

Appendix F

Air Quality and Greenhouse Gas Supporting Information

- Record of Non-Applicability (RONA) for Clean Air Act Section 176, Air Quality General Conformity
- Air Quality and Greenhouse Gas Emissions Calculations

Record of Non-Applicability (RONA) for U.S. Clean Air Act Section 176 Air Quality General Conformity

Alameda Navy-to-VA Land Transfer, Clinic, and Cemetery (San Francisco Bay Area Air Basin)

Introduction and Regulatory Background

In order to ensure that federal activities do not hamper local efforts to control air pollution, Section 176(c) of the U.S. Clean Air Act (CAA), 42 U.S.C. 7506(c), prohibits federal agencies, departments, or instrumentalities from engaging in, supporting, providing financial assistance for, licensing, permitting or approving any action that does not conform to an approved State or federal implementation plan. On November 30, 1993, the U.S. Environmental Protection Agency (USEPA) published their final rule for Determining Conformity of General Federal Actions to State or federal Implementation Plans in the Federal Register (40 CFR Parts 6, 51, and 93). Per this final rule and as discussed in Chapter 3.7, Air Quality, of the Environmental Assessment (EA) prepared per the National Environmental Policy Act (NEPA) for the Proposed Action, the Proposed Action is subject to clearly demonstrating that it would not 1) cause or contribute to any new violation of any standard in any area; 2) increase the frequency or severity of any existing violation of any standard in any area; or 3) delay timely attainment of any standard, required interim emission reductions, or other milestones in any area.

A federal project is exempt from the General Conformity Rule if the action's net emissions are below the applicable *de minimis* thresholds or are otherwise exempt per 40 CFR 51.153. In the past, USEPA has also required that an action's annual emissions are evaluated against 10 percent of the region's nonattainment or maintenance pollutants to determine if the action's emissions are regionally significant. On March 24, 2010, USEPA removed this requirement from their General Conformity Rule (USEPA, 2010). Nevertheless, for conservative analysis purposes, the EA also evaluates the Proposed Action's emissions for regional significance. The *de minimis* thresholds and values for 10% of the region's (San Francisco Bay Area Air Basin [SFBAAB]) projected emissions are shown in Table 1 below.

Proposed Action Description

Activity: The Proposed Action consists of the transfer of 624 acres of former Naval Air Station Alameda land from the U.S. Department of the Navy to the U.S. Department of Veterans Affairs (VA) and the construction and operation of a Veterans Health Administration outpatient clinic, Veterans Benefits Administration outreach office, conservative management office, National Cemetery Administration cemetery, and associated infrastructure.

Proposed Action Name: Alameda Federal-to-Federal Transfer, Outpatient Clinic, and National Cemetery

Proposed Action Summary: The Proposed Action consists of site preparation, which would include soil import and grading; construction of a clinic, cemetery, and proposed offices; and the construction of an access road and utilities infrastructure to support the proposed uses. Construction would occur in two distinct phases: Phase 1 would include the construction of all land uses and infrastructure, and Phase 2 would include incremental expansions of the cemetery approximately every 10 years. Following buildout of Phase 1, operational emissions would be generated from patients, clients, and workers coming to and leaving from the proposed land uses. In addition, area and stationary sources such as natural gas combustion for space and water heating, landscape maintenance equipment, and periodic architectural coatings would contribute to long-term operational emissions. Proposed Action Alternative 1 and 2 are anticipated to be comparable in construction and operational emissions; therefore, emissions shown in Table 1 represent potential emission for both alternatives.

Proposed Action Air Emissions

Air Emissions Calculations: Emissions associated with construction were calculated using the URBEMIS2007 Model, Version 9.2.4 (Rimpo and Associates, 2007), which contains emission factors from the California Air Resources Board's OFFROAD2007 (CARB, 2010a) and EMFAC2007 (CARB, 2010b). Project-specific construction parameters (e.g., construction equipment type and numbers, construction schedule) were obtained from VA, when available. When project-specific information was not available, default assumptions contained in URBEMIS were used to estimate construction emissions, which typically result in more conservative emissions estimates.

Long-term operational emissions were also modeled using URBEMIS2007 Version 9.2.4 with inputs from the transportation impact study prepared for the Proposed Action. Although the Proposed Action is anticipated to be fully builtout by 2116 (i.e., completion of all subsequent expansions of the cemetery), for a conservative analysis of operational emissions, the Proposed Action was assumed to be built-out by 2035 to estimate full buildout annual operational emissions.

Table 1 presents the Proposed Action's construction emissions, operational emissions with subsequent cemetery expansion construction emissions, and full buildout operational emissions, compared with the applicable *de minimis* thresholds and 10% of the region's project annual emissions.

Table 1: Proposed Action Net Emissions Under Construction, Operational Plus Construction, and Full Buildout Operational Conditions (Alternative 1 and 2)

Source	Average Annual Emissions (tons/year) ^a				
	CO	NO _X	VOC/ROG	PM ₁₀	PM _{2.5}
Construction	7.3	20.2	2.7	16.0	3.6
Operational Plus Subsequent Cemetery Expansion	34.3	23.5	5.1	23.0	4.4
Full Buildout Operation ^b	42.0	3.8	3.8	22.2	4.2
10% of Bay Area Regional Emissions^c	54,750	14,600	10,914	5,402	2,592
<i>de minimis</i> Threshold	100	100	50	—	100

Notes:

CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{2.5} = fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less; PM₁₀ = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; ROG = reactive organic gases; VOC = volatile organic carbon

^a Details of annual construction, operational and construction, and full buildout emissions, including input parameters used in the modeling and detailed modeling output, may be found in Appendix F.

^b Full buildout is anticipated to occur in 2116; however, emissions presented have been modeled for 2035 for a conservative estimate. It is anticipated that emissions presented are the maximum emissions that could occur at any point in project operations.

^c Daily emissions projected by BAAQMD were multiplied by 365 days to estimate annual emissions, which were multiplied by 10% to calculate the 10% criteria for conformity evaluation. As discussed above, USEPA has removed this criterion from their General Conformity Rule. However, the analysis for regional significance has been included for a conservative analysis.

Source: Modeling performed by AECOM in 2011; BAAQMD, 2011

Conclusion

As shown in Table 1, construction, operational plus construction, and full buildout operational emissions associated with the Proposed Action would not exceed the applicable *de minimis* thresholds or 10% of the region's projected annual emissions. Therefore, the Proposed Action would not be regionally significant and does not require a full conformity determination.

References

Bay Area Air Quality Management District (BAAQMD), 2011 (May). Base Year 2008 Bay Area Emissions Inventory Summary Report. Available: <<http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/BY08SummaryReportFinal.ashx>>. Accessed January 4, 2013.

California Air Resources Board (CARB). 2010a (April). Off-Road Emissions Inventory. Available: <<http://www.arb.ca.gov/msei/offroad/offroad.htm>>. Accessed January 4, 2013.

_____. 2010b (April). EMFAC2007 Release. Available: <http://www.arb.ca.gov/msei/onroad/latest_version.htm>. Accessed January 4, 2013.

Rimpo and Associates. 2007. URBEMIS. Available: <<http://www.urbemis.com/software/download.html>>. Accessed January 4, 2013.

U.S .Environmental Protection Agency (USEPA). 2010 (March). Environmental Protection Agency 40 CFR Parts 51 and 93 [EPA-HW-OAR-2006-0669; FRL-9131-7] RIN 2060 AH-93 Revisions to General Conformity Regulations. Available:
<http://www.epa.gov/oar/genconform/documents/20100324rule.pdf>. Accessed January 4, 2013.

RONA APPROVAL

To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur with the finding that the Proposed Action is not subject to the General Conformity Rule.

George Lu / January 4, 2013
Name / Date

Air Quality and Greenhouse Gas Analyst
Title

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Old\Construction\Alameda VA Construction (Access Road-Utilities).urb924

Project Name: Alameda VA Construction - Access Roads-Utilities

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5</u> Exhaust	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.32	2.16	1.51	0.00	9.68	0.13	9.81	2.02	0.12	2.14	286.64
2015 TOTALS (tons/year mitigated)	0.32	2.16	1.51	0.00	4.36	0.13	4.48	0.91	0.12	1.03	286.64
Percent Reduction	0.00	0.00	0.00	0.00	54.99	0.00	54.29	54.99	0.00	52.03	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2015	0.32	2.16	1.51	0.00	9.68	0.13	9.81	2.02	0.12	2.14	286.64
Mass Grading 07/01/2015-10/31/2015	0.14	1.05	0.69	0.00	9.68	0.05	9.73	2.02	0.05	2.07	137.95
Mass Grading Dust	0.00	0.00	0.00	0.00	9.68	0.00	9.68	2.02	0.00	2.02	0.00
Mass Grading Off Road Diesel	0.14	1.04	0.65	0.00	0.00	0.05	0.05	0.00	0.05	0.05	132.33
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62
Trenching 08/03/2015-11/30/2015	0.06	0.50	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	78.13
Trenching Off Road Diesel	0.06	0.50	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	73.73
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40
Asphalt 09/01/2015-12/31/2015	0.12	0.61	0.45	0.00	0.00	0.05	0.05	0.00	0.05	0.05	70.56
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.09	0.58	0.39	0.00	0.00	0.05	0.05	0.00	0.04	0.04	55.99
Paving On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.95
Paving Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62

Phase Assumptions

Phase: Mass Grading 7/1/2015 - 10/31/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 11

Maximum Daily Acreage Disturbed: 11

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/3/2015 - 11/30/2015 - Default Paving Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 9/1/2015 - 12/31/2015 - Default Building Construction Description

Acres to be Paved: 15

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2015	0.32	2.16	1.51	0.00	4.36	0.13	4.48	0.91	0.12	1.03	286.64
Mass Grading 07/01/2015-10/31/2015	0.14	1.05	0.69	0.00	4.36	0.05	4.41	0.91	0.05	0.96	137.95
Mass Grading Dust	0.00	0.00	0.00	0.00	4.36	0.00	4.36	0.91	0.00	0.91	0.00
Mass Grading Off Road Diesel	0.14	1.04	0.65	0.00	0.00	0.05	0.05	0.00	0.05	0.05	132.33
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62
Trenching 08/03/2015-11/30/2015	0.06	0.50	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	78.13
Trenching Off Road Diesel	0.06	0.50	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	73.73
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40
Asphalt 09/01/2015-12/31/2015	0.12	0.61	0.45	0.00	0.00	0.05	0.05	0.00	0.05	0.05	70.56
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.09	0.58	0.39	0.00	0.00	0.05	0.05	0.00	0.04	0.04	55.99
Paving On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.95
Paving Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 10/31/2015 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Construction - New Traffic\Alameda VA - Cemetery Facilities.urb924

Project Name: Alameda VA Construction - Cemetery Phase 1

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5</u> Exhaust	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.31	1.74	1.28	0.00	13.20	0.10	13.30	2.76	0.09	2.85	239.34
2015 TOTALS (tons/year mitigated)	0.31	1.74	1.28	0.00	6.25	0.10	6.35	1.30	0.09	1.40	239.34
Percent Reduction	0.00	0.00	0.00	0.00	52.69	0.00	52.29	52.68	0.00	50.97	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2015	0.31	1.74	1.28	0.00	13.20	0.10	13.30	2.76	0.09	2.85	239.34
Mass Grading 07/01/2015-09/30/2015	0.14	1.00	0.73	0.00	13.20	0.05	13.25	2.76	0.05	2.81	136.71
Mass Grading Dust	0.00	0.00	0.00	0.00	13.20	0.00	13.20	2.76	0.00	2.76	0.00
Mass Grading Off Road Diesel	0.13	1.00	0.68	0.00	0.00	0.05	0.05	0.00	0.05	0.05	130.81
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90
Building 10/01/2015-12/31/2015	0.09	0.53	0.42	0.00	0.00	0.03	0.03	0.00	0.03	0.03	74.56
Building Off Road Diesel	0.09	0.53	0.42	0.00	0.00	0.03	0.03	0.00	0.03	0.03	74.56
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt 12/01/2015-12/31/2015	0.05	0.20	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	28.04
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.15	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.63
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.94
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
Coating 12/01/2015-12/31/2015	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Architectural Coating	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Phase Assumptions

Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 80

Maximum Daily Acreage Disturbed: 20

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 12/1/2015 - 12/31/2015 - Default Paving Description

Acres to be Paved: 20

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 10/1/2015 - 12/31/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 12/1/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Construction - New Traffic\Alameda VA - OPC Construction.urb924

Project Name: Alameda VA - OPC Construction

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5</u> Exhaust	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.23	1.71	1.15	0.00	33.27	0.09	33.36	6.95	0.08	7.03	225.57
2015 TOTALS (tons/year mitigated)	0.23	1.71	1.15	0.00	8.29	0.09	8.37	1.58	0.08	1.66	225.57
Percent Reduction	0.00	0.00	0.00	0.00	75.09	0.00	74.89	77.22	0.00	76.36	0.00
2016 TOTALS (tons/year unmitigated)	2.09	2.30	1.86	0.00	16.38	0.13	16.52	3.42	0.12	3.55	331.21
2016 TOTALS (tons/year mitigated)	2.09	2.30	1.86	0.00	4.08	0.13	4.22	0.78	0.12	0.90	331.21
Percent Reduction	0.00	0.00	0.00	0.00	75.08	0.00	74.47	77.21	0.00	74.51	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2016	2.09	2.30	1.86	0.00	16.38	0.13	16.52	3.42	0.12	3.55	331.21
Building 12/01/2015-11/30/2016	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Off Road Diesel	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 07/01/2015-03/31/2016	0.10	0.71	0.49	0.00	16.38	0.03	16.42	3.42	0.03	3.45	101.90
Mass Grading Dust	0.00	0.00	0.00	0.00	16.38	0.00	16.38	3.42	0.00	3.42	0.00
Mass Grading Off Road Diesel	0.09	0.71	0.47	0.00	0.00	0.03	0.03	0.00	0.03	0.03	97.74
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15
Asphalt 11/01/2016-12/31/2016	0.04	0.25	0.22	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.56
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.04	0.25	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.98
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
Paving Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50
Coating 11/01/2016-12/31/2016	1.69	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
Architectural Coating	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02

Phase Assumptions

Phase: Mass Grading 7/1/2015 - 3/31/2016 - Default Fine Site Grading Description

Total Acres Disturbed: 20

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: High

Onsite Haulage: 0 ton-miles/day; Offsite haulage: 796.32 ton-mils/day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2016 - 12/31/2016 - Default Paving Description

Acres to be Paved: 1.81

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 12/1/2015 - 11/30/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2016 - 12/31/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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2016	2.09	2.30	1.86	0.00	4.08	0.13	4.22	0.78	0.12	0.90	331.21
Building 12/01/2015-11/30/2016	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Off Road Diesel	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 07/01/2015-03/31/2016	0.10	0.71	0.49	0.00	4.08	0.03	4.12	0.78	0.03	0.81	101.90
Mass Grading Dust	0.00	0.00	0.00	0.00	4.08	0.00	4.08	0.78	0.00	0.78	0.00
Mass Grading Off Road Diesel	0.09	0.71	0.47	0.00	0.00	0.03	0.03	0.00	0.03	0.03	97.74
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15
Asphalt 11/01/2016-12/31/2016	0.04	0.25	0.22	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.56
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.04	0.25	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.98
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
Paving Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50
Coating 11/01/2016-12/31/2016	1.69	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
Architectural Coating	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 3/31/2016 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 63% PM25: 69%

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For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Construction\Alameda VA Construction (Cons Man Off).urb924

Project Name: Alameda VA Construction - Conservation Management Office

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.11	0.85	0.56	0.00	0.17	0.04	0.21	0.03	0.04	0.07	116.84
2015 TOTALS (tons/year mitigated)	0.11	0.85	0.56	0.00	0.08	0.04	0.12	0.02	0.04	0.06	116.84
Percent Reduction	0.00	0.00	0.00	0.00	52.64	0.00	41.94	52.60	0.00	24.79	0.00
2016 TOTALS (tons/year unmitigated)	0.08	0.39	0.32	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.31
2016 TOTALS (tons/year mitigated)	0.08	0.39	0.32	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.31
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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Phase Assumptions

Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/1/2016 - 6/30/2016 - Default Paving Description

Acres to be Paved: 0.5

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2015 - 5/31/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 6/1/2016 - 6/30/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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2016	0.08	0.39	0.32	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.31
Building 09/01/2015-05/31/2016	0.04	0.30	0.23	0.00	0.00	0.02	0.02	0.00	0.01	0.01	48.24
Building Off Road Diesel	0.04	0.30	0.23	0.00	0.00	0.02	0.02	0.00	0.01	0.01	48.24
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt 06/01/2016-06/30/2016	0.02	0.09	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.04
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.09	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.77
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
Coating 06/01/2016-06/30/2016	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Architectural Coating	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

SMAQMD Ton-Mile Calculation Worksheet for Cut/Fill Activities

High Level of Detail Fugitive Dust Quantification Method

(Prepared by EDAW Inc. March 2009)

Instructions: When using the High Level of Detail Fugitive Dust Quantification Method in the Mass Site Grading phase of the URBEMIS Construction Module, the District recommends using this spreadsheet to calculate the Onsite and/or Offsite Haulage data fields. If a project would involve both onsite and offsite cut/fill operations, analysts should create two separate Ton-Mile Calculation Worksheets (i.e., one worksheet calculation for onsite and one for offsite).

Project Name:	Alameda VA OPC	User inputs
Grading Activity/Phase:	Soil Import	Input to use in URBEMIS Calculation (do not change)

Cut/Fill Operations

Description	Amount	Units	Notes
Total Cut/Fill Volume	444,000	cubic yards	Enter information
Months of Activity	9	months	Enter information
Days of Activity	198	days	
Daily Cut/Fill Volume	2242.42	cubic yards/day	

URBEMIS 2007 Ton-Mile Calculation

Description	Amount	Units	Notes
Soil Type	Sandy		Use drop-down menu to select soil type. Assume Sandy unless project-specific soil type is known.
Soil Density	1.50	tons/cubic yard	Enter project specific soil density if known
Haul Distance (Round Trip On-Site)	0.236742424	miles	Enter distance
Ton-Mile per Day	796.32	ton-miles/day	

Notes:

On-site ton-mile assumes cut/fill volume is moved by scrapers.
Off-site ton-mile assumes cut/fill volume is moved by haul trucks.

Soil Density by Soil Type and Condition

Soil Type	Bulk Density (grams/cubic centimeter)	Density (pounds/cubic yard)	Density (tons/cubic yard)
Sandy	1.69	2,849	1.42
Loamy Coarse-Loamy	1.63	2,747	1.37
Loamy Fine-Loamy	1.60	2,697	1.35
Loamy Coarse-Silty	1.60	2,697	1.35
Loamy Fine-Silty	1.54	2,596	1.30
Clayey 25-25% clay	1.49	2,511	1.26
Clayey >45% clay	1.39	2,343	1.17

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, 2007. National Soil Survey Handbook, title 430-VI. [Online] Available at <<http://soils.usda.gov/technical/handbook/>>.

Alameda Outpatient Clinic and Cemetery
Construction Vehicle Emission Factors (EMFAC2011) and Vehicle Emissions

Vehicle Type	Running Exhaust Emission Factors (grams/mile)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO ₂
LDA (light-duty auto)	0.0422	0.3748	0.7836	0.0034	0.0169	0.0156	297
LDT1 (light-duty truck 1)	0.0875	0.5398	1.7647	0.0037	0.0341	0.0313	327
LDT2 (light-duty truck 2)	0.0488	0.4595	0.9979	0.0040	0.0216	0.0198	364
Average SOV (single-occupancy vehicle)	0.0595	0.4580	1.1821	0.0037	0.0242	0.0222	329
T7 (heavy-duty trucks)	0.371	9.99	1.663	0.017	0.185	0.17	1,704

Vehicle Type	Start and Soaks (grams/vehicle/day)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO ₂
LDA (light-duty auto)	1.508	0.587	9.350	0.002	0.010	0.009	203
LDT1 (light-duty truck 1)	3.152	1.080	20.678	0.003	0.017	0.015	230
LDT2 (light-duty truck 2)	1.817	1.165	13.234	0.003	0.009	0.008	287
Average SOV (single-occupancy vehicle)	2.159	0.944	14.421	0.003	0.012	0.011	240
T7 (heavy-duty trucks)							

Construction Phase:	Total Emissions (tons)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
Outpatient Clinic Building							
Total Trucks Trips	3,408	0.028	0.751	0.125	0.001	0.014	0.013
Total SOV Trips	10,176	0.039	0.122	0.448	0.001	0.006	0.006
Cemetery Facilities							
Total Trucks Trips	1,200	0.010	0.264	0.044	0.000	0.005	0.004
Total SOV Trips	3,168	0.012	0.038	0.140	0.000	0.002	0.002
Conservation Management							
Total Trucks Trips	2,208	0.018	0.486	0.081	0.001	0.009	0.008
Total SOV Trips	6,528	0.073	1.560	0.362	0.003	0.029	0.027
Access Road/Utilities							
Total Trucks Trips	81,216	0.664	17.887	2.978	0.030	0.331	0.304
Total SOV Trips	1,440	0.005	0.017	0.063	0.000	0.001	0.001
Phase 2 Construction							
Total Trucks Trips	15,216	0.124	3.351	0.558	0.006	0.062	0.057
Total SOV Trips	10,176	0.014	0.111	0.286	0.001	0.006	0.005

Trip Assumptions		
Truck Distance (one-way)	10	miles
SOV Distance (one-way)	10.8	miles
Work Days/Month	24	days/month

URBEMIS2007 Alameda County (Urban Home-based Work trip distance)

Alameda Outpatient Clinic and Cemetery
 Construction Emissions (URBEMIS2007 Version 9.2.4)

Construction Phase	Construction Emissions (tons)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
Outpatient Clinic Building	2.40	4.88	3.56	0.00	12.62	2.58	696
Grading	0.31	2.28	1.53	0.00	12.49	2.46	280
Building Construction	0.29	1.48	1.23	0.00	0.09	0.08	193
Asphalt Paving	0.04	0.25	0.22	0.00	0.02	0.02	30
Arch Coating	1.69	0.00	0.01	0.00	0.00	0.00	2
Truck Emissions	0.028	0.751	0.125	0.001	0.014	0.013	116
SOV Emissions	0.039	0.122	0.448	0.001	0.006	0.006	75
Cemetery Facilities	0.31	2.03	1.46	0.00	6.36	1.40	281
Grading	0.14	1.00	0.73	0.00	6.30	1.35	124
Building Construction	0.09	0.53	0.42	0.00	0.03	0.03	68
Asphalt Paving	0.03	0.20	0.13	0.00	0.02	0.01	25
Arch Coating	0.03	0.00	0.00	0.00	0.00	0.00	0
Truck Emissions	0.010	0.264	0.044	0.000	0.005	0.004	41
SOV Emissions	0.012	0.038	0.140	0.000	0.002	0.002	23
Conservation Management	0.30	3.29	1.32	0.00	0.20	0.10	479
Grading	0.08	0.58	0.37	0.00	0.11	0.04	70
Building Construction	0.08	0.57	0.42	0.00	0.04	0.02	79
Asphalt Paving	0.02	0.09	0.09	0.00	0.01	0.01	12
Arch Coating	0.03	0.00	0.00	0.00	0.00	0.00	0
Truck Emissions	0.018	0.486	0.081	0.001	0.009	0.008	75
SOV Emissions	0.073	1.560	0.362	0.003	0.029	0.027	242
Access Road/Utilities	0.99	20.06	4.55	0.03	4.81	1.34	3,038
Grading	0.14	1.05	0.69	0.00	4.41	0.96	125
Trenching	0.06	0.50	0.37	0.00	0.02	0.02	71
Asphalt Paving	0.12	0.61	0.45	0.00	0.05	0.05	64
Truck Emissions	0.664	17.887	2.978	0.030	0.331	0.304	2,768
SOV Emissions	0.005	0.017	0.063	0.000	0.001	0.001	11
Total Construction Emissions	4.00	30.26	10.90	0.04	23.99	5.41	4,494
Total Duration (years)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Average Annual Construction (tons/year)	2.67	20.18	7.27	0.02	15.99	3.61	2,996

Construction Emissions by Construction Activity	Total Emission	Average Annual
Grading	600	400
Trenching	71	47
Building Construction	340	226
Asphalt Paving	132	88
Arch Coatings	2	1
Truck	3,000	2,000
SOV	351	234
Total Check	4,494	2,996

Alameda Outpatient Clinic
Operational Emissions (URBEMIS and CalEEMod)

Phase 1 Buildout (2017)	Operational Emissions (tons)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
Area Sources	0.24	0.22	0.6	0	0	0	230
Mobile Sources	2.19	3.04	26.37	0.04	7.04	1.34	3,476
Electricity							
Natural Gas							
Waste/Wastewater							
Solid Waste							
Total Annual Emissions	2.43	3.26	26.97	0.04	7.04	1.34	3,707
Phase 1 + 2 Components (2027)	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
	0.24	0.22	0.6	0	0	0	230
Mobile Sources	1.81	2.06	20.69	0.05	8.64	1.64	4,259
Electricity							
Natural Gas							
Waste/Wastewater							
Solid Waste							
Total Annual Emissions	2.05	2.28	21.29	0.05	8.64	1.6	4,489
Average Daily (lbs/day)	11.23	12.49	116.66	0.27	47.34	8.99	
Phase 1-11 Total (2035)	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
	0.24	0.22	0.6	0	0	0	230
Mobile Sources	3.59	3.56	41.41	0.12	22.23	4.21	10,976
Electricity							1,148
Natural Gas							948
Waste/Wastewater							19
Solid Waste							1,206
Total Annual Emissions	3.83	3.78	42.01	0.12	22.23	4.2	14,526

Land Use Breakdown (GHG Emissions)

Phase 1 Buildout (2017)	Office	OPC	Cemetery	Total	2026 P2
Area Sources	17	210	4	231	-
Mobile Sources	188	2429	860	3476	782
Electricity	70	1063	15	1148	-
Natural Gas	15	929	3	948	-
Waste/Wastewater	2	17	0	19	-
Solid Waste	87	1100	19	1206	-
Total Annual Emissions	379	5748	901	7028	782

With SSPP (GHG Emissions)

Phase 1 Buildout (2017)	Office	OPC	Cemetery	Total
Area Sources	17	210	4	231
Mobile Sources	188	2429	860	3476
Electricity	49	748	11	808
Natural Gas	11	654	2	667
Waste/Wastewater	2	17	0	19
Solid Waste	87	1100	19	1206
Total Annual Emissions	353	5158	896	6407
				2931

SSPP % Reduction - Electricity	29.6%
SSPP % Reduction -NG	29.6%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Operations (Cemetery).urb924

Project Name: Alameda VA Cemetery Operations

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.01	0.00	0.14	0.00	0.00	0.00	4.19

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.50	0.75	6.60	0.01	1.73	0.33	947.44

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.51	0.75	6.74	0.01	1.73	0.33	951.63

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	3.94
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.00						
TOTALS (tons/year, unmitigated)	0.01	0.00	0.14	0.00	0.00	0.00	4.19

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Office park	0.50	0.75	6.60	0.01	1.73	0.33	947.44
TOTALS (tons/year, unmitigated)	0.50	0.75	6.60	0.01	1.73	0.33	947.44

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		243.70	1000 sq ft	2.70	657.99	5,515.27
					657.99	5,515.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Operations (Office).urb924

Project Name: Alameda VA Office Operations

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.02	0.02	0.15	0.00	0.00	0.00	18.50

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.12	0.16	1.43	0.00	0.38	0.07	206.95

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.14	0.18	1.58	0.00	0.38	0.07	225.45

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.00	0.02	0.01	0.00	0.00	0.00	18.25
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.01						
TOTALS (tons/year, unmitigated)	0.02	0.02	0.15	0.00	0.00	0.00	18.50

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.12	0.16	1.43	0.00	0.38	0.07	206.95
TOTALS (tons/year, unmitigated)	0.12	0.16	1.43	0.00	0.38	0.07	206.95

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
					149.00	1,207.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Operations (OPC).urb924

Project Name: Alameda VA OPC Operations

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.19	0.19	0.30	0.00	0.00	0.00	230.93

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.76	2.32	18.64	0.03	4.93	0.94	2,908.60

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.01	0.19	0.16	0.00	0.00	0.00	230.68
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.17						
TOTALS (tons/year, unmitigated)	0.19	0.19	0.30	0.00	0.00	0.00	230.93

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Medical office building	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67
TOTALS (tons/year, unmitigated)	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					2,093.50	15,702.30

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Total 2017.urb924

Project Name: Alameda VA OPC Operational Emissions

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.19	3.04	26.37	0.04	7.04	1.34	3,832.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.43	3.26	26.97	0.04	7.04	1.34	4,085.69

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.18	0.00	0.00	0.00	252.87
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
Consumer Products	0.00						
Architectural Coatings	0.19						
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	0.12	0.16	1.43	0.00	0.38	0.07	206.95
Office park	0.50	0.75	6.60	0.01	1.73	0.33	947.44
Medical office building	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67
TOTALS (tons/year, unmitigated)	2.19	3.04	26.37	0.04	7.04	1.34	3,832.06

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
Office park		243.70	1000 sq ft	2.70	657.99	5,515.27
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					2,900.49	22,424.84

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Total 2027 (for P2 Const).urb924

Project Name: Alameda VA OPC Operational Emissions

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.81	2.06	20.69	0.05	8.64	1.64	4,694.43

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.05	2.28	21.29	0.05	8.64	1.64	4,948.06

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.18	0.00	0.00	0.00	252.87
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
Consumer Products	0.00						
Architectural Coatings	0.19						
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.08	0.09	0.91	0.00	0.38	0.07	205.62
Office park	0.66	0.80	8.13	0.02	3.35	0.64	1,828.34
Medical office building	1.07	1.17	11.65	0.03	4.91	0.93	2,660.47
TOTALS (tons/year, unmitigated)	1.81	2.06	20.69	0.05	8.64	1.64	4,694.43

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
Office park		473.30	1000 sq ft	2.70	1,277.91	10,711.44
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					3,520.41	27,621.01

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Total 2035.urb924

Project Name: Alameda VA OPC Operational Emissions

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	3.59	3.56	41.41	0.12	22.23	4.21	12,098.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	3.83	3.78	42.01	0.12	22.23	4.21	12,351.97

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.18	0.00	0.00	0.00	252.87
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
Consumer Products	0.00						
Architectural Coatings	0.19						
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.06	0.06	0.70	0.00	0.38	0.07	205.50
Office park	2.69	2.71	31.70	0.09	16.94	3.21	9,233.98
Medical office building	0.84	0.79	9.01	0.03	4.91	0.93	2,658.86
TOTALS (tons/year, unmitigated)	3.59	3.56	41.41	0.12	22.23	4.21	12,098.34

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
Office park		2,391.85	1000 sq ft	2.70	6,458.00	54,130.92
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					8,700.50	71,040.49

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.7	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Old\Construction\Alameda VA Construction (Access Road-Utilities).urb924

Project Name: Alameda VA Construction - Access Roads-Utilities

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5</u> Exhaust	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.32	2.16	1.51	0.00	9.68	0.13	9.81	2.02	0.12	2.14	286.64
2015 TOTALS (tons/year mitigated)	0.32	2.16	1.51	0.00	4.36	0.13	4.48	0.91	0.12	1.03	286.64
Percent Reduction	0.00	0.00	0.00	0.00	54.99	0.00	54.29	54.99	0.00	52.03	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2015	0.32	2.16	1.51	0.00	9.68	0.13	9.81	2.02	0.12	2.14	286.64
Mass Grading 07/01/2015-10/31/2015	0.14	1.05	0.69	0.00	9.68	0.05	9.73	2.02	0.05	2.07	137.95
Mass Grading Dust	0.00	0.00	0.00	0.00	9.68	0.00	9.68	2.02	0.00	2.02	0.00
Mass Grading Off Road Diesel	0.14	1.04	0.65	0.00	0.00	0.05	0.05	0.00	0.05	0.05	132.33
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62
Trenching 08/03/2015-11/30/2015	0.06	0.50	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	78.13
Trenching Off Road Diesel	0.06	0.50	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	73.73
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40
Asphalt 09/01/2015-12/31/2015	0.12	0.61	0.45	0.00	0.00	0.05	0.05	0.00	0.05	0.05	70.56
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.09	0.58	0.39	0.00	0.00	0.05	0.05	0.00	0.04	0.04	55.99
Paving On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.95
Paving Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62

Phase Assumptions

Phase: Mass Grading 7/1/2015 - 10/31/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 11

Maximum Daily Acreage Disturbed: 11

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/3/2015 - 11/30/2015 - Default Paving Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 9/1/2015 - 12/31/2015 - Default Building Construction Description

Acres to be Paved: 15

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2015	0.32	2.16	1.51	0.00	4.36	0.13	4.48	0.91	0.12	1.03	286.64
Mass Grading 07/01/2015-10/31/2015	0.14	1.05	0.69	0.00	4.36	0.05	4.41	0.91	0.05	0.96	137.95
Mass Grading Dust	0.00	0.00	0.00	0.00	4.36	0.00	4.36	0.91	0.00	0.91	0.00
Mass Grading Off Road Diesel	0.14	1.04	0.65	0.00	0.00	0.05	0.05	0.00	0.05	0.05	132.33
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62
Trenching 08/03/2015-11/30/2015	0.06	0.50	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	78.13
Trenching Off Road Diesel	0.06	0.50	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	73.73
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40
Asphalt 09/01/2015-12/31/2015	0.12	0.61	0.45	0.00	0.00	0.05	0.05	0.00	0.05	0.05	70.56
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.09	0.58	0.39	0.00	0.00	0.05	0.05	0.00	0.04	0.04	55.99
Paving On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.95
Paving Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 10/31/2015 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Construction - New Traffic\Alameda VA - Cemetery Facilities.urb924

Project Name: Alameda VA Construction - Cemetery Phase 1

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5</u> Exhaust	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.31	1.74	1.28	0.00	13.20	0.10	13.30	2.76	0.09	2.85	239.34
2015 TOTALS (tons/year mitigated)	0.31	1.74	1.28	0.00	6.25	0.10	6.35	1.30	0.09	1.40	239.34
Percent Reduction	0.00	0.00	0.00	0.00	52.69	0.00	52.29	52.68	0.00	50.97	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2015	0.31	1.74	1.28	0.00	13.20	0.10	13.30	2.76	0.09	2.85	239.34
Mass Grading 07/01/2015-09/30/2015	0.14	1.00	0.73	0.00	13.20	0.05	13.25	2.76	0.05	2.81	136.71
Mass Grading Dust	0.00	0.00	0.00	0.00	13.20	0.00	13.20	2.76	0.00	2.76	0.00
Mass Grading Off Road Diesel	0.13	1.00	0.68	0.00	0.00	0.05	0.05	0.00	0.05	0.05	130.81
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90
Building 10/01/2015-12/31/2015	0.09	0.53	0.42	0.00	0.00	0.03	0.03	0.00	0.03	0.03	74.56
Building Off Road Diesel	0.09	0.53	0.42	0.00	0.00	0.03	0.03	0.00	0.03	0.03	74.56
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt 12/01/2015-12/31/2015	0.05	0.20	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	28.04
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.15	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.63
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.94
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
Coating 12/01/2015-12/31/2015	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Architectural Coating	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Phase Assumptions

Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 80

Maximum Daily Acreage Disturbed: 20

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 12/1/2015 - 12/31/2015 - Default Paving Description

Acres to be Paved: 20

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 10/1/2015 - 12/31/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 12/1/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Construction - New Traffic\Alameda VA - OPC Construction.urb924

Project Name: Alameda VA - OPC Construction

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5</u> Exhaust	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.23	1.71	1.15	0.00	33.27	0.09	33.36	6.95	0.08	7.03	225.57
2015 TOTALS (tons/year mitigated)	0.23	1.71	1.15	0.00	8.29	0.09	8.37	1.58	0.08	1.66	225.57
Percent Reduction	0.00	0.00	0.00	0.00	75.09	0.00	74.89	77.22	0.00	76.36	0.00
2016 TOTALS (tons/year unmitigated)	2.09	2.30	1.86	0.00	16.38	0.13	16.52	3.42	0.12	3.55	331.21
2016 TOTALS (tons/year mitigated)	2.09	2.30	1.86	0.00	4.08	0.13	4.22	0.78	0.12	0.90	331.21
Percent Reduction	0.00	0.00	0.00	0.00	75.08	0.00	74.47	77.21	0.00	74.51	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2016	2.09	2.30	1.86	0.00	16.38	0.13	16.52	3.42	0.12	3.55	331.21
Building 12/01/2015-11/30/2016	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Off Road Diesel	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 07/01/2015-03/31/2016	0.10	0.71	0.49	0.00	16.38	0.03	16.42	3.42	0.03	3.45	101.90
Mass Grading Dust	0.00	0.00	0.00	0.00	16.38	0.00	16.38	3.42	0.00	3.42	0.00
Mass Grading Off Road Diesel	0.09	0.71	0.47	0.00	0.00	0.03	0.03	0.00	0.03	0.03	97.74
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15
Asphalt 11/01/2016-12/31/2016	0.04	0.25	0.22	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.56
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.04	0.25	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.98
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
Paving Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50
Coating 11/01/2016-12/31/2016	1.69	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
Architectural Coating	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02

Phase Assumptions

Phase: Mass Grading 7/1/2015 - 3/31/2016 - Default Fine Site Grading Description

Total Acres Disturbed: 20

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: High

Onsite Haulage: 0 ton-miles/day; Offsite haulage: 796.32 ton-mils/day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2016 - 12/31/2016 - Default Paving Description

Acres to be Paved: 1.81

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 12/1/2015 - 11/30/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2016 - 12/31/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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2016	2.09	2.30	1.86	0.00	4.08	0.13	4.22	0.78	0.12	0.90	331.21
Building 12/01/2015-11/30/2016	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Off Road Diesel	0.26	1.34	1.12	0.00	0.00	0.08	0.08	0.00	0.07	0.07	193.73
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 07/01/2015-03/31/2016	0.10	0.71	0.49	0.00	4.08	0.03	4.12	0.78	0.03	0.81	101.90
Mass Grading Dust	0.00	0.00	0.00	0.00	4.08	0.00	4.08	0.78	0.00	0.78	0.00
Mass Grading Off Road Diesel	0.09	0.71	0.47	0.00	0.00	0.03	0.03	0.00	0.03	0.03	97.74
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15
Asphalt 11/01/2016-12/31/2016	0.04	0.25	0.22	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.56
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.04	0.25	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	27.98
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
Paving Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50
Coating 11/01/2016-12/31/2016	1.69	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
Architectural Coating	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 3/31/2016 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 63% PM25: 69%

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For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Construction\Alameda VA Construction (Cons Man Off).urb924

Project Name: Alameda VA Construction - Conservation Management Office

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.11	0.85	0.56	0.00	0.17	0.04	0.21	0.03	0.04	0.07	116.84
2015 TOTALS (tons/year mitigated)	0.11	0.85	0.56	0.00	0.08	0.04	0.12	0.02	0.04	0.06	116.84
Percent Reduction	0.00	0.00	0.00	0.00	52.64	0.00	41.94	52.60	0.00	24.79	0.00
2016 TOTALS (tons/year unmitigated)	0.08	0.39	0.32	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.31
2016 TOTALS (tons/year mitigated)	0.08	0.39	0.32	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.31
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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Phase Assumptions

Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/1/2016 - 6/30/2016 - Default Paving Description

Acres to be Paved: 0.5

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2015 - 5/31/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 6/1/2016 - 6/30/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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2016	0.08	0.39	0.32	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.31
Building 09/01/2015-05/31/2016	0.04	0.30	0.23	0.00	0.00	0.02	0.02	0.00	0.01	0.01	48.24
Building Off Road Diesel	0.04	0.30	0.23	0.00	0.00	0.02	0.02	0.00	0.01	0.01	48.24
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt 06/01/2016-06/30/2016	0.02	0.09	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.04
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.09	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.77
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
Coating 06/01/2016-06/30/2016	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Architectural Coating	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 7/1/2015 - 9/30/2015 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

SMAQMD Ton-Mile Calculation Worksheet for Cut/Fill Activities

High Level of Detail Fugitive Dust Quantification Method

(Prepared by EDAW Inc. March 2009)

Instructions: When using the High Level of Detail Fugitive Dust Quantification Method in the Mass Site Grading phase of the URBEMIS Construction Module, the District recommends using this spreadsheet to calculate the Onsite and/or Offsite Haulage data fields. If a project would involve both onsite and offsite cut/fill operations, analysts should create two separate Ton-Mile Calculation Worksheets (i.e., one worksheet calculation for onsite and one for offsite).

Project Name:	Alameda VA OPC	User inputs
Grading Activity/Phase:	Soil Import	Input to use in URBEMIS Calculation (do not change)

Cut/Fill Operations

Description	Amount	Units	Notes
Total Cut/Fill Volume	444,000	cubic yards	Enter information
Months of Activity	9	months	Enter information
Days of Activity	198	days	
Daily Cut/Fill Volume	2242.42	cubic yards/day	

URBEMIS 2007 Ton-Mile Calculation

Description	Amount	Units	Notes
Soil Type	Sandy		Use drop-down menu to select soil type. Assume Sandy unless project-specific soil type is known.
Soil Density	1.50	tons/cubic yard	Enter project specific soil density if known
Haul Distance (Round Trip On-Site)	0.236742424	miles	Enter distance
Ton-Mile per Day	796.32	ton-miles/day	

Notes:

On-site ton-mile assumes cut/fill volume is moved by scrapers.
Off-site ton-mile assumes cut/fill volume is moved by haul trucks.

Soil Density by Soil Type and Condition

Soil Type	Bulk Density (grams/cubic centimeter)	Density (pounds/cubic yard)	Density (tons/cubic yard)
Sandy	1.69	2,849	1.42
Loamy Coarse-Loamy	1.63	2,747	1.37
Loamy Fine-Loamy	1.60	2,697	1.35
Loamy Coarse-Silty	1.60	2,697	1.35
Loamy Fine-Silty	1.54	2,596	1.30
Clayey 25-25% clay	1.49	2,511	1.26
Clayey >45% clay	1.39	2,343	1.17

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, 2007. National Soil Survey Handbook, title 430-VI. [Online] Available at <<http://soils.usda.gov/technical/handbook/>>.

Alameda Outpatient Clinic and Cemetery
Construction Vehicle Emission Factors (EMFAC2011) and Vehicle Emissions

Vehicle Type	Running Exhaust Emission Factors (grams/mile)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO ₂
LDA (light-duty auto)	0.0422	0.3748	0.7836	0.0034	0.0169	0.0156	297
LDT1 (light-duty truck 1)	0.0875	0.5398	1.7647	0.0037	0.0341	0.0313	327
LDT2 (light-duty truck 2)	0.0488	0.4595	0.9979	0.0040	0.0216	0.0198	364
Average SOV (single-occupancy vehicle)	0.0595	0.4580	1.1821	0.0037	0.0242	0.0222	329
T7 (heavy-duty trucks)	0.371	9.99	1.663	0.017	0.185	0.17	1,704

Vehicle Type	Start and Soaks (grams/vehicle/day)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO ₂
LDA (light-duty auto)	1.508	0.587	9.350	0.002	0.010	0.009	203
LDT1 (light-duty truck 1)	3.152	1.080	20.678	0.003	0.017	0.015	230
LDT2 (light-duty truck 2)	1.817	1.165	13.234	0.003	0.009	0.008	287
Average SOV (single-occupancy vehicle)	2.159	0.944	14.421	0.003	0.012	0.011	240
T7 (heavy-duty trucks)							

Construction Phase:	Total Emissions (tons)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
Outpatient Clinic Building							
Total Trucks Trips	3,408	0.028	0.751	0.125	0.001	0.014	0.013
Total SOV Trips	10,176	0.039	0.122	0.448	0.001	0.006	0.006
Cemetery Facilities							
Total Trucks Trips	1,200	0.010	0.264	0.044	0.000	0.005	0.004
Total SOV Trips	3,168	0.012	0.038	0.140	0.000	0.002	0.002
Conservation Management							
Total Trucks Trips	2,208	0.018	0.486	0.081	0.001	0.009	0.008
Total SOV Trips	6,528	0.073	1.560	0.362	0.003	0.029	0.027
Access Road/Utilities							
Total Trucks Trips	81,216	0.664	17.887	2.978	0.030	0.331	0.304
Total SOV Trips	1,440	0.005	0.017	0.063	0.000	0.001	0.001
Phase 2 Construction							
Total Trucks Trips	15,216	0.124	3.351	0.558	0.006	0.062	0.057
Total SOV Trips	10,176	0.014	0.111	0.286	0.001	0.006	0.005

Trip Assumptions		
Truck Distance (one-way)	10	miles
SOV Distance (one-way)	10.8	miles
Work Days/Month	24	days/month

URBEMIS2007 Alameda County (Urban Home-based Work trip distance)

Alameda Outpatient Clinic and Cemetery
Construction Emissions (URBEMIS2007 Version 9.2.4)

Construction Phase	Construction Emissions (tons)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
Outpatient Clinic Building	2.40	4.88	3.56	0.00	12.62	2.58	696
Grading	0.31	2.28	1.53	0.00	12.49	2.46	280
Building Construction	0.29	1.48	1.23	0.00	0.09	0.08	193
Asphalt Paving	0.04	0.25	0.22	0.00	0.02	0.02	30
Arch Coating	1.69	0.00	0.01	0.00	0.00	0.00	2
Truck Emissions	0.028	0.751	0.125	0.001	0.014	0.013	116
SOV Emissions	0.039	0.122	0.448	0.001	0.006	0.006	75
Cemetery Facilities	0.31	2.03	1.46	0.00	6.36	1.40	281
Grading	0.14	1.00	0.73	0.00	6.30	1.35	124
Building Construction	0.09	0.53	0.42	0.00	0.03	0.03	68
Asphalt Paving	0.03	0.20	0.13	0.00	0.02	0.01	25
Arch Coating	0.03	0.00	0.00	0.00	0.00	0.00	0
Truck Emissions	0.010	0.264	0.044	0.000	0.005	0.004	41
SOV Emissions	0.012	0.038	0.140	0.000	0.002	0.002	23
Conservation Management	0.30	3.29	1.32	0.00	0.20	0.10	479
Grading	0.08	0.58	0.37	0.00	0.11	0.04	70
Building Construction	0.08	0.57	0.42	0.00	0.04	0.02	79
Asphalt Paving	0.02	0.09	0.09	0.00	0.01	0.01	12
Arch Coating	0.03	0.00	0.00	0.00	0.00	0.00	0
Truck Emissions	0.018	0.486	0.081	0.001	0.009	0.008	75
SOV Emissions	0.073	1.560	0.362	0.003	0.029	0.027	242
Access Road/Utilities	0.99	20.06	4.55	0.03	4.81	1.34	3,038
Grading	0.14	1.05	0.69	0.00	4.41	0.96	125
Trenching	0.06	0.50	0.37	0.00	0.02	0.02	71
Asphalt Paving	0.12	0.61	0.45	0.00	0.05	0.05	64
Truck Emissions	0.664	17.887	2.978	0.030	0.331	0.304	2,768
SOV Emissions	0.005	0.017	0.063	0.000	0.001	0.001	11
Total Construction Emissions	4.00	30.26	10.90	0.04	23.99	5.41	4,494
Total Duration (years)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Average Annual Construction (tons/year)	2.67	20.18	7.27	0.02	15.99	3.61	2,996

Construction Emissions by Construction Activity	Total Emission	Average Annual
Grading	600	400
Trenching	71	47
Building Construction	340	226
Asphalt Paving	132	88
Arch Coatings	2	1
Truck	3,000	2,000
SOV	351	234
Total Check	4,494	2,996

Alameda Outpatient Clinic
Operational Emissions (URBEMIS and CalEEMod)

	Operational Emissions (tons)						
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	MT CO ₂
Phase 1 Buildout (2017)							
Area Sources	0.24	0.22	0.6	0	0	0	230
Mobile Sources	2.19	3.04	26.37	0.04	7.04	1.34	3,476
Electricity							
Natural Gas							
Waste/Wastewater							
Solid Waste							
Total Annual Emissions	2.43	3.26	26.97	0.04	7.04	1.34	3,707
Phase 1 + 2 Components (2027)	ROG	NO_x	CO	SO_x	PM₁₀	PM_{2.5}	MT CO₂
Area Sources	0.24	0.22	0.6	0	0	0	230
Mobile Sources	1.81	2.06	20.69	0.05	8.64	1.64	4,259
Electricity							
Natural Gas							
Waste/Wastewater							
Solid Waste							
Total Annual Emissions	2.05	2.28	21.29	0.05	8.64	1.6	4,489
Average Daily (lbs/day)	11.23	12.49	116.66	0.27	47.34	8.99	
Phase 1-11 Total (2035)	ROG	NO_x	CO	SO_x	PM₁₀	PM_{2.5}	MT CO₂
Area Sources	0.24	0.22	0.6	0	0	0	230
Mobile Sources	3.59	3.56	41.41	0.12	22.23	4.21	10,976
Electricity							1,148
Natural Gas							948
Waste/Wastewater							19
Solid Waste							1,206
Total Annual Emissions	3.83	3.78	42.01	0.12	22.23	4.2	14,526

Land Use Breakdown (GHG Emissions)

Phase 1 Buildout (2017)	Office	OPC	Cemetery	Total	2026 P2
	Area Sources	210	4	231	-
Mobile Sources	188	2429	860	3476	782
Electricity	70	1063	15	1148	-
Natural Gas	15	929	3	948	-
Waste/Wastewater	2	17	0	19	-
Solid Waste	87	1100	19	1206	-
Total Annual Emissions	379	5748	901	7028	782

With SSPP (GHG Emissions)

Phase 1 Buildout (2017)	Office	OPC	Cemetery	Total
	Area Sources	210	4	231
Mobile Sources	188	2429	860	3476
Electricity	49	748	11	808
Natural Gas	11	654	2	667
Waste/Wastewater	2	17	0	19
Solid Waste	87	1100	19	1206
Total Annual Emissions	353	5158	896	6407
				2931

SSPP % Reduction - Electricity	29.6%
SSPP % Reduction -NG	29.6%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Operations (Cemetery).urb924

Project Name: Alameda VA Cemetery Operations

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.01	0.00	0.14	0.00	0.00	0.00	4.19

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.50	0.75	6.60	0.01	1.73	0.33	947.44

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.51	0.75	6.74	0.01	1.73	0.33	951.63

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	3.94
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.00						
TOTALS (tons/year, unmitigated)	0.01	0.00	0.14	0.00	0.00	0.00	4.19

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Office park	0.50	0.75	6.60	0.01	1.73	0.33	947.44
TOTALS (tons/year, unmitigated)	0.50	0.75	6.60	0.01	1.73	0.33	947.44

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Office park		243.70	1000 sq ft	2.70	657.99	5,515.27
					657.99	5,515.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Operations (Office).urb924

Project Name: Alameda VA Office Operations

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.02	0.02	0.15	0.00	0.00	0.00	18.50

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.12	0.16	1.43	0.00	0.38	0.07	206.95

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.14	0.18	1.58	0.00	0.38	0.07	225.45

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.00	0.02	0.01	0.00	0.00	0.00	18.25
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.01						
TOTALS (tons/year, unmitigated)	0.02	0.02	0.15	0.00	0.00	0.00	18.50

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.12	0.16	1.43	0.00	0.38	0.07	206.95
TOTALS (tons/year, unmitigated)	0.12	0.16	1.43	0.00	0.38	0.07	206.95

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
					149.00	1,207.27

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Operations (OPC).urb924

Project Name: Alameda VA OPC Operations

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.19	0.19	0.30	0.00	0.00	0.00	230.93

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.76	2.32	18.64	0.03	4.93	0.94	2,908.60

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.01	0.19	0.16	0.00	0.00	0.00	230.68
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.17						
TOTALS (tons/year, unmitigated)	0.19	0.19	0.30	0.00	0.00	0.00	230.93

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Medical office building	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67
TOTALS (tons/year, unmitigated)	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					2,093.50	15,702.30

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Total 2017.urb924

Project Name: Alameda VA OPC Operational Emissions

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.19	3.04	26.37	0.04	7.04	1.34	3,832.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.43	3.26	26.97	0.04	7.04	1.34	4,085.69

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.18	0.00	0.00	0.00	252.87
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
Consumer Products	0.00						
Architectural Coatings	0.19						
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.12	0.16	1.43	0.00	0.38	0.07	206.95
Office park	0.50	0.75	6.60	0.01	1.73	0.33	947.44
Medical office building	1.57	2.13	18.34	0.03	4.93	0.94	2,677.67
TOTALS (tons/year, unmitigated)	2.19	3.04	26.37	0.04	7.04	1.34	3,832.06

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
Office park		243.70	1000 sq ft	2.70	657.99	5,515.27
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					2,900.49	22,424.84

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.2	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Total 2027 (for P2 Const).urb924

Project Name: Alameda VA OPC Operational Emissions

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.81	2.06	20.69	0.05	8.64	1.64	4,694.43

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.05	2.28	21.29	0.05	8.64	1.64	4,948.06

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.18	0.00	0.00	0.00	252.87
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
Consumer Products	0.00						
Architectural Coatings	0.19						
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.08	0.09	0.91	0.00	0.38	0.07	205.62
Office park	0.66	0.80	8.13	0.02	3.35	0.64	1,828.34
Medical office building	1.07	1.17	11.65	0.03	4.91	0.93	2,660.47
TOTALS (tons/year, unmitigated)	1.81	2.06	20.69	0.05	8.64	1.64	4,694.43

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
Office park		473.30	1000 sq ft	2.70	1,277.91	10,711.44
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					3,520.41	27,621.01

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Medical office building				7.0	3.5	89.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PROJECTS\Alameda VA Center\Emissions Calculations\URBEMIS\Operational - New Traffic\Alameda VA - Total 2035.urb924

Project Name: Alameda VA OPC Operational Emissions

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	3.59	3.56	41.41	0.12	22.23	4.21	12,098.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	3.83	3.78	42.01	0.12	22.23	4.21	12,351.97

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.18	0.00	0.00	0.00	252.87
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
Consumer Products	0.00						
Architectural Coatings	0.19						
TOTALS (tons/year, unmitigated)	0.24	0.22	0.60	0.00	0.00	0.00	253.63

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
General office building	0.06	0.06	0.70	0.00	0.38	0.07	205.50
Office park	2.69	2.71	31.70	0.09	16.94	3.21	9,233.98
Medical office building	0.84	0.79	9.01	0.03	4.91	0.93	2,658.86
TOTALS (tons/year, unmitigated)	3.59	3.56	41.41	0.12	22.23	4.21	12,098.34

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.92	1000 sq ft	12.50	149.00	1,207.27
Office park		2,391.85	1000 sq ft	2.70	6,458.00	54,130.92
Medical office building		13.25	1000 sq ft	158.00	2,093.50	15,702.30
					8,700.50	71,040.49

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.7	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Medical office building				7.0	3.5	89.5

Summary Results

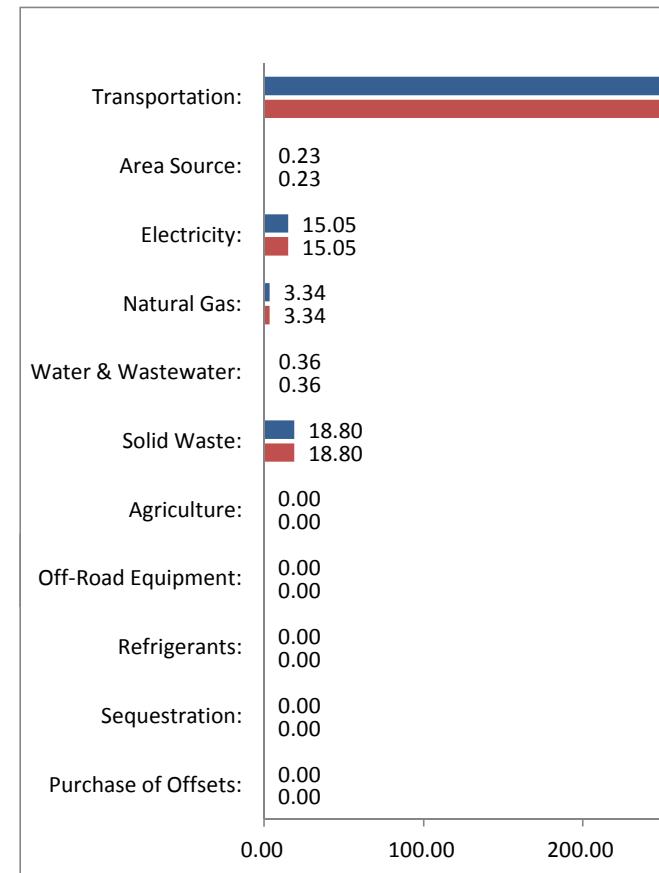
Project Name: Alameda VA Cemetery Operations
 Project and Baseline Years: 2017 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	779.23	779.23
Area Source:	0.23	0.23
Electricity:	15.05	15.05
Natural Gas:	3.34	3.34
Water & Wastewater:	0.36	0.36
Solid Waste:	18.80	18.80
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	817.01	817.01

Baseline is currently: **OFF**

Baseline Project Name:

Go to Settings Tab to Turn On Baseline



Summary Results

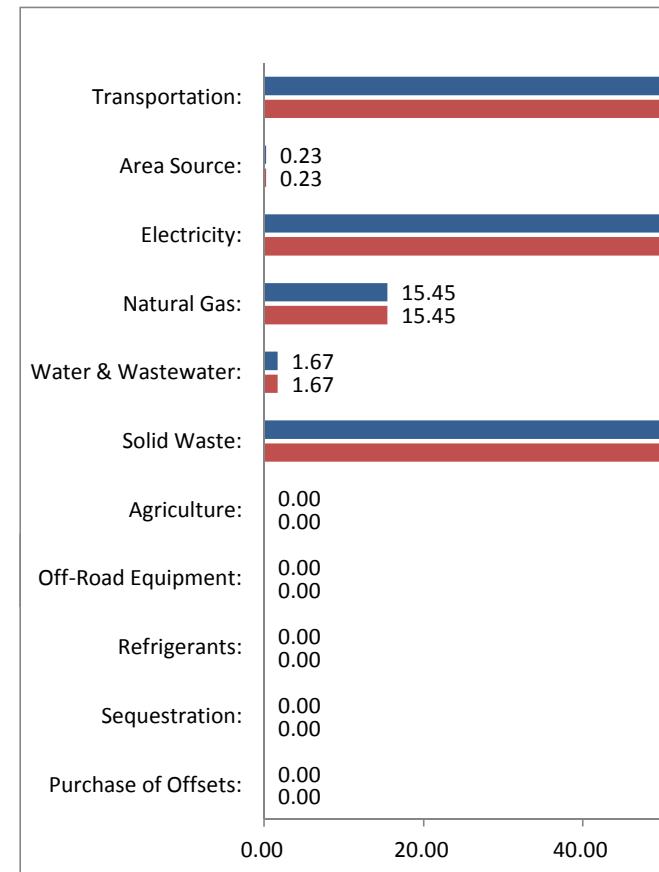
Project Name: Alameda VA Office Operations
 Project and Baseline Years: 2017 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	170.21	170.21
Area Source:	0.23	0.23
Electricity:	69.69	69.69
Natural Gas:	15.45	15.45
Water & Wastewater:	1.67	1.67
Solid Waste:	87.02	87.02
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	344.27	344.27

Baseline is currently: **OFF**

Baseline Project Name:

Go to Settings Tab to Turn On Baseline



Summary Results

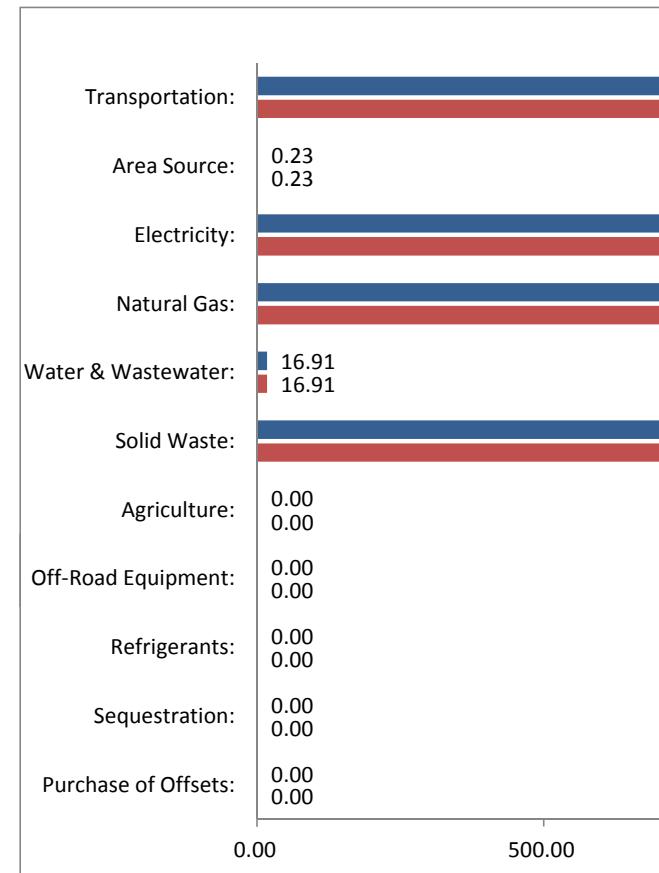
Project Name: Alameda VA OPC Operations
 Project and Baseline Years: 2017 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	2,202.27	2,202.27
Area Source:	0.23	0.23
Electricity:	1,063.19	1,063.19
Natural Gas:	929.03	929.03
Water & Wastewater:	16.91	16.91
Solid Waste:	1,099.97	1,099.97
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	5,311.60	5,311.60

Baseline is currently: **OFF**

Baseline Project Name:

Go to Settings Tab to Turn On Baseline



Summary Results

Project Name: Alameda VA OPC Operational Emissions
 Project and Baseline Years: 2035 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	8,120.41	8,120.41
Area Source:	0.69	0.69
Electricity:	1,147.94	1,147.94
Natural Gas:	947.82	947.82
Water & Wastewater:	18.74	18.74
Solid Waste:	1,205.55	1,205.55
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	11,441.14	11,441.14

Baseline is currently: **OFF**

Baseline Project Name:

Go to Settings Tab to Turn On Baseline

