

**Appendix A:
Air Quality Supporting Information**

Autotechnology Building Solano-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior College (2Yr)	208.00	Student	0.68	29,750.00	0
Parking Lot	8.57	Acre	8.57	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	56
Climate Zone	4			Operational Year	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Development of an 29,750 sf autotechnology building on a 9.25 acre site

Construction Phase - Construction would begin Jan 2016 and would occur over 12 months

Vehicle Trips - Trip rates from Traffic Analysis

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblLandUse	LandUseSquareFeet	9,079.67	29,750.00

tblLandUse	LandUseSquareFeet	373,309.20	0.00
tblLandUse	LotAcreage	0.21	0.68
tblProjectCharacteristics	OperationalYear	2014	2016
tblVehicleTrips	ST_TR	0.42	0.23
tblVehicleTrips	WD_TR	1.20	1.72

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.6294	3.5816	2.4562	3.6400e-003	0.0189	0.2409	0.2598	5.0900e-003	0.2261	0.2312	0.0000	326.9999	326.9999	0.0764	0.0000	328.6040
2017	0.1567	9.9000e-003	9.0000e-003	1.0000e-005	1.2000e-004	7.8000e-004	9.0000e-004	3.0000e-005	7.8000e-004	8.1000e-004	0.0000	1.2559	1.2559	1.3000e-004	0.0000	1.2586
Total	0.7860	3.5915	2.4652	3.6500e-003	0.0190	0.2417	0.2607	5.1200e-003	0.2269	0.2320	0.0000	328.2558	328.2558	0.0765	0.0000	329.8626

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1319	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8700e-003	3.8700e-003	1.0000e-005	0.0000	4.1000e-003
Energy	4.0500e-003	0.0368	0.0309	2.2000e-004		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	117.4974	117.4974	4.2700e-003	1.4600e-003	118.0393
Mobile	0.1984	0.5218	2.0704	3.7500e-003	0.2502	6.2600e-003	0.2564	0.0671	5.7500e-003	0.0728	0.0000	299.2736	299.2736	0.0124	0.0000	299.5331
Waste						0.0000	0.0000		0.0000	0.0000	7.7055	0.0000	7.7055	0.4554	0.0000	17.2686
Water						0.0000	0.0000		0.0000	0.0000	0.1413	1.4103	1.5516	0.0146	3.6000e-004	1.9680

Building Construction	9	13.00	5.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3917	3.2782	2.1283	3.0800e-003		0.2263	0.2263		0.2126	0.2126	0.0000	278.4766	278.4766	0.0691	0.0000	279.9270
Total	0.3917	3.2782	2.1283	3.0800e-003		0.2263	0.2263		0.2126	0.2126	0.0000	278.4766	278.4766	0.0691	0.0000	279.9270

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8100e-003	0.0577	0.0865	1.4000e-004	3.7100e-003	8.5000e-004	4.5500e-003	1.0600e-003	7.8000e-004	1.8400e-003	0.0000	12.4080	12.4080	1.0000e-004	0.0000	12.4101
Worker	5.4800e-003	7.9400e-003	0.0746	1.6000e-004	0.0136	1.0000e-004	0.0137	3.6200e-003	9.0000e-005	3.7200e-003	0.0000	12.3245	12.3245	6.4000e-004	0.0000	12.3381
Total	0.0133	0.0656	0.1611	3.0000e-004	0.0173	9.5000e-004	0.0183	4.6800e-003	8.7000e-004	5.5600e-003	0.0000	24.7325	24.7325	7.4000e-004	0.0000	24.7481

3.3 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	9.0000e-005	8.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1360	0.1360	1.0000e-005	0.0000	0.1362
Total	6.0000e-005	9.0000e-005	8.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1360	0.1360	1.0000e-005	0.0000	0.1362

3.4 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5000e-003	9.8300e-003	8.4100e-003	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.1490	1.1490	1.2000e-004	0.0000	1.1515
Total	0.1566	9.8300e-003	8.4100e-003	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.1490	1.1490	1.2000e-004	0.0000	1.1515

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1070	0.1070	1.0000e-005	0.0000	0.1071
Total	4.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1070	0.1070	1.0000e-005	0.0000	0.1071

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Unmitigated	0.1984	0.5218	2.0704	3.7500e-003	0.2502	6.2600e-003	0.2564	0.0671	5.7500e-003	0.0728	0.0000	299.2736	299.2736	0.0124	0.0000	299.5331

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Junior College (2Yr)	357.76	47.84	8.32	669,335	669,335
Parking Lot	0.00	0.00	0.00		
Total	357.76	47.84	8.32	669,335	669,335

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Junior College (2Yr)	9.50	7.30	7.30	6.40	88.60	5.00	92	7	1
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.522085	0.064887	0.165672	0.136634	0.038355	0.005456	0.012406	0.037489	0.004454	0.002641	0.006732	0.000682	0.002505

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	77.4588	77.4588	3.5000e-003	7.2000e-004	77.7570
NaturalGas Unmitigated	4.0500e-003	0.0368	0.0309	2.2000e-004	2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003		0.0000	40.0386	40.0386	7.7000e-004	7.3000e-004	40.2823

5.2 Energy by Land Use - NaturalGas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Junior College (2Yr)	750295	4.0500e-003	0.0368	0.0309	2.2000e-004		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	40.0386	40.0386	7.7000e-004	7.3000e-004	40.2823
Total		4.0500e-003	0.0368	0.0309	2.2000e-004		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	40.0386	40.0386	7.7000e-004	7.3000e-004	40.2823

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Junior College (2Yr)	266263	77.4588	3.5000e-003	7.2000e-004	77.7570
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		77.4588	3.5000e-003	7.2000e-004	77.7570

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.1319	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8700e-003	3.8700e-003	1.0000e-005	0.0000	4.1000e-003

6.2 Area by SubCategory

Unmitigated

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

Architectural Coating	0.0155					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8700e-003	3.8700e-003	1.0000e-005	4.1000e-003
Total	0.1319	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8700e-003	3.8700e-003	1.0000e-005	4.1000e-003

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	1.5516	0.0146	3.6000e-004	1.9680

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Junior College (2Yr)	0.445349 / 0.696571	1.5516	0.0146	3.6000e-004	1.9680
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		1.5516	0.0146	3.6000e-004	1.9680

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Unmitigated	7.7055	0.4554	0.0000	17.2686
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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Junior College (2Yr)	37.96	7.7055	0.4554	0.0000	17.2686
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		7.7055	0.4554	0.0000	17.2686

Autotechnology Building - BAU Solano-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior College (2Yr)	208.00	Student	0.68	29,750.00	0
Parking Lot	8.57	Acre	8.57	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	56
Climate Zone	4			Operational Year	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Development of an 29,750 sf autotechnology building on a 9.25 acre site

Construction Phase - Construction would begin Jan 2016 and would occur over 12 months

Vehicle Trips - Trip rates from Traffic Analysis

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150

tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	150
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	250	100
tblLandUse	LandUseSquareFeet	9,079.67	29,750.00
tblLandUse	LandUseSquareFeet	373,309.20	0.00
tblLandUse	LotAcreage	0.21	0.68
tblProjectCharacteristics	OperationalYear	2014	2005
tblVehicleTrips	ST_TR	0.42	0.23
tblVehicleTrips	WD_TR	1.20	1.72

2.0 Emissions Summary

2.2 Overall Operational Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	3.8700e-003	3.8700e-003	2.0000e-005	0.0000	4.2500e-003
Energy											0.0000	117.4974	117.4974	4.2700e-003	1.4600e-003	118.0393
Mobile											0.0000	355.6699	355.6699	0.0347	0.0000	356.3990
Waste											7.7055	0.0000	7.7055	0.4554	0.0000	17.2686
Water											0.1413	1.4103	1.5516	0.0146	3.6000e-004	1.9680
Total											7.8468	474.5815	482.4283	0.5090	1.8200e-003	493.6791

Autotechnology Building - 2020 Solano-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior College (2Yr)	208.00	Student	0.68	29,750.00	0
Parking Lot	8.57	Acre	8.57	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	56
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Year 2020 run
 Land Use - Development of an 29,750 sf autotechnology building on a 9.25 acre site
 Construction Phase - Construction would begin Jan 2016 and would occur over 12 months
 Vehicle Trips - Trip rates from Traffic Analysis
 Mobile Land Use Mitigation - Existing project area conditions
 Energy Mitigation - Exceed Title 24 by 30 percent for new nonresidential development
 Water Mitigation -
 Waste Mitigation - Citywide goal of 50 percent

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00

tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblLandUse	LandUseSquareFeet	9,079.67	29,750.00
tblLandUse	LandUseSquareFeet	373,309.20	0.00
tblLandUse	LotAcreage	0.21	0.68
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	ST_TR	0.42	0.23
tblVehicleTrips	WD_TR	1.20	1.72

2.0 Emissions Summary

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	3.8700e-003	3.8700e-003	1.0000e-005	0.0000	4.0900e-003
Energy											0.0000	82.3298	82.3298	2.9300e-003	1.0800e-003	82.7257
Mobile											0.0000	199.7395	199.7395	7.2100e-003	0.0000	199.8908
Waste											3.8528	0.0000	3.8528	0.2277	0.0000	8.6343
Water											0.1413	1.0479	1.1892	0.0146	3.5000e-004	1.6043
Total											3.9941	283.1211	287.1151	0.2524	1.4300e-003	292.8592