

Variant Analysis: Air Quality - Greenhouse Gas Summary

CONSTRUCTION	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2e
Year	Tons per year										Metric Tons/Year
2019	0.4336	4.8831	3.0024	9.75E-03	0.3182	0.1749	0.4932	0.1051	0.164	0.2691	903.6861
2020	1.5541	1.9557	1.835	4.15E-03	0.1291	0.0928	0.2219	0.0348	0.0872	0.122	371.3382
Silicon Sage Variant Total (tons per year)	1.99	6.84	4.84	0.01	0.45	0.27	0.72	0.14	0.25	0.39	1275.02
Average Daily Emissions (pounds per day) ¹	9.2	31.5	22.3	0.1	2.1	1.2	3.3	0.6	1.2	1.8	
Thresholds of Significance (lb/day) ²	54	54				82			54		
Significant?	No	No				No			No		

Notes: NOx = oxides of nitrogen; PM10 and PM2.5 = particulate matter less than or equal to 10 microns in diameter or 2.5 micrometers in diameter, respectively; ROG = reactive organic gases
¹ Average daily emissions calculated assuming 434 workdays based on August 2019 - April 2019 work schedule
² BAAQMD CEQA Guidelines (May 2017)

Greenhouse Gas Emissions - Construction	
Total Emissions (MT CO2e)	1,275.02
Amortized Emissions (MT CO2e/year) ¹	42.50
Notes: MT CO2e = metric tons carbon dioxide equivalents	
¹ Amortized GHG emissions assumed a project lifetime of 30 years	

OPERATIONS

Criteria Pollutants	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Variant (tons)	1.61	4.44	8.56	0.03	1.81	0.05	1.86	0.49	0.05	0.53
Existing Uses (tons)	0.88	3.80					1.28			0.37
Net Emissions (tons)	0.73	0.64					0.58			0.16
Net Emissions (lbs)	1,451.00	1,283.20					1,157.20			329.80
Average Daily Net Emissions (lbs/day)	3.98	3.52					3.17			0.90

Notes: Average daily emissions calculated assuming 365 days of operation.

Conversion Factor	
lbs/ton	2000

Greenhouse Gas Emissions		
Emissions Source	Existing Uses MT CO2e	Variant MT CO2e
Amortized Construction Emissions	-	43
Area Sources	<1	9
Energy Consumption	178	431
Mobile Sources	1655	2,258
Waste	28	52
Water Usage	13	30
Total Annual Operational Emissions	1874	2,823
Net Emissions	-	949

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

Silicon Sage Centerville Mixed Use Project Variant
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	319.00	Space	0.00	127,600.00	0
Apartments Low Rise	93.00	Dwelling Unit	0.00	93,000.00	266
Condo/Townhouse	72.00	Dwelling Unit	4.60	72,000.00	206
Regional Shopping Center	26.00	1000sqft	0.00	26,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	290	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - PG&E CO2 intensity rate

Land Use - Land uses and site acreage consistent with PD.

Construction Phase - Default schedule from proposed project scaled up to account for additional development under variant, assume February 2019 start date.

Demolition - Approx. 55,000 sf of building demolition + fire station demolition (3,300 sq. ft)

Grading - 29,000 cy export

Vehicle Trips - Approx. 2,093 daily vehicle trips for variant.

Woodstoves - No woodstoves, possible gas-powered fireplaces.

Energy Use - Default.

Construction Off-road Equipment Mitigation - Tier 4 engines for equip. > 25 hp. BAAQMD BMPs.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	18.00	26.00
tblConstructionPhase	NumDays	230.00	334.00
tblConstructionPhase	NumDays	20.00	29.00
tblConstructionPhase	NumDays	8.00	12.00
tblConstructionPhase	NumDays	18.00	26.00
tblConstructionPhase	NumDays	5.00	7.00
tblFireplaces	NumberGas	13.95	29.76
tblFireplaces	NumberGas	10.80	23.04
tblFireplaces	NumberWood	15.81	0.00
tblFireplaces	NumberWood	12.24	0.00
tblGrading	AcresOfGrading	6.00	4.00
tblGrading	MaterialExported	0.00	29,000.00
tblLandUse	LotAcreage	2.87	0.00
tblLandUse	LotAcreage	5.81	0.00
tblLandUse	LotAcreage	4.50	4.60
tblLandUse	LotAcreage	0.60	0.00

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tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	5.67	29.07
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	4.84	29.07
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	5.81	29.07
tblVehicleTrips	WD_TR	42.70	0.00
tblWoodstoves	NumberCatalytic	1.86	0.00
tblWoodstoves	NumberCatalytic	1.44	0.00
tblWoodstoves	NumberNoncatalytic	1.86	0.00
tblWoodstoves	NumberNoncatalytic	1.44	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2019	4-30-2019	2.7154	2.0090
2	5-1-2019	7-31-2019	0.9938	0.5997
3	8-1-2019	10-31-2019	0.9962	0.6021
4	11-1-2019	1-31-2020	0.9705	0.6000
5	2-1-2020	4-30-2020	0.8889	0.5719
6	5-1-2020	7-31-2020	0.8479	0.5461
7	8-1-2020	9-30-2020	1.4536	1.4057
		Highest	2.7154	2.0090

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	0.9250	0.0199	1.2348	1.0000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	8.5989	8.5989	2.0900e-003	1.2000e-004	8.6873
Energy	0.0197	0.1684	0.0741	1.0700e-003		0.0136	0.0136		0.0136	0.0136	0.0000	427.8053	427.8053	0.0271	8.3900e-003	430.9824
Mobile	0.6608	4.2532	7.2547	0.0245	1.8080	0.0297	1.8377	0.4861	0.0280	0.5141	0.0000	2,255.8424	2,255.8424	0.1034	0.0000	2,258.4276
Waste						0.0000	0.0000		0.0000	0.0000	20.9487	0.0000	20.9487	1.2380	0.0000	51.8994
Water						0.0000	0.0000		0.0000	0.0000	4.0216	12.6864	16.7080	0.4143	0.0100	30.0508
Total	1.6055	4.4416	8.5636	0.0257	1.8080	0.0505	1.8586	0.4861	0.0488	0.5349	24.9703	2,704.9330	2,729.9033	1.7849	0.0185	2,780.0476

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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	0.9250	0.0199	1.2348	1.0000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	8.5989	8.5989	2.0900e-003	1.2000e-004	8.6873
Energy	0.0197	0.1684	0.0741	1.0700e-003		0.0136	0.0136		0.0136	0.0136	0.0000	427.8053	427.8053	0.0271	8.3900e-003	430.9824
Mobile	0.6608	4.2532	7.2547	0.0245	1.8080	0.0297	1.8377	0.4861	0.0280	0.5141	0.0000	2,255.8424	2,255.8424	0.1034	0.0000	2,258.4276
Waste						0.0000	0.0000		0.0000	0.0000	20.9487	0.0000	20.9487	1.2380	0.0000	51.8994
Water						0.0000	0.0000		0.0000	0.0000	4.0216	12.6864	16.7080	0.4143	0.0100	30.0508
Total	1.6055	4.4416	8.5636	0.0257	1.8080	0.0505	1.8586	0.4861	0.0488	0.5349	24.9703	2,704.9330	2,729.9033	1.7849	0.0185	2,780.0476

	ROG	NOx	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2019	3/13/2019	5	29	
2	Site Preparation	Site Preparation	3/14/2019	3/22/2019	5	7	
3	Grading	Grading	3/23/2019	4/9/2019	5	12	
4	Building Construction	Building Construction	4/10/2019	7/20/2020	5	334	
5	Paving	Paving	7/21/2020	8/25/2020	5	26	
6	Architectural Coating	Architectural Coating	8/26/2020	9/30/2020	5	26	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 334,125; Residential Outdoor: 111,375; Non-Residential Indoor: 39,000; Non-Residential Outdoor: 13,000; Striped Parking Area: 7,656 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5,765.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	3,625.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	181.00	43.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	36.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0509	0.5189	0.3199	5.6000e-004		0.0260	0.0260		0.0242	0.0242	0.0000	50.2082	50.2082	0.0140	0.0000	50.5574
Total	0.0509	0.5189	0.3199	5.6000e-004		0.0260	0.0260		0.0242	0.0242	0.0000	50.2082	50.2082	0.0140	0.0000	50.5574

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3.2 Demolition - 2019

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	0.0263	0.8958	0.1530	2.3200e-003	0.0488	3.2400e-003	0.0521	0.0134	3.1000e-003	0.0165	0.0000	223.0531	223.0531	0.0116	0.0000	223.3433
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	6.3000e-004	6.3400e-003	2.0000e-005	1.7200e-003	1.0000e-005	1.7300e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5775	1.5775	4.0000e-005	0.0000	1.5786
Total	0.0271	0.8964	0.1593	2.3400e-003	0.0505	3.2500e-003	0.0538	0.0139	3.1100e-003	0.0170	0.0000	224.6306	224.6306	0.0117	0.0000	224.9219

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.4700e-003	0.1966	0.3578	5.6000e-004		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	50.2081	50.2081	0.0140	0.0000	50.5573
Total	8.4700e-003	0.1966	0.3578	5.6000e-004		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	50.2081	50.2081	0.0140	0.0000	50.5573

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3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0263	0.8958	0.1530	2.3200e-003	0.0488	3.2400e-003	0.0521	0.0134	3.1000e-003	0.0165	0.0000	223.0531	223.0531	0.0116	0.0000	223.3433
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	6.3000e-004	6.3400e-003	2.0000e-005	1.7200e-003	1.0000e-005	1.7300e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5775	1.5775	4.0000e-005	0.0000	1.5786
Total	0.0271	0.8964	0.1593	2.3400e-003	0.0505	3.2500e-003	0.0538	0.0139	3.1100e-003	0.0170	0.0000	224.6306	224.6306	0.0117	0.0000	224.9219

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1595	0.0772	1.3000e-004		8.3700e-003	8.3700e-003		7.7000e-003	7.7000e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
Total	0.0152	0.1595	0.0772	1.3000e-004	0.0632	8.3700e-003	0.0716	0.0348	7.7000e-003	0.0425	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536

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3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4569	0.4569	1.0000e-005	0.0000	0.4573
Total	2.4000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4569	0.4569	1.0000e-005	0.0000	0.4573

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	7.8200e-003	0.0000	7.8200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4400e-003	0.0426	0.0804	1.3000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536
Total	2.4400e-003	0.0426	0.0804	1.3000e-004	0.0142	2.2000e-004	0.0145	7.8200e-003	2.2000e-004	8.0400e-003	0.0000	11.9590	11.9590	3.7800e-003	0.0000	12.0536

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3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4569	0.4569	1.0000e-005	0.0000	0.4573
Total	2.4000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4569	0.4569	1.0000e-005	0.0000	0.4573

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0399	0.0000	0.0399	0.0203	0.0000	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0155	0.1701	0.0978	1.8000e-004		8.3800e-003	8.3800e-003		7.7100e-003	7.7100e-003	0.0000	15.9854	15.9854	5.0600e-003	0.0000	16.1118
Total	0.0155	0.1701	0.0978	1.8000e-004	0.0399	8.3800e-003	0.0483	0.0203	7.7100e-003	0.0281	0.0000	15.9854	15.9854	5.0600e-003	0.0000	16.1118

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3.4 Grading - 2019

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	0.0165	0.5633	0.0962	1.4600e-003	0.0307	2.0400e-003	0.0327	8.4500e-003	1.9500e-003	0.0104	0.0000	140.2545	140.2545	7.3000e-003	0.0000	140.4370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.6000e-004	2.6200e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	0.0169	0.5635	0.0988	1.4700e-003	0.0314	2.0500e-003	0.0335	8.6400e-003	1.9500e-003	0.0106	0.0000	140.9073	140.9073	7.3200e-003	0.0000	141.0902

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9800e-003	0.0000	8.9800e-003	4.5800e-003	0.0000	4.5800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1200e-003	0.0620	0.1139	1.8000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	15.9853	15.9853	5.0600e-003	0.0000	16.1118
Total	3.1200e-003	0.0620	0.1139	1.8000e-004	8.9800e-003	2.9000e-004	9.2700e-003	4.5800e-003	2.9000e-004	4.8700e-003	0.0000	15.9853	15.9853	5.0600e-003	0.0000	16.1118

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3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0165	0.5633	0.0962	1.4600e-003	0.0307	2.0400e-003	0.0327	8.4500e-003	1.9500e-003	0.0104	0.0000	140.2545	140.2545	7.3000e-003	0.0000	140.4370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.6000e-004	2.6200e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	0.0169	0.5635	0.0988	1.4700e-003	0.0314	2.0500e-003	0.0335	8.6400e-003	1.9500e-003	0.0106	0.0000	140.9073	140.9073	7.3200e-003	0.0000	141.0902

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2243	2.0025	1.6306	2.5600e-003		0.1225	0.1225		0.1152	0.1152	0.0000	223.3490	223.3490	0.0544	0.0000	224.7092
Total	0.2243	2.0025	1.6306	2.5600e-003		0.1225	0.1225		0.1152	0.1152	0.0000	223.3490	223.3490	0.0544	0.0000	224.7092

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3.5 Building Construction - 2019

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	0.0184	0.5224	0.1156	1.1400e-003	0.0268	3.3400e-003	0.0302	7.7600e-003	3.1900e-003	0.0110	0.0000	108.8142	108.8142	6.7100e-003	0.0000	108.9818
Worker	0.0651	0.0497	0.5015	1.3800e-003	0.1360	9.7000e-004	0.1369	0.0362	8.9000e-004	0.0371	0.0000	124.7139	124.7139	3.5600e-003	0.0000	124.8029
Total	0.0835	0.5721	0.6170	2.5200e-003	0.1628	4.3100e-003	0.1671	0.0439	4.0800e-003	0.0480	0.0000	233.5281	233.5281	0.0103	0.0000	233.7846

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0507	1.0367	1.6980	2.5600e-003		8.0400e-003	8.0400e-003		8.0400e-003	8.0400e-003	0.0000	223.3487	223.3487	0.0544	0.0000	224.7090
Total	0.0507	1.0367	1.6980	2.5600e-003		8.0400e-003	8.0400e-003		8.0400e-003	8.0400e-003	0.0000	223.3487	223.3487	0.0544	0.0000	224.7090

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0184	0.5224	0.1156	1.1400e-003	0.0268	3.3400e-003	0.0302	7.7600e-003	3.1900e-003	0.0110	0.0000	108.8142	108.8142	6.7100e-003	0.0000	108.9818
Worker	0.0651	0.0497	0.5015	1.3800e-003	0.1360	9.7000e-004	0.1369	0.0362	8.9000e-004	0.0371	0.0000	124.7139	124.7139	3.5600e-003	0.0000	124.8029
Total	0.0835	0.5721	0.6170	2.5200e-003	0.1628	4.3100e-003	0.1671	0.0439	4.0800e-003	0.0480	0.0000	233.5281	233.5281	0.0103	0.0000	233.7846

3.5 Building Construction - 2020

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	0.1526	1.3814	1.2131	1.9400e-003		0.0804	0.0804		0.0756	0.0756	0.0000	166.7592	166.7592	0.0407	0.0000	167.7763
Total	0.1526	1.3814	1.2131	1.9400e-003		0.0804	0.0804		0.0756	0.0756	0.0000	166.7592	166.7592	0.0407	0.0000	167.7763

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3.5 Building Construction - 2020

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	0.0116	0.3639	0.0784	8.6000e-004	0.0203	1.6900e-003	0.0220	5.8800e-003	1.6100e-003	7.5000e-003	0.0000	81.8924	81.8924	4.7100e-003	0.0000	82.0101
Worker	0.0451	0.0333	0.3410	1.0100e-003	0.1030	7.1000e-004	0.1038	0.0274	6.6000e-004	0.0281	0.0000	91.5961	91.5961	2.3600e-003	0.0000	91.6552
Total	0.0567	0.3972	0.4194	1.8700e-003	0.1234	2.4000e-003	0.1258	0.0333	2.2700e-003	0.0356	0.0000	173.4885	173.4885	7.0700e-003	0.0000	173.6654

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0384	0.7857	1.2869	1.9400e-003		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	166.7590	166.7590	0.0407	0.0000	167.7761
Total	0.0384	0.7857	1.2869	1.9400e-003		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	166.7590	166.7590	0.0407	0.0000	167.7761

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3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0116	0.3639	0.0784	8.6000e-004	0.0203	1.6900e-003	0.0220	5.8800e-003	1.6100e-003	7.5000e-003	0.0000	81.8924	81.8924	4.7100e-003	0.0000	82.0101
Worker	0.0451	0.0333	0.3410	1.0100e-003	0.1030	7.1000e-004	0.1038	0.0274	6.6000e-004	0.0281	0.0000	91.5961	91.5961	2.3600e-003	0.0000	91.6552
Total	0.0567	0.3972	0.4194	1.8700e-003	0.1234	2.4000e-003	0.1258	0.0333	2.2700e-003	0.0356	0.0000	173.4885	173.4885	7.0700e-003	0.0000	173.6654

3.6 Paving - 2020

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	0.0154	0.1534	0.1597	2.5000e-004		8.4600e-003	8.4600e-003		7.8100e-003	7.8100e-003	0.0000	21.2836	21.2836	6.6900e-003	0.0000	21.4508
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0154	0.1534	0.1597	2.5000e-004		8.4600e-003	8.4600e-003		7.8100e-003	7.8100e-003	0.0000	21.2836	21.2836	6.6900e-003	0.0000	21.4508

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3.6 Paving - 2020

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	9.0000e-004	6.6000e-004	6.8000e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.8274	1.8274	5.0000e-005	0.0000	1.8286
Total	9.0000e-004	6.6000e-004	6.8000e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.8274	1.8274	5.0000e-005	0.0000	1.8286

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9300e-003	0.1092	0.1819	2.5000e-004		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	21.2836	21.2836	6.6900e-003	0.0000	21.4508
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.9300e-003	0.1092	0.1819	2.5000e-004		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004	0.0000	21.2836	21.2836	6.6900e-003	0.0000	21.4508

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3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	6.6000e-004	6.8000e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.8274	1.8274	5.0000e-005	0.0000	1.8286
Total	9.0000e-004	6.6000e-004	6.8000e-003	2.0000e-005	2.0600e-003	1.0000e-005	2.0700e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.8274	1.8274	5.0000e-005	0.0000	1.8286

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3237					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1500e-003	0.0219	0.0238	4.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	3.3192	3.3192	2.6000e-004	0.0000	3.3257
Total	1.3268	0.0219	0.0238	4.0000e-005		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	3.3192	3.3192	2.6000e-004	0.0000	3.3257

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3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6200e-003	1.1900e-003	0.0122	4.0000e-005	3.7000e-003	3.0000e-005	3.7300e-003	9.8000e-004	2.0000e-005	1.0100e-003	0.0000	3.2894	3.2894	8.0000e-005	0.0000	3.2915
Total	1.6200e-003	1.1900e-003	0.0122	4.0000e-005	3.7000e-003	3.0000e-005	3.7300e-003	9.8000e-004	2.0000e-005	1.0100e-003	0.0000	3.2894	3.2894	8.0000e-005	0.0000	3.2915

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3237					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-004	0.0138	0.0238	4.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	3.3192	3.3192	2.6000e-004	0.0000	3.3257
Total	1.3244	0.0138	0.0238	4.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	3.3192	3.3192	2.6000e-004	0.0000	3.3257

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3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6200e-003	1.1900e-003	0.0122	4.0000e-005	3.7000e-003	3.0000e-005	3.7300e-003	9.8000e-004	2.0000e-005	1.0100e-003	0.0000	3.2894	3.2894	8.0000e-005	0.0000	3.2915
Total	1.6200e-003	1.1900e-003	0.0122	4.0000e-005	3.7000e-003	3.0000e-005	3.7300e-003	9.8000e-004	2.0000e-005	1.0100e-003	0.0000	3.2894	3.2894	8.0000e-005	0.0000	3.2915

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6608	4.2532	7.2547	0.0245	1.8080	0.0297	1.8377	0.4861	0.0280	0.5141	0.0000	2,255.8424	2,255.8424	0.1034	0.0000	2,258.4276
Unmitigated	0.6608	4.2532	7.2547	0.0245	1.8080	0.0297	1.8377	0.4861	0.0280	0.5141	0.0000	2,255.8424	2,255.8424	0.1034	0.0000	2,258.4276

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
Condo/Townhouse	2,092.97	2,092.97	2,092.97	4,833,934	4,833,934
Enclosed Parking with Elevator	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Total	2,092.97	2,092.97	2,092.97	4,833,934	4,833,934

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Condo/Townhouse	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Enclosed Parking with Elevator	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Regional Shopping Center	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759

5.0 Energy Detail

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 Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	233.1402	233.1402	0.0233	4.8200e-003	235.1605
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	233.1402	233.1402	0.0233	4.8200e-003	235.1605
NaturalGas Mitigated	0.0197	0.1684	0.0741	1.0700e-003		0.0136	0.0136		0.0136	0.0136	0.0000	194.6651	194.6651	3.7300e-003	3.5700e-003	195.8219
NaturalGas Unmitigated	0.0197	0.1684	0.0741	1.0700e-003		0.0136	0.0136		0.0136	0.0136	0.0000	194.6651	194.6651	3.7300e-003	3.5700e-003	195.8219

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.8925e+006	0.0102	0.0872	0.0371	5.6000e-004		7.0500e-003	7.0500e-003		7.0500e-003	7.0500e-003	0.0000	100.9912	100.9912	1.9400e-003	1.8500e-003	101.5913
Condo/Townhouse	1.63578e+006	8.8200e-003	0.0754	0.0321	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2916	87.2916	1.6700e-003	1.6000e-003	87.8103
Enclosed Parking with Elevator	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
Regional Shopping Center	119600	6.4000e-004	5.8600e-003	4.9200e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	6.3823	6.3823	1.2000e-004	1.2000e-004	6.4202
Total		0.0197	0.1684	0.0741	1.0800e-003		0.0136	0.0136		0.0136	0.0136	0.0000	194.6651	194.6651	3.7300e-003	3.5700e-003	195.8219

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.8925e+006	0.0102	0.0872	0.0371	5.6000e-004		7.0500e-003	7.0500e-003		7.0500e-003	7.0500e-003	0.0000	100.9912	100.9912	1.9400e-003	1.8500e-003	101.5913
Condo/Townhouse	1.63578e+006	8.8200e-003	0.0754	0.0321	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2916	87.2916	1.6700e-003	1.6000e-003	87.8103
Enclosed Parking with Elevator	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
Regional Shopping Center	119600	6.4000e-004	5.8600e-003	4.9200e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	6.3823	6.3823	1.2000e-004	1.2000e-004	6.4202
Total		0.0197	0.1684	0.0741	1.0800e-003		0.0136	0.0136		0.0136	0.0136	0.0000	194.6651	194.6651	3.7300e-003	3.5700e-003	195.8219

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	392105	51.5782	5.1600e-003	1.0700e-003	52.0251
Condo/Townhouse	360045	47.3610	4.7400e-003	9.8000e-004	47.7714
Enclosed Parking with Elevator	747736	98.3585	9.8400e-003	2.0400e-003	99.2109
Regional Shopping Center	272480	35.8425	3.5800e-003	7.4000e-004	36.1531
Total		233.1402	0.0233	4.8300e-003	235.1605

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	392105	51.5782	5.1600e-003	1.0700e-003	52.0251
Condo/Townhouse	360045	47.3610	4.7400e-003	9.8000e-004	47.7714
Enclosed Parking with Elevator	747736	98.3585	9.8400e-003	2.0400e-003	99.2109
Regional Shopping Center	272480	35.8425	3.5800e-003	7.4000e-004	36.1531
Total		233.1402	0.0233	4.8300e-003	235.1605

6.0 Area Detail

6.1 Mitigation Measures Area

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9250	0.0199	1.2348	1.0000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	8.5989	8.5989	2.0900e-003	1.2000e-004	8.6873
Unmitigated	0.9250	0.0199	1.2348	1.0000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	8.5989	8.5989	2.0900e-003	1.2000e-004	8.6873

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	0.1324					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7542					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.7000e-004	5.6900e-003	2.4200e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5915	6.5915	1.3000e-004	1.2000e-004	6.6307
Landscaping	0.0377	0.0143	1.2324	6.0000e-005		6.7700e-003	6.7700e-003		6.7700e-003	6.7700e-003	0.0000	2.0074	2.0074	1.9700e-003	0.0000	2.0566
Total	0.9250	0.0199	1.2348	1.0000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	8.5989	8.5989	2.1000e-003	1.2000e-004	8.6873

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1324					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7542					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.7000e-004	5.6900e-003	2.4200e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5915	6.5915	1.3000e-004	1.2000e-004	6.6307
Landscaping	0.0377	0.0143	1.2324	6.0000e-005		6.7700e-003	6.7700e-003		6.7700e-003	6.7700e-003	0.0000	2.0074	2.0074	1.9700e-003	0.0000	2.0566
Total	0.9250	0.0199	1.2348	1.0000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	8.5989	8.5989	2.1000e-003	1.2000e-004	8.6873

7.0 Water Detail

7.1 Mitigation Measures Water

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.7080	0.4143	0.0100	30.0508
Unmitigated	16.7080	0.4143	0.0100	30.0508

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.05932 / 3.82001	7.9939	0.1981	4.7900e-003	14.3719
Condo/Townhouse	4.69109 / 2.95743	6.1888	0.1533	3.7100e-003	11.1266
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.92589 / 1.18038	2.5252	0.0630	1.5200e-003	4.5523
Total		16.7080	0.4143	0.0100	30.0508

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.05932 / 3.82001	7.9939	0.1981	4.7900e-003	14.3719
Condo/Townhouse	4.69109 / 2.95743	6.1888	0.1533	3.7100e-003	11.1266
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.92589 / 1.18038	2.5252	0.0630	1.5200e-003	4.5523
Total		16.7080	0.4143	0.0100	30.0508

8.0 Waste Detail

8.1 Mitigation Measures Waste

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	20.9487	1.2380	0.0000	51.8994
Unmitigated	20.9487	1.2380	0.0000	51.8994

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	42.78	8.6840	0.5132	0.0000	21.5141
Condo/Townhouse	33.12	6.7231	0.3973	0.0000	16.6561
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	27.3	5.5417	0.3275	0.0000	13.7292
Total		20.9487	1.2380	0.0000	51.8994

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	42.78	8.6840	0.5132	0.0000	21.5141
Condo/Townhouse	33.12	6.7231	0.3973	0.0000	16.6561
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	27.3	5.5417	0.3275	0.0000	13.7292
Total		20.9487	1.2380	0.0000	51.8994

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Silicon Sage Centerville Mixed Use Project Variant - Alameda County, Annual

Equipment Type	Number
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11.0 Vegetation
