavators	1	4.10	162	0.38
Demolition	Rubber Tired Dozers	2	5.50	255	0.40
Site Preparation	Rubber Tired Dozers	1	6.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	3	2.40	97	0.37
Grading	Excavators	2	7.30	162	0.38
Grading	Graders	1	2.40	174	0.41
Grading	Rubber Tired Dozers	1	1.80	255	0.40
Grading	Scrapers	0	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	3	5.50	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	3.60	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	4	6.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Welders	4	2.70	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	1.80	9	0.56

Paving	Pavers	1	0.70	125	0.42
Paving	Paving Equipment	0	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Rollers	1	0.90	80	0.38
Paving	Tractors/Loaders/Backhoes	2	2.70	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	110.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	3,296.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Building Construction	13	33.00	15.00	626.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	0.30	0.30	0.30	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

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					0.0119	0.0000	0.0119	1.8100e-003	0.0000	1.8100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0514	0.5382	0.4119	4.2000e-004		0.0271	0.0271		0.0254	0.0254	0.0000	38.9502	38.9502	0.0101	0.0000	39.1626
Total	**0.0514**	**0.5382**	**0.4119**	**4.2000e-004**	**0.0119**	**0.0271**	**0.0391**	**1.8100e-003**	**0.0254**	**0.0272**	**0.0000**	**38.9502**	**38.9502**	**0.0101**	**0.0000**	**39.1626**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	1.4300e-003	9.1500e-003	0.0000	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	0.1434	0.1434	0.0000	0.0000	0.1434
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	7.5000e-004	1.9000e-004	2.5700e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1129	0.1129	1.0000e-005	0.0000	0.1132
Total	**1.3300e-003**	**1.6200e-003**	**0.0117**	**0.0000**	**9.0000e-005**	**1.0000e-005**	**9.0000e-005**	**2.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.2563**	**0.2563**	**1.0000e-005**	**0.0000**	**0.2566**

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					5.3700e-003	0.0000	5.3700e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7900e-003	0.2809	0.2441	4.2000e-004		6.4800e-003	6.4800e-003		6.4800e-003	6.4800e-003	0.0000	38.9501	38.9501	0.0101	0.0000	39.1625
Total	**9.7900e-003**	**0.2809**	**0.2441**	**4.2000e-004**	**5.3700e-003**	**6.4800e-003**	**0.0119**	**4.1000e-004**	**6.4800e-003**	**6.8900e-003**	**0.0000**	**38.9501**	**38.9501**	**0.0101**	**0.0000**	**39.1625**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	1.4300e-003	9.1500e-003	0.0000	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	0.1434	0.1434	0.0000	0.0000	0.1434
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	7.5000e-004	1.9000e-004	2.5700e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1129	0.1129	1.0000e-005	0.0000	0.1132
Total	**1.3300e-003**	**1.6200e-003**	**0.0117**	**0.0000**	**9.0000e-005**	**1.0000e-005**	**9.0000e-005**	**2.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.2563**	**0.2563**	**1.0000e-005**	**0.0000**	**0.2566**

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					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0667	0.0502	5.0000e-005		3.5500e-003	3.5500e-003		3.2600e-003	3.2600e-003	0.0000	4.4628	4.4628	1.3500e-003	0.0000	4.4911
Total	**6.1800e-003**	**0.0667**	**0.0502**	**5.0000e-005**	**0.0226**	**3.5500e-003**	**0.0261**	**0.0124**	**3.2600e-003**	**0.0157**	**0.0000**	**4.4628**	**4.4628**	**1.3500e-003**	**0.0000**	**4.4911**

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	1.3000e-004	3.0000e-005	4.5000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0197	0.0197	0.0000	0.0000	0.0198
Total	**1.3000e-004**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0197**	**0.0197**	**0.0000**	**0.0000**	**0.0198**

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					0.0102	0.0000	0.0102	2.7900e-003	0.0000	2.7900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4600e-003	0.0415	0.0281	5.0000e-005		1.1400e-003	1.1400e-003		1.1400e-003	1.1400e-003	0.0000	4.4628	4.4628	1.3500e-003	0.0000	4.4911
Total	**1.4600e-003**	**0.0415**	**0.0281**	**5.0000e-005**	**0.0102**	**1.1400e-003**	**0.0113**	**2.7900e-003**	**1.1400e-003**	**3.9300e-003**	**0.0000**	**4.4628**	**4.4628**	**1.3500e-003**	**0.0000**	**4.4911**

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	1.3000e-004	3.0000e-005	4.5000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0197	0.0197	0.0000	0.0000	0.0198
Total	**1.3000e-004**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0197**	**0.0197**	**0.0000**	**0.0000**	**0.0198**

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					0.0504	0.0000	0.0504	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0329	0.3471	0.2487	3.3000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	31.0415	31.0415	9.3600e-003	0.0000	31.2381
Total	**0.0329**	**0.3471**	**0.2487**	**3.3000e-004**	**0.0504**	**0.0204**	**0.0707**	**0.0154**	**0.0188**	**0.0341**	**0.0000**	**31.0415**	**31.0415**	**9.3600e-003**	**0.0000**	**31.2381**

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	0.0173	0.0428	0.2742	5.0000e-005	4.5000e-004	2.0000e-004	6.5000e-004	1.3000e-004	1.8000e-004	3.0000e-004	0.0000	4.2952	4.2952	9.0000e-005	0.0000	4.2971
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	1.9000e-004	2.6700e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1173	0.1173	1.0000e-005	0.0000	0.1176
Total	**0.0181**	**0.0430**	**0.2769**	**5.0000e-005**	**5.2000e-004**	**2.0000e-004**	**7.2000e-004**	**1.5000e-004**	**1.8000e-004**	**3.2000e-004**	**0.0000**	**4.4124**	**4.4124**	**1.0000e-004**	**0.0000**	**4.4146**

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					0.0227	0.0000	0.0227	3.4600e-003	0.0000	3.4600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0132	0.2923	0.2411	3.3000e-004		9.7100e-003	9.7100e-003		9.7100e-003	9.7100e-003	0.0000	31.0414	31.0414	9.3600e-003	0.0000	31.2381
Total	**0.0132**	**0.2923**	**0.2411**	**3.3000e-004**	**0.0227**	**9.7100e-003**	**0.0324**	**3.4600e-003**	**9.7100e-003**	**0.0132**	**0.0000**	**31.0414**	**31.0414**	**9.3600e-003**	**0.0000**	**31.2381**

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	0.0173	0.0428	0.2742	5.0000e-005	4.5000e-004	2.0000e-004	6.5000e-004	1.3000e-004	1.8000e-004	3.0000e-004	0.0000	4.2952	4.2952	9.0000e-005	0.0000	4.2971
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	1.9000e-004	2.6700e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1173	0.1173	1.0000e-005	0.0000	0.1176
Total	**0.0181**	**0.0430**	**0.2769**	**5.0000e-005**	**5.2000e-004**	**2.0000e-004**	**7.2000e-004**	**1.5000e-004**	**1.8000e-004**	**3.2000e-004**	**0.0000**	**4.4124**	**4.4124**	**1.0000e-004**	**0.0000**	**4.4146**

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	7.6600e-003	0.0732	0.0543	7.0000e-005		5.6400e-003	5.6400e-003		5.1900e-003	5.1900e-003	0.0000	6.6068	6.6068	1.9900e-003	0.0000	6.6486
Total	**7.6600e-003**	**0.0732**	**0.0543**	**7.0000e-005**		**5.6400e-003**	**5.6400e-003**		**5.1900e-003**	**5.1900e-003**	**0.0000**	**6.6068**	**6.6068**	**1.9900e-003**	**0.0000**	**6.6486**

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	2.0000e-004	5.0000e-005	6.7000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0296	0.0296	0.0000	0.0000	0.0297
Total	**2.0000e-004**	**5.0000e-005**	**6.7000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0296**	**0.0296**	**0.0000**	**0.0000**	**0.0297**

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	3.2800e-003	0.0677	0.0527	7.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	6.6068	6.6068	1.9900e-003	0.0000	6.6486
Total	**3.2800e-003**	**0.0677**	**0.0527**	**7.0000e-005**		**2.7300e-003**	**2.7300e-003**		**2.7300e-003**	**2.7300e-003**	**0.0000**	**6.6068**	**6.6068**	**1.9900e-003**	**0.0000**	**6.6486**

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	2.0000e-004	5.0000e-005	6.7000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0296	0.0296	0.0000	0.0000	0.0297
Total	**2.0000e-004**	**5.0000e-005**	**6.7000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0296**	**0.0296**	**0.0000**	**0.0000**	**0.0297**

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	0.2523	1.8726	1.3706	2.1400e-003		0.1312	0.1312		0.1270	0.1270	0.0000	186.3788	186.3788	0.0319	0.0000	187.0488
Total	**0.2523**	**1.8726**	**1.3706**	**2.1400e-003**		**0.1312**	**0.1312**		**0.1270**	**0.1270**	**0.0000**	**186.3788**	**186.3788**	**0.0319**	**0.0000**	**187.0488**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons/yr								MT/yr			
Hauling	2.1600e-003	5.3200e-003	0.0341	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.5343	0.5343	1.0000e-005	0.0000	0.5346
Vendor	8.1400e-003	0.0235	0.1115	3.0000e-005	2.8000e-004	1.3000e-004	4.1000e-004	8.0000e-005	1.2000e-004	2.0000e-004	0.0000	2.3557	2.3557	4.0000e-005	0.0000	2.3565
Worker	5.6900e-003	1.4100e-003	0.0194	1.0000e-005	5.0000e-004	2.0000e-005	5.2000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	0.8535	0.8535	9.0000e-005	0.0000	0.8555
Total	**0.0160**	**0.0302**	**0.1650**	**5.0000e-005**	**8.6000e-004**	**1.7000e-004**	**1.0300e-003**	**2.3000e-004**	**1.6000e-004**	**3.9000e-004**	**0.0000**	**3.7435**	**3.7435**	**1.4000e-004**	**0.0000**	**3.7465**

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	0.0829	0.6602	1.4041	2.1400e-003		0.0295	0.0295		0.0295	0.0295	0.0000	186.3786	186.3786	0.0319	0.0000	187.0486
Total	**0.0829**	**0.6602**	**1.4041**	**2.1400e-003**		**0.0295**	**0.0295**		**0.0295**	**0.0295**	**0.0000**	**186.3786**	**186.3786**	**0.0319**	**0.0000**	**187.0486**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1600e-003	5.3200e-003	0.0341	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.5343	0.5343	1.0000e-005	0.0000	0.5346
Vendor	8.1400e-003	0.0235	0.1115	3.0000e-005	2.8000e-004	1.3000e-004	4.1000e-004	8.0000e-005	1.2000e-004	2.0000e-004	0.0000	2.3557	2.3557	4.0000e-005	0.0000	2.3565
Worker	5.6900e-003	1.4100e-003	0.0194	1.0000e-005	5.0000e-004	2.0000e-005	5.2000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	0.8535	0.8535	9.0000e-005	0.0000	0.8555
Total	**0.0160**	**0.0302**	**0.1650**	**5.0000e-005**	**8.6000e-004**	**1.7000e-004**	**1.0300e-003**	**2.3000e-004**	**1.6000e-004**	**3.9000e-004**	**0.0000**	**3.7435**	**3.7435**	**1.4000e-004**	**0.0000**	**3.7465**

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	0.1197	0.9146	0.7110	1.1300e-003		0.0620	0.0620		0.0600	0.0600	0.0000	97.6724	97.6724	0.0160	0.0000	98.0073
Total	**0.1197**	**0.9146**	**0.7110**	**1.1300e-003**		**0.0620**	**0.0620**		**0.0600**	**0.0600**	**0.0000**	**97.6724**	**97.6724**	**0.0160**	**0.0000**	**98.0073**

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	9.4000e-004	2.6300e-003	0.0166	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2756	0.2756	1.0000e-005	0.0000	0.2757
Vendor	3.6600e-003	0.0116	0.0542	1.0000e-005	1.5000e-004	6.0000e-005	2.1000e-004	4.0000e-005	5.0000e-005	1.0000e-004	0.0000	1.2179	1.2179	2.0000e-005	0.0000	1.2183
Worker	2.7700e-003	6.6000e-004	9.2000e-003	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.4326	0.4326	4.0000e-005	0.0000	0.4335
Total	**7.3700e-003**	**0.0149**	**0.0800**	**2.0000e-005**	**4.8000e-004**	**8.0000e-005**	**5.6000e-004**	**1.3000e-004**	**7.0000e-005**	**2.1000e-004**	**0.0000**	**1.9262**	**1.9262**	**7.0000e-005**	**0.0000**	**1.9276**

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	0.0408	0.3449	0.7369	1.1300e-003		0.0149	0.0149		0.0149	0.0149	0.0000	97.6723	97.6723	0.0160	0.0000	98.0072
Total	**0.0408**	**0.3449**	**0.7369**	**1.1300e-003**		**0.0149**	**0.0149**		**0.0149**	**0.0149**	**0.0000**	**97.6723**	**97.6723**	**0.0160**	**0.0000**	**98.0072**

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	9.4000e-004	2.6300e-003	0.0166	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2756	0.2756	1.0000e-005	0.0000	0.2757
Vendor	3.6600e-003	0.0116	0.0542	1.0000e-005	1.5000e-004	6.0000e-005	2.1000e-004	4.0000e-005	5.0000e-005	1.0000e-004	0.0000	1.2179	1.2179	2.0000e-005	0.0000	1.2183
Worker	2.7700e-003	6.6000e-004	9.2000e-003	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.4326	0.4326	4.0000e-005	0.0000	0.4335
Total	**7.3700e-003**	**0.0149**	**0.0800**	**2.0000e-005**	**4.8000e-004**	**8.0000e-005**	**5.6000e-004**	**1.3000e-004**	**7.0000e-005**	**2.1000e-004**	**0.0000**	**1.9262**	**1.9262**	**7.0000e-005**	**0.0000**	**1.9276**

3.7 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	0.4641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3200e-003	0.0219	0.0187	3.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5589
Total	**0.4674**	**0.0219**	**0.0187**	**3.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5589**

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	1.7000e-004	4.0000e-005	5.7000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0266	0.0266	0.0000	0.0000	0.0267
Total	**1.7000e-004**	**4.0000e-005**	**5.7000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0266**	**0.0266**	**0.0000**	**0.0000**	**0.0267**

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	0.4641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5589
Total	**0.4644**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5589**

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	1.7000e-004	4.0000e-005	5.7000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0266	0.0266	0.0000	0.0000	0.0267
Total	**1.7000e-004**	**4.0000e-005**	**5.7000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0266**	**0.0266**	**0.0000**	**0.0000**	**0.0267**

3.8 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	0.0209	0.1958	0.1397	1.9000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	17.2373	17.2373	5.1900e-003	0.0000	17.3463
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0209**	**0.1958**	**0.1397**	**1.9000e-004**		**0.0140**	**0.0140**		**0.0129**	**0.0129**	**0.0000**	**17.2373**	**17.2373**	**5.1900e-003**	**0.0000**	**17.3463**

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	1.0900e-003	2.6000e-004	3.6400e-003	0.0000	1.0000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1710	0.1710	2.0000e-005	0.0000	0.1714
Total	**1.0900e-003**	**2.6000e-004**	**3.6400e-003**	**0.0000**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1710**	**0.1710**	**2.0000e-005**	**0.0000**	**0.1714**

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	9.0100e-003	0.1781	0.1397	1.9000e-004		7.1200e-003	7.1200e-003		7.1200e-003	7.1200e-003	0.0000	17.2373	17.2373	5.1900e-003	0.0000	17.3462
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.0100e-003**	**0.1781**	**0.1397**	**1.9000e-004**		**7.1200e-003**	**7.1200e-003**		**7.1200e-003**	**7.1200e-003**	**0.0000**	**17.2373**	**17.2373**	**5.1900e-003**	**0.0000**	**17.3462**

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	1.0900e-003	2.6000e-004	3.6400e-003	0.0000	1.0000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1710	0.1710	2.0000e-005	0.0000	0.1714
Total	**1.0900e-003**	**2.6000e-004**	**3.6400e-003**	**0.0000**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1710**	**0.1710**	**2.0000e-005**	**0.0000**	**0.1714**

Project Name: Cupertino Civic Center Master Plan				
Construction Phase	**Equipment** (*See next page for example of commonly used equipment*)	**Quantity**	**Hours Used Per Day**	**How Many Work Days**
Start Date: __May 1_____ **End Date**: ___July 1_____	• Rollers	1	8	5
	• Tractors/Loaders/Backhoes	2	6	20
	•			
OTHER – Provide as Applicable				
Soil Hauling Volume	Export volume = _____20000_____ cubic yards? Import volume = ___3000_____ cubic yards?			
Demolition Volume	Square footage of buildings to be demolished, or total tons to be hauled. =__24000_ square feet or =___ hauling volume (tons) Pavement demolished and hauled = __ tons			
Cement	Cement Trucks = ___ Total Round-Trips OR Cement =_5000_ cubic yards Concrete Electric? (Y/N) ___Otherwise modelling assumes diesel Liquid Propane (LPG)? (Y/N) ___Otherwise modelling assumes diesel Or temporary line power? (Y/N) ___			
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
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Trenching
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

Attachment 2: **Proposed Project – with Parking Option**
Construction Health Risk Modeling Emissions and Risk Calculations

Cuptertino Civic Center, Cupertino, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m²)	DPM Emission Rate (g/s/m²)
2016	Const - C Hall	0.0404	HALL_DPM	80.7	0.02457	3.10E-03	4,833	6.40E-07
	Const -Library	0.0135	LIBR_DPM	26.9	0.00819	1.03E-03	761	1.36E-06
		0.0538					5,594	
2017	Const - C Hall	0.0157	HALL_DPM	31.4	0.00954	1.20E-03	4,833	2.49E-07
	Const -Library	0.0052	LIBR_DPM	10.5	0.00318	4.01E-04	761	5.27E-07
		0.0209					5,594	
Total		*0.0747*		*149*	*0.0455*	*0.0057*		

Note: Assumes 75% of the annual emissions are for the City Hall and 25% are for Library construction

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

Cuptertino Civic Center, Cupertino, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m²)	PM2.5 Emission Rate g/s/m²
2016	Const - C Hall	HALL_DPM	0.0062	12.4	0.00379	4.77E-04	4,833	9.87E-08
	Const -Library	LIBR_DPM	0.0021	4.1	0.00126	1.59E-04	761	2.09E-07
			0.0083				5,594	
2017	Const - C Hall	HALL_DPM	0.0001	0.3	0.00008	9.78E-06	4,833	2.02E-09
	Const -Library	LIBR_DPM	0.0000	0.1	0.00003	3.26E-06	761	4.28E-09
			0.0002				5,594	
Total			*0.0085*	*16.9*	*0.0052*	*0.0006*		

Note: Assumes 75% of the annual emissions are for the City Hall and 25% are for Library construction

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

Cuptertino Civic Center, Cupertino, CA

Construction Health Impact Summary

| Construction Year | Maximum Concentrations | | Cancer Risk (per million) | | Hazard Index | Maximum Annual PM2.5 Concentration |
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2016	0.0803	0.0182	7.0	0.4	0.016	0.099
2017	0.0331	0.0004	2.9	0.2	0.007	0.033
Total	-	-	**9.9**	**0.5**	-	-
Maximum Annual	0.0803	0.0182	-	-	**0.016**	**0.099**

Cuptertino Civic Center, Cupertino, CA - Construction Impacts
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

Exposure Year	Exposure Duration (years)	Child - Exposure Information		Exposure Adjust Factor	Child Cancer Risk (per million)	Adult - Exposure Information		Exposure Adjust Factor	Adult Cancer Risk (per million)	Mitigated Fugitive PM2.5	Total PM2.5
		DPM Conc (ug/m3)				Modeled DPM Conc (ug/m3)					
		Year	Annual			Year	Annual				
1	1	2016	0.0803	10	7.03	2016	0.0803	1	0.37	0.0182	0.099
2	1	2017	0.0331	10	2.90	2017	0.0331	1	0.15	0.0004	0.033
3	1	0	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		
.•	.•	.•	.•	.•	.•	.•	.•	.•	.•		
.•	.•	.•	.•	.•	.•	.•	.•	.•	.•		
.•	.•	.•	.•	.•	.•	.•	.•	.•	.•		
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					**9.93**				**0.52**		

Project Name: Cupertino Civic Center Master Plan [WITH optional parking]				
Construction Phase	Equipment (*See next page for example of commonly used equipment*)	Quantity	Hours Used Per Day	How Many Work Days
Demolition **Start Date:** _March 1_____ **End Date**: _May 1_____	• Excavator	1	6	34
	• Concrete/Industrial Saws	2	6	22
	• Rubber-Tired Dozers	2	6	44
	•			
	•			
Site Preparation **Start Date:** ____May 1___ **End Date**: _May 15_____	• Rubber Tired Dozers	1	6	14
	• Tractors/Loaders/Backhoes	3	8	4
	•			
	•			
	•			
Grading/Excavation **Start Date:** _May 1_____ **End Date**: ___June 15_____	Excavators	2	8	34
	Graders	1	8	15
	Tractors/Loaders/Backhoes	3	6	36
	Rubber Tired Dozers	1	6	12
	Dump Truck (off-haul)	4	4 at site	40
Trenching **Start Date:** ___July 1____ **End Date**: _____August 1___	• Tractor/Loader/Backhoe	2	6	40
	•			
	•			
	•			
	•			
Building – Exterior **Start Date:** ___July 1____ **End Date**: ___March 1_____	Cranes	1	6	120
	Welders	4	6	90
	Forklifts	2	6	200
	Tractors/Loaders/Backhoes	2	6	200
	Generator Sets	4	6	200
Building – Interior/ Architectural Coating **Start Date:** _____ **End Date**: _____	•			
	•			
	•			
	•			
	•			
Paving	• Cement and Mortar Mixers	2	4	30
	• Pavers	1	6	10

Project Name: Cupertino Civic Center Master Plan [WITH optional parking]				
Construction Phase	Equipment (*See next page for example of commonly used equipment*)	Quantity	Hours Used Per Day	How Many Work Days
Start Date: __May 1_____ **End Date**: ___July 1_____	• Rollers	1	8	10
	• Tractors/Loaders/Backhoes	2	6	30
	•			
OTHER – Provide as Applicable				
Soil Hauling Volume	Export volume = _____28000_____ cubic yards? Import volume = ___3000_____ cubic yards?			
Demolition Volume	Square footage of buildings to be demolished, or total tons to be hauled. =__24000_ square feet or =___ hauling volume (tons) Pavement demolished and hauled = __ tons			
Cement	Cement Trucks = __ Total Round-Trips OR Cement =_5200_ cubic yards Concrete Electric? (Y/N) ____Otherwise modelling assumes diesel Liquid Propane (LPG)? (Y/N) ___Otherwise modelling assumes diesel Or temporary line power? (Y/N) ___			
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
Rubber Tired Dozers
Tractors/Loaders/Backhoes
Trenching
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

Cupertino Civic Center
Santa Clara County, Annual with Parking

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government (Civic Center)	40.00	1000sqft	10.00	40,000.00	0
Library	2.00	1000sqft	0.00	2,000.00	0
Enclosed Parking with Elevator	118.00	Space	0.00	47,000.00	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

Project Characteristics -

Land Use - Land uses, s.f. and acreage from PD.

Construction Phase - Anticipated construction schedule provided by project applicant. Default Arch Coating phase.

Off-road Equipment - Default

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Trips and VMT - 5,200 CY concrete during Bldg Constr. @ 9 CY/truck = 0.3 mile trip lengths to calculate risk from on-site vehicle travel.

Demolition - 24,260 s.f. building demo.

Grading - 3,000 CY soil import, 28,000 CY soil export.

Architectural Coating -

Construction Off-road Equipment Mitigation - Tier 4 portable & grader, Tier 2 rest for equipment > 50hp. BAAQMD BMPs.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	230.00	200.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	PhaseEndDate	5/4/2017	3/23/2017
tblConstructionPhase	PhaseEndDate	6/1/2017	4/6/2017
tblConstructionPhase	PhaseEndDate	7/14/2016	6/24/2016
tblConstructionPhase	PhaseEndDate	5/4/2017	6/9/2017
tblConstructionPhase	PhaseEndDate	8/19/2016	8/25/2016
tblConstructionPhase	PhaseStartDate	4/7/2017	2/24/2017
tblConstructionPhase	PhaseStartDate	8/26/2016	7/1/2016
tblConstructionPhase	PhaseStartDate	5/20/2016	5/1/2016
tblConstructionPhase	PhaseStartDate	3/24/2017	5/1/2017
tblConstructionPhase	PhaseStartDate	4/30/2016	5/1/2016
tblConstructionPhase	PhaseStartDate	6/25/2016	7/1/2016
tblGrading	MaterialExported	0.00	28,000.00
tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	47,200.00	47,000.00
tblLandUse	LotAcreage	0.92	10.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	1.06	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	3.60
tblOffRoadEquipment	UsageHours	8.00	4.60
tblOffRoadEquipment	UsageHours	8.00	6.80
tblOffRoadEquipment	UsageHours	8.00	6.00

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	0.90
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.40
tblOffRoadEquipment	UsageHours	8.00	2.30
tblOffRoadEquipment	UsageHours	8.00	2.70
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripLength	20.00	0.30
tblTripsAndVMT	HaulingTripNumber	0.00	1,156.00
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	VendorTripLength	7.30	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30
tblTripsAndVMT	WorkerTripLength	12.40	0.30

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	0.4086	3.1625	2.7954	3.2700e-003	0.0780	0.1987	0.2767	0.0352	0.1896	0.2248	0.0000	290.9392	290.9392	0.0590	0.0000	292.1780
2017	0.6131	1.1130	0.9439	1.3500e-003	6.2000e-004	0.0750	0.0757	1.7000e-004	0.0722	0.0723	0.0000	117.1654	117.1654	0.0207	0.0000	117.5991
Total	**1.0217**	**4.2755**	**3.7394**	**4.6200e-003**	**0.0787**	**0.2737**	**0.3524**	**0.0354**	**0.2617**	**0.2971**	**0.0000**	**408.1046**	**408.1046**	**0.0796**	**0.0000**	**409.7771**

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	0.1566	1.5515	2.6020	3.2700e-003	0.0360	0.0538	0.0898	8.2900e-003	0.0538	0.0621	0.0000	290.9389	290.9389	0.0590	0.0000	292.1777
2017	0.5221	0.5127	0.9704	1.3500e-003	6.2000e-004	0.0209	0.0215	1.7000e-004	0.0209	0.0210	0.0000	117.1653	117.1653	0.0207	0.0000	117.5990
Total	0.6787	2.0642	3.5724	4.6200e-003	0.0367	0.0747	0.1113	8.4600e-003	0.0746	0.0831	0.0000	408.1041	408.1041	0.0796	0.0000	409.7767

	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	33.57	51.72	4.46	0.00	53.41	72.72	68.41	76.11	71.49	72.04	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	3/1/2016	4/29/2016	5	44	
2	Site Preparation	Site Preparation	5/1/2016	5/19/2016	5	14	
3	Grading	Grading	5/1/2016	6/24/2016	5	40	
4	Trenching	Trenching	7/1/2016	8/25/2016	5	40	
5	Building Construction	Building Construction	7/1/2016	4/6/2017	5	200	
6	Architectural Coating	Architectural Coating	2/24/2017	3/23/2017	5	20	
7	Paving	Paving	5/1/2017	6/9/2017	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 133,500; Non-Residential Outdoor: 44,500 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	3.00	81	0.73
Demolition	Excavators	1	4.60	162	0.38
Demolition	Rubber Tired Dozers	2	6.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	6.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	3	2.30	97	0.37
Grading	Excavators	2	6.80	162	0.38
Grading	Graders	1	3.00	174	0.41
Grading	Rubber Tired Dozers	1	1.80	255	0.40
Grading	Scrapers	0	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	3	5.40	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	3.60	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	4	6.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Welders	4	2.70	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	4.00	9	0.56

Paving	Pavers	1	2.00	125	0.42
Paving	Paving Equipment	0	8.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Rollers	1	0.90	80	0.38
Paving	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	110.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	3,875.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Building Construction	13	33.00	15.00	1,156.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	0.30	0.30	0.30	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	0.30	0.30	0.30	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

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					0.0119	0.0000	0.0119	1.8100e-003	0.0000	1.8100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0564	0.5901	0.4517	4.6000e-004		0.0298	0.0298		0.0279	0.0279	0.0000	42.8270	42.8270	0.0111	0.0000	43.0601
Total	**0.0564**	**0.5901**	**0.4517**	**4.6000e-004**	**0.0119**	**0.0298**	**0.0417**	**1.8100e-003**	**0.0279**	**0.0297**	**0.0000**	**42.8270**	**42.8270**	**0.0111**	**0.0000**	**43.0601**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons/yr								MT/yr			
Hauling	5.8000e-004	1.4300e-003	9.1500e-003	0.0000	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	0.1434	0.1434	0.0000	0.0000	0.1434
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	7.5000e-004	1.9000e-004	2.5700e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1129	0.1129	1.0000e-005	0.0000	0.1132
Total	**1.3300e-003**	**1.6200e-003**	**0.0117**	**0.0000**	**9.0000e-005**	**1.0000e-005**	**9.0000e-005**	**2.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.2563**	**0.2563**	**1.0000e-005**	**0.0000**	**0.2566**

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					5.3700e-003	0.0000	5.3700e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.3081	0.2688	4.6000e-004		7.1200e-003	7.1200e-003		7.1200e-003	7.1200e-003	0.0000	42.8270	42.8270	0.0111	0.0000	43.0601
Total	**0.0108**	**0.3081**	**0.2688**	**4.6000e-004**	**5.3700e-003**	**7.1200e-003**	**0.0125**	**4.1000e-004**	**7.1200e-003**	**7.5300e-003**	**0.0000**	**42.8270**	**42.8270**	**0.0111**	**0.0000**	**43.0601**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	1.4300e-003	9.1500e-003	0.0000	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	0.1434	0.1434	0.0000	0.0000	0.1434
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	7.5000e-004	1.9000e-004	2.5700e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1129	0.1129	1.0000e-005	0.0000	0.1132
Total	**1.3300e-003**	**1.6200e-003**	**0.0117**	**0.0000**	**9.0000e-005**	**1.0000e-005**	**9.0000e-005**	**2.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.2563**	**0.2563**	**1.0000e-005**	**0.0000**	**0.2566**

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					0.0316	0.0000	0.0316	0.0174	0.0000	0.0174	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5600e-003	0.0925	0.0696	7.0000e-005		4.9000e-003	4.9000e-003		4.5100e-003	4.5100e-003	0.0000	6.1709	6.1709	1.8600e-003	0.0000	6.2100
Total	**8.5600e-003**	**0.0925**	**0.0696**	**7.0000e-005**	**0.0316**	**4.9000e-003**	**0.0365**	**0.0174**	**4.5100e-003**	**0.0219**	**0.0000**	**6.1709**	**6.1709**	**1.8600e-003**	**0.0000**	**6.2100**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	5.0000e-005	6.3000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0276	0.0276	0.0000	0.0000	0.0277
Total	**1.8000e-004**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0276**	**0.0276**	**0.0000**	**0.0000**	**0.0277**

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					0.0142	0.0000	0.0142	3.9100e-003	0.0000	3.9100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0100e-003	0.0574	0.0387	7.0000e-005		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	6.1709	6.1709	1.8600e-003	0.0000	6.2100
Total	**2.0100e-003**	**0.0574**	**0.0387**	**7.0000e-005**	**0.0142**	**1.5600e-003**	**0.0158**	**3.9100e-003**	**1.5600e-003**	**5.4700e-003**	**0.0000**	**6.1709**	**6.1709**	**1.8600e-003**	**0.0000**	**6.2100**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	5.0000e-005	6.3000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0276	0.0276	0.0000	0.0000	0.0277
Total	**1.8000e-004**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0276**	**0.0276**	**0.0000**	**0.0000**	**0.0277**

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					0.0328	0.0000	0.0328	0.0156	0.0000	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0402	0.4228	0.2984	3.9000e-004		0.0248	0.0248		0.0229	0.0229	0.0000	37.0423	37.0423	0.0112	0.0000	37.2769
Total	**0.0402**	**0.4228**	**0.2984**	**3.9000e-004**	**0.0328**	**0.0248**	**0.0577**	**0.0156**	**0.0229**	**0.0384**	**0.0000**	**37.0423**	**37.0423**	**0.0112**	**0.0000**	**37.2769**

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	0.0204	0.0503	0.3224	6.0000e-005	5.3000e-004	2.3000e-004	7.6000e-004	1.5000e-004	2.1000e-004	3.6000e-004	0.0000	5.0497	5.0497	1.1000e-004	0.0000	5.0519
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	2.3000e-004	3.2400e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1422	0.1422	2.0000e-005	0.0000	0.1425
Total	**0.0213**	**0.0505**	**0.3257**	**6.0000e-005**	**6.1000e-004**	**2.3000e-004**	**8.5000e-004**	**1.7000e-004**	**2.1000e-004**	**3.9000e-004**	**0.0000**	**5.1918**	**5.1918**	**1.3000e-004**	**0.0000**	**5.1944**

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					0.0148	0.0000	0.0148	3.5100e-003	0.0000	3.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.3487	0.2874	3.9000e-004		0.0116	0.0116		0.0116	0.0116	0.0000	37.0423	37.0423	0.0112	0.0000	37.2769
Total	**0.0157**	**0.3487**	**0.2874**	**3.9000e-004**	**0.0148**	**0.0116**	**0.0263**	**3.5100e-003**	**0.0116**	**0.0151**	**0.0000**	**37.0423**	**37.0423**	**0.0112**	**0.0000**	**37.2769**

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	0.0204	0.0503	0.3224	6.0000e-005	5.3000e-004	2.3000e-004	7.6000e-004	1.5000e-004	2.1000e-004	3.6000e-004	0.0000	5.0497	5.0497	1.1000e-004	0.0000	5.0519
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	2.3000e-004	3.2400e-003	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1422	0.1422	2.0000e-005	0.0000	0.1425
Total	**0.0213**	**0.0505**	**0.3257**	**6.0000e-005**	**6.1000e-004**	**2.3000e-004**	**8.5000e-004**	**1.7000e-004**	**2.1000e-004**	**3.9000e-004**	**0.0000**	**5.1918**	**5.1918**	**1.3000e-004**	**0.0000**	**5.1944**

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	0.0102	0.0977	0.0724	9.0000e-005		7.5200e-003	7.5200e-003		6.9200e-003	6.9200e-003	0.0000	8.8091	8.8091	2.6600e-003	0.0000	8.8649
Total	**0.0102**	**0.0977**	**0.0724**	**9.0000e-005**		**7.5200e-003**	**7.5200e-003**		**6.9200e-003**	**6.9200e-003**	**0.0000**	**8.8091**	**8.8091**	**2.6600e-003**	**0.0000**	**8.8649**

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	2.6000e-004	7.0000e-005	9.0000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0395	0.0395	0.0000	0.0000	0.0396
Total	**2.6000e-004**	**7.0000e-005**	**9.0000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0395**	**0.0395**	**0.0000**	**0.0000**	**0.0396**

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	4.3700e-003	0.0902	0.0703	9.0000e-005		3.6500e-003	3.6500e-003		3.6500e-003	3.6500e-003	0.0000	8.8090	8.8090	2.6600e-003	0.0000	8.8648
Total	**4.3700e-003**	**0.0902**	**0.0703**	**9.0000e-005**		**3.6500e-003**	**3.6500e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**8.8090**	**8.8090**	**2.6600e-003**	**0.0000**	**8.8648**

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	2.6000e-004	7.0000e-005	9.0000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0395	0.0395	0.0000	0.0000	0.0396
Total	**2.6000e-004**	**7.0000e-005**	**9.0000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0395**	**0.0395**	**0.0000**	**0.0000**	**0.0396**

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	0.2523	1.8726	1.3706	2.1400e-003		0.1312	0.1312		0.1270	0.1270	0.0000	186.3788	186.3788	0.0319	0.0000	187.0488
Total	**0.2523**	**1.8726**	**1.3706**	**2.1400e-003**		**0.1312**	**0.1312**		**0.1270**	**0.1270**	**0.0000**	**186.3788**	**186.3788**	**0.0319**	**0.0000**	**187.0488**

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	3.9800e-003	9.8300e-003	0.0630	1.0000e-005	1.4000e-004	4.0000e-005	1.9000e-004	4.0000e-005	4.0000e-005	8.0000e-005	0.0000	0.9867	0.9867	2.0000e-005	0.0000	0.9872
Vendor	8.1400e-003	0.0235	0.1115	3.0000e-005	2.8000e-004	1.3000e-004	4.1000e-004	8.0000e-005	1.2000e-004	2.0000e-004	0.0000	2.3557	2.3557	4.0000e-005	0.0000	2.3565
Worker	5.6900e-003	1.4100e-003	0.0194	1.0000e-005	5.0000e-004	2.0000e-005	5.2000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	0.8535	0.8535	9.0000e-005	0.0000	0.8555
Total	**0.0178**	**0.0348**	**0.1939**	**5.0000e-005**	**9.2000e-004**	**1.9000e-004**	**1.1200e-003**	**2.5000e-004**	**1.8000e-004**	**4.3000e-004**	**0.0000**	**4.1959**	**4.1959**	**1.5000e-004**	**0.0000**	**4.1991**

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	0.0829	0.6602	1.4041	2.1400e-003		0.0295	0.0295		0.0295	0.0295	0.0000	186.3786	186.3786	0.0319	0.0000	187.0486
Total	**0.0829**	**0.6602**	**1.4041**	**2.1400e-003**		**0.0295**	**0.0295**		**0.0295**	**0.0295**	**0.0000**	**186.3786**	**186.3786**	**0.0319**	**0.0000**	**187.0486**

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	3.9800e-003	9.8300e-003	0.0630	1.0000e-005	1.4000e-004	4.0000e-005	1.9000e-004	4.0000e-005	4.0000e-005	8.0000e-005	0.0000	0.9867	0.9867	2.0000e-005	0.0000	0.9872
Vendor	8.1400e-003	0.0235	0.1115	3.0000e-005	2.8000e-004	1.3000e-004	4.1000e-004	8.0000e-005	1.2000e-004	2.0000e-004	0.0000	2.3557	2.3557	4.0000e-005	0.0000	2.3565
Worker	5.6900e-003	1.4100e-003	0.0194	1.0000e-005	5.0000e-004	2.0000e-005	5.2000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	0.8535	0.8535	9.0000e-005	0.0000	0.8555
Total	**0.0178**	**0.0348**	**0.1939**	**5.0000e-005**	**9.2000e-004**	**1.9000e-004**	**1.1200e-003**	**2.5000e-004**	**1.8000e-004**	**4.3000e-004**	**0.0000**	**4.1959**	**4.1959**	**1.5000e-004**	**0.0000**	**4.1991**

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	0.1197	0.9146	0.7110	1.1300e-003		0.0620	0.0620		0.0600	0.0600	0.0000	97.6724	97.6724	0.0160	0.0000	98.0073
Total	**0.1197**	**0.9146**	**0.7110**	**1.1300e-003**		**0.0620**	**0.0620**		**0.0600**	**0.0600**	**0.0000**	**97.6724**	**97.6724**	**0.0160**	**0.0000**	**98.0073**

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	1.7400e-003	4.8600e-003	0.0306	1.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.5089	0.5089	1.0000e-005	0.0000	0.5092
Vendor	3.6600e-003	0.0116	0.0542	1.0000e-005	1.5000e-004	6.0000e-005	2.1000e-004	4.0000e-005	5.0000e-005	1.0000e-004	0.0000	1.2179	1.2179	2.0000e-005	0.0000	1.2183
Worker	2.7700e-003	6.6000e-004	9.2000e-003	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.4326	0.4326	4.0000e-005	0.0000	0.4335
Total	**8.1700e-003**	**0.0171**	**0.0940**	**3.0000e-005**	**5.4000e-004**	**9.0000e-005**	**6.3000e-004**	**1.4000e-004**	**8.0000e-005**	**2.3000e-004**	**0.0000**	**2.1595**	**2.1595**	**7.0000e-005**	**0.0000**	**2.1611**

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	0.0408	0.3449	0.7369	1.1300e-003		0.0149	0.0149		0.0149	0.0149	0.0000	97.6723	97.6723	0.0160	0.0000	98.0072
Total	**0.0408**	**0.3449**	**0.7369**	**1.1300e-003**		**0.0149**	**0.0149**		**0.0149**	**0.0149**	**0.0000**	**97.6723**	**97.6723**	**0.0160**	**0.0000**	**98.0072**

<u>**Mitigated Construction Off-Site**</u>

	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	1.7400e-003	4.8600e-003	0.0306	1.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.5089	0.5089	1.0000e-005	0.0000	0.5092
Vendor	3.6600e-003	0.0116	0.0542	1.0000e-005	1.5000e-004	6.0000e-005	2.1000e-004	4.0000e-005	5.0000e-005	1.0000e-004	0.0000	1.2179	1.2179	2.0000e-005	0.0000	1.2183
Worker	2.7700e-003	6.6000e-004	9.2000e-003	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.4326	0.4326	4.0000e-005	0.0000	0.4335
Total	**8.1700e-003**	**0.0171**	**0.0940**	**3.0000e-005**	**5.4000e-004**	**9.0000e-005**	**6.3000e-004**	**1.4000e-004**	**8.0000e-005**	**2.3000e-004**	**0.0000**	**2.1595**	**2.1595**	**7.0000e-005**	**0.0000**	**2.1611**

3.7 Architectural Coating - 2017

<u>**Unmitigated Construction On-Site**</u>

	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	0.4641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3200e-003	0.0219	0.0187	3.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5589
Total	**0.4674**	**0.0219**	**0.0187**	**3.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5589**

<u>**Unmitigated Construction Off-Site**</u>

	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	1.7000e-004	4.0000e-005	5.7000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0266	0.0266	0.0000	0.0000	0.0267
Total	**1.7000e-004**	**4.0000e-005**	**5.7000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0266**	**0.0266**	**0.0000**	**0.0000**	**0.0267**

<u>**Mitigated Construction On-Site**</u>

	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	0.4641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5589
Total	**0.4644**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5589**

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	1.7000e-004	4.0000e-005	5.7000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000		0.0000	0.0000	0.0266	0.0266	0.0000	0.0000	0.0267
Total	**1.7000e-004**	**4.0000e-005**	**5.7000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0266**	**0.0266**	**0.0000**	**0.0000**	**0.0267**

3.8 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	0.0169	0.1593	0.1173	1.6000e-004		0.0112	0.0112		0.0103	0.0103	0.0000	14.6397	14.6397	4.3500e-003	0.0000	14.7309
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0169**	**0.1593**	**0.1173**	**1.6000e-004**		**0.0112**	**0.0112**		**0.0103**	**0.0103**	**0.0000**	**14.6397**	**14.6397**	**4.3500e-003**	**0.0000**	**14.7309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons/yr								MT/yr			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.7000e-004	2.4200e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1140	0.1140	1.0000e-005	0.0000	0.1142
Total	**7.3000e-004**	**1.7000e-004**	**2.4200e-003**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1140**	**0.1140**	**1.0000e-005**	**0.0000**	**0.1142**

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	7.8000e-003	0.1493	0.1182	1.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003	0.0000	14.6397	14.6397	4.3500e-003	0.0000	14.7309
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8000e-003**	**0.1493**	**0.1182**	**1.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**	**0.0000**	**14.6397**	**14.6397**	**4.3500e-003**	**0.0000**	**14.7309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.7000e-004	2.4200e-003	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1140	0.1140	1.0000e-005	0.0000	0.1142
Total	**7.3000e-004**	**1.7000e-004**	**2.4200e-003**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1140**	**0.1140**	**1.0000e-005**	**0.0000**	**0.1142**