

APPENDIX 4.2-6

Air Quality and GHG Calculations Annual, Construction

Azusa TOD Construction
South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	4.65	1000sqft	0.11	4,650.00	0
Hotel	8.00	Room	0.27	11,616.00	0
Apartments Mid Rise	42.00	Dwelling Unit	1.11	42,000.00	146
Regional Shopping Center	11.30	1000sqft	0.26	11,300.00	0
Strip Mall	4.20	1000sqft	0.10	4,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2035
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	630.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2035 operational year

Land Use - 4,650 retail, 7,500 office, 4,200 services (assumed as strip mall), 8 room lodging (assumed as hotel), 42 units (assumed as apartments mid rise), 146 persons

Construction Phase - Construction all year long, for 2020 middle of buildout

Woodstoves - no stoves/fireplaces

Energy Use -

Energy Mitigation - assume 25% improvement over 2008 Title 24 due to compliance with 2013 Title 24 standards

Demolition - 90,000 sf total, 4,500 per year

Grading - 17 acres disturbed total, 0.85 acres per year

Construction Off-road Equipment Mitigation - water 3X

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	262.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	NumDays	2.00	262.00
tblConstructionPhase	NumDays	10.00	262.00
tblConstructionPhase	PhaseEndDate	1/3/2022	12/31/2020
tblConstructionPhase	PhaseEndDate	1/3/2022	12/31/2020
tblConstructionPhase	PhaseEndDate	1/3/2022	12/31/2020
tblConstructionPhase	PhaseEndDate	1/3/2022	12/31/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	1/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	1/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	1/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	1/1/2020
tblGrading	AcresOfGrading	131.00	0.85
tblLandUse	Population	120.00	146.00
tblProjectCharacteristics	OperationalYear	2014	2035

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					
2020	1.4718	8.3046	7.9355	0.0122	0.8219	0.4425	1.2644	0.4142	0.4153	0.8295	0.0000	1,020.444 1	1,020.444 1	0.2353	0.0000	1,025.386 2
Total	1.4718	8.3046	7.9355	0.0122	0.8219	0.4425	1.2644	0.4142	0.4153	0.8295	0.0000	1,020.444 1	1,020.444 1	0.2353	0.0000	1,025.386 2

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	1.4718	8.3046	7.9355	0.0122	0.3992	0.4425	0.8417	0.1825	0.4153	0.5978	0.0000	1,020.443 0	1,020.443 0	0.2353	0.0000	1,025.385 1
Total	1.4718	8.3046	7.9355	0.0122	0.3992	0.4425	0.8417	0.1825	0.4153	0.5978	0.0000	1,020.443 0	1,020.443 0	0.2353	0.0000	1,025.385 1

	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	51.43	0.00	33.43	55.93	0.00	27.93	0.00	0.00	0.00	0.00	0.00	0.00

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	0.4703	8.4700e-003	0.6959	4.4000e-004		0.0425	0.0425		0.0425	0.0425	4.4612	9.2811	13.7423	0.0140	3.0000e-004	14.1297
Energy	4.2300e-003	0.0372	0.0233	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003	0.0000	199.3106	199.3106	8.0400e-003	2.2600e-003	200.1816
Mobile	0.3320	0.7892	3.5997	0.0149	0.9718	0.0212	0.9930	0.2603	0.0196	0.2798	0.0000	970.6828	970.6828	0.0254	0.0000	971.2170
Waste						0.0000	0.0000		0.0000	0.0000	8.9925	0.0000	8.9925	0.5314	0.0000	20.1528
Water						0.0000	0.0000		0.0000	0.0000	1.5590	27.7146	29.2736	0.1614	4.0400e-003	33.9167
Total	0.8065	0.8349	4.3189	0.0156	0.9718	0.0666	1.0385	0.2603	0.0650	0.3253	15.0127	1,206.9892	1,222.0018	0.7403	6.6000e-003	1,239.5978

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	0.4703	8.4700e-003	0.6959	4.4000e-004		0.0425	0.0425		0.0425	0.0425	4.4612	9.2811	13.7423	0.0140	3.0000e-004	14.1297
Energy	3.3500e-003	0.0295	0.0184	1.8000e-004		2.3100e-003	2.3100e-003		2.3100e-003	2.3100e-003	0.0000	179.9257	179.9257	7.3800e-003	2.0000e-003	180.7018
Mobile	0.3320	0.7892	3.5997	0.0149	0.9718	0.0212	0.9930	0.2603	0.0196	0.2798	0.0000	970.6828	970.6828	0.0254	0.0000	971.2170
Waste						0.0000	0.0000		0.0000	0.0000	8.9925	0.0000	8.9925	0.5314	0.0000	20.1528
Water						0.0000	0.0000		0.0000	0.0000	1.5590	27.7146	29.2736	0.1614	4.0400e-003	33.9142
Total	0.8056	0.8271	4.3140	0.0156	0.9718	0.0660	1.0379	0.2603	0.0644	0.3246	15.0127	1,187.6043	1,202.6170	0.7396	6.3400e-003	1,220.1155

	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	0.11	0.93	0.11	0.32	0.00	0.92	0.06	0.00	0.94	0.19	0.00	1.61	1.59	0.09	3.94	1.57

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	12/31/2020	5	262	
2	Site Prep	Site Preparation	1/1/2020	12/31/2020	5	262	
3	Building Construction	Building Construction	1/1/2020	12/31/2020	5	262	
4	Paving	Paving	1/1/2020	12/31/2020	5	262	
5	Coatings	Architectural Coating	1/1/2020	12/31/2020	5	262	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 85,050; Residential Outdoor: 28,350; Non-Residential Indoor: 47,649; Non-Residential Outdoor: 15,883 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Coatings	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Site Prep	Rubber Tired Dozers	1	7.00	255	0.40
Site Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Prep	Graders	1	8.00	174	0.41
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	7	42.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Coatings	1	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Prep	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 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					
Fugitive Dust					2.2100e-003	0.0000	2.2100e-003	3.4000e-004	0.0000	3.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2632	2.5888	2.4185	3.2100e-003		0.1393	0.1393		0.1303	0.1303	0.0000	280.2322	280.2322	0.0723	0.0000	281.7508
Total	0.2632	2.5888	2.4185	3.2100e-003	2.2100e-003	0.1393	0.1416	3.4000e-004	0.1303	0.1306	0.0000	280.2322	280.2322	0.0723	0.0000	281.7508

3.2 Demolition - 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	1.6000e-004	2.0500e-003	2.0000e-003	1.0000e-005	1.7000e-004	4.0000e-005	2.1000e-004	5.0000e-005	4.0000e-005	8.0000e-005	0.0000	0.6244	0.6244	0.0000	0.0000	0.6245
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	4.7300e-003	7.0000e-003	0.0728	2.3000e-004	0.0187	1.5000e-004	0.0188	4.9600e-003	1.3000e-004	5.1000e-003	0.0000	14.9545	14.9545	7.2000e-004	0.0000	14.9695
Total	4.8900e-003	9.0500e-003	0.0748	2.4000e-004	0.0189	1.9000e-004	0.0190	5.0100e-003	1.7000e-004	5.1800e-003	0.0000	15.5789	15.5789	7.2000e-004	0.0000	15.5940

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					8.6000e-004	0.0000	8.6000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2632	2.5888	2.4185	3.2100e-003		0.1393	0.1393		0.1303	0.1303	0.0000	280.2319	280.2319	0.0723	0.0000	281.7505
Total	0.2632	2.5888	2.4185	3.2100e-003	8.6000e-004	0.1393	0.1402	1.3000e-004	0.1303	0.1304	0.0000	280.2319	280.2319	0.0723	0.0000	281.7505

3.2 Demolition - 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	1.6000e-004	2.0500e-003	2.0000e-003	1.0000e-005	1.7000e-004	4.0000e-005	2.1000e-004	5.0000e-005	4.0000e-005	8.0000e-005	0.0000	0.6244	0.6244	0.0000	0.0000	0.6245
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	4.7300e-003	7.0000e-003	0.0728	2.3000e-004	0.0187	1.5000e-004	0.0188	4.9600e-003	1.3000e-004	5.1000e-003	0.0000	14.9545	14.9545	7.2000e-004	0.0000	14.9695
Total	4.8900e-003	9.0500e-003	0.0748	2.4000e-004	0.0189	1.9000e-004	0.0190	5.0100e-003	1.7000e-004	5.1800e-003	0.0000	15.5789	15.5789	7.2000e-004	0.0000	15.5940

3.3 Site Prep - 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					
Fugitive Dust					0.6907	0.0000	0.6907	0.3795	0.0000	0.3795	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2312	2.3505	1.8051	2.2400e-003		0.1217	0.1217		0.1120	0.1120	0.0000	196.9716	196.9716	0.0637	0.0000	198.3094
Total	0.2312	2.3505	1.8051	2.2400e-003	0.6907	0.1217	0.8125	0.3795	0.1120	0.4915	0.0000	196.9716	196.9716	0.0637	0.0000	198.3094

3.3 Site Prep - 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	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120
Total	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120

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					0.2694	0.0000	0.2694	0.1480	0.0000	0.1480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2312	2.3505	1.8051	2.2400e-003		0.1217	0.1217		0.1120	0.1120	0.0000	196.9713	196.9713	0.0637	0.0000	198.3091
Total	0.2312	2.3505	1.8051	2.2400e-003	0.2694	0.1217	0.3911	0.1480	0.1120	0.2600	0.0000	196.9713	196.9713	0.0637	0.0000	198.3091

3.3 Site Prep - 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	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120
Total	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120

3.4 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	0.2650	1.9258	1.7231	2.8800e-003		0.1038	0.1038		0.1003	0.1003	0.0000	236.7422	236.7422	0.0438	0.0000	237.6620
Total	0.2650	1.9258	1.7231	2.8800e-003		0.1038	0.1038		0.1003	0.1003	0.0000	236.7422	236.7422	0.0438	0.0000	237.6620

3.4 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	8.9100e-003	0.0793	0.1297	2.8000e-004	8.0600e-003	1.3700e-003	9.4300e-003	2.3000e-003	1.2600e-003	3.5600e-003	0.0000	23.9375	23.9375	1.7000e-004	0.0000	23.9412
Worker	0.0153	0.0226	0.2352	7.4000e-004	0.0604	4.7000e-004	0.0608	0.0160	4.4000e-004	0.0165	0.0000	48.3145	48.3145	2.3100e-003	0.0000	48.3631
Total	0.0242	0.1019	0.3649	1.0200e-003	0.0684	1.8400e-003	0.0703	0.0183	1.7000e-003	0.0200	0.0000	72.2521	72.2521	2.4800e-003	0.0000	72.3042

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	0.2650	1.9258	1.7231	2.8800e-003		0.1038	0.1038		0.1003	0.1003	0.0000	236.7419	236.7419	0.0438	0.0000	237.6617
Total	0.2650	1.9258	1.7231	2.8800e-003		0.1038	0.1038		0.1003	0.1003	0.0000	236.7419	236.7419	0.0438	0.0000	237.6617

3.4 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	8.9100e-003	0.0793	0.1297	2.8000e-004	8.0600e-003	1.3700e-003	9.4300e-003	2.3000e-003	1.2600e-003	3.5600e-003	0.0000	23.9375	23.9375	1.7000e-004	0.0000	23.9412
Worker	0.0153	0.0226	0.2352	7.4000e-004	0.0604	4.7000e-004	0.0608	0.0160	4.4000e-004	0.0165	0.0000	48.3145	48.3145	2.3100e-003	0.0000	48.3631
Total	0.0242	0.1019	0.3649	1.0200e-003	0.0684	1.8400e-003	0.0703	0.0183	1.7000e-003	0.0200	0.0000	72.2521	72.2521	2.4800e-003	0.0000	72.3042

3.5 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	0.1087	1.0923	1.1468	1.7500e-003		0.0608	0.0608		0.0560	0.0560	0.0000	151.8595	151.8595	0.0481	0.0000	152.8702
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1087	1.0923	1.1468	1.7500e-003		0.0608	0.0608		0.0560	0.0560	0.0000	151.8595	151.8595	0.0481	0.0000	152.8702

3.5 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	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	0.0000
Worker	4.7300e-003	7.0000e-003	0.0728	2.3000e-004	0.0187	1.5000e-004	0.0188	4.9600e-003	1.3000e-004	5.1000e-003	0.0000	14.9545	14.9545	7.2000e-004	0.0000	14.9695	
Total	4.7300e-003	7.0000e-003	0.0728	2.3000e-004	0.0187	1.5000e-004	0.0188	4.9600e-003	1.3000e-004	5.1000e-003	0.0000	14.9545	14.9545	7.2000e-004	0.0000	14.9695	

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	0.1087	1.0923	1.1468	1.7500e-003		0.0608	0.0608		0.0560	0.0560	0.0000	151.8593	151.8593	0.0481	0.0000	152.8700
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1087	1.0923	1.1468	1.7500e-003		0.0608	0.0608		0.0560	0.0560	0.0000	151.8593	151.8593	0.0481	0.0000	152.8700

3.5 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	4.7300e-003	7.0000e-003	0.0728	2.3000e-004	0.0187	1.5000e-004	0.0188	4.9600e-003	1.3000e-004	5.1000e-003	0.0000	14.9545	14.9545	7.2000e-004	0.0000	14.9695
Total	4.7300e-003	7.0000e-003	0.0728	2.3000e-004	0.0187	1.5000e-004	0.0188	4.9600e-003	1.3000e-004	5.1000e-003	0.0000	14.9545	14.9545	7.2000e-004	0.0000	14.9695

3.6 Coatings - 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	0.5323					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.2206	0.2399	3.9000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	33.4476	33.4476	2.5900e-003	0.0000	33.5020
Total	0.5641	0.2206	0.2399	3.9000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	33.4476	33.4476	2.5900e-003	0.0000	33.5020

3.6 Coatings - 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	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120
Total	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5323					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.2206	0.2399	3.9000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	33.4476	33.4476	2.5900e-003	0.0000	33.5020
Total	0.5641	0.2206	0.2399	3.9000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	33.4476	33.4476	2.5900e-003	0.0000	33.5020

3.6 Coatings - 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	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120
Total	2.9100e-003	4.3100e-003	0.0448	1.4000e-004	0.0115	9.0000e-005	0.0116	3.0500e-003	8.0000e-005	3.1400e-003	0.0000	9.2028	9.2028	4.4000e-004	0.0000	9.2120

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
Category	tons/yr										MT/yr					
Mitigated	0.3320	0.7892	3.5997	0.0149	0.9718	0.0212	0.9930	0.2603	0.0196	0.2798	0.0000	970.6828	970.6828	0.0254	0.0000	971.2170
Unmitigated	0.3320	0.7892	3.5997	0.0149	0.9718	0.0212	0.9930	0.2603	0.0196	0.2798	0.0000	970.6828	970.6828	0.0254	0.0000	971.2170

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	276.78	300.72	254.94	946,824	946,824
General Office Building	51.20	11.02	4.56	124,974	124,974
Hotel	65.36	65.52	47.60	149,961	149,961
Regional Shopping Center	485.22	564.66	285.21	1,012,206	1,012,206
Strip Mall	186.14	176.57	85.81	324,282	324,282
Total	1,064.70	1,118.49	678.12	2,558,247	2,558,247

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 Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.474926	0.062601	0.188601	0.146937	0.045783	0.007301	0.017304	0.043806	0.002178	0.002600	0.003891	0.000533	0.003539

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	146.8112	146.8112	6.7500e-003	1.4000e-003	147.3858
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	157.4484	157.4484	7.2400e-003	1.5000e-003	158.0646
NaturalGas Mitigated	3.3500e-003	0.0295	0.0184	1.8000e-004		2.3100e-003	2.3100e-003		2.3100e-003	2.3100e-003	0.0000	33.1145	33.1145	6.3000e-004	6.1000e-004	33.3160
NaturalGas Unmitigated	4.2300e-003	0.0372	0.0233	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003	0.0000	41.8622	41.8622	8.0000e-004	7.7000e-004	42.1170

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 Mid Rise	416661	2.2500e-003	0.0192	8.1700e-003	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	22.2346	22.2346	4.3000e-004	4.1000e-004	22.3700
General Office Building	50824.5	2.7000e-004	2.4900e-003	2.0900e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.7122	2.7122	5.0000e-005	5.0000e-005	2.7287
Hotel	290632	1.5700e-003	0.0143	0.0120	9.0000e-005		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	15.5093	15.5093	3.0000e-004	2.8000e-004	15.6036
Regional Shopping Center	19210	1.0000e-004	9.4000e-004	7.9000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	1.0251	1.0251	2.0000e-005	2.0000e-005	1.0314
Strip Mall	7140	4.0000e-005	3.5000e-004	2.9000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.3810	0.3810	1.0000e-005	1.0000e-005	0.3833
Total		4.2300e-003	0.0372	0.0233	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003	0.0000	41.8622	41.8622	8.1000e-004	7.7000e-004	42.1170

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					
General Office Building	38571.8	2.1000e-004	1.8900e-003	1.5900e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0583	2.0583	4.0000e-005	4.0000e-005	2.0709
Hotel	229764	1.2400e-003	0.0113	9.4600e-003	7.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	12.2611	12.2611	2.4000e-004	2.2000e-004	12.3357
Regional Shopping Center	15791.8	9.0000e-005	7.7000e-004	6.5000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8427	0.8427	2.0000e-005	2.0000e-005	0.8478
Strip Mall	5869.5	3.0000e-005	2.9000e-004	2.4000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3132	0.3132	1.0000e-005	1.0000e-005	0.3151
Apartments Mid Rise	330545	1.7800e-003	0.0152	6.4800e-003	1.0000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	17.6391	17.6391	3.4000e-004	3.2000e-004	17.7465
Total		3.3500e-003	0.0294	0.0184	1.8000e-004		2.3100e-003	2.3100e-003		2.3100e-003	2.3100e-003	0.0000	33.1145	33.1145	6.5000e-004	6.1000e-004	33.3160

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	148762	42.5709	1.9600e-003	4.0000e-004	42.7375
General Office Building	67564.5	19.3347	8.9000e-004	1.8000e-004	19.4104
Hotel	98736	28.2550	1.3000e-003	2.7000e-004	28.3656
Regional Shopping Center	171421	49.0550	2.2500e-003	4.7000e-004	49.2470
Strip Mall	63714	18.2328	8.4000e-004	1.7000e-004	18.3042
Total		157.4484	7.2400e-003	1.4900e-003	158.0646

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	146172	41.8297	1.9200e-003	4.0000e-004	41.9934
General Office Building	61031.3	17.4651	8.0000e-004	1.7000e-004	17.5335
Hotel	89675.5	25.6622	1.1800e-003	2.4000e-004	25.7626
Regional Shopping Center	157579	45.0938	2.0700e-003	4.3000e-004	45.2702
Strip Mall	58569	16.7605	7.7000e-004	1.6000e-004	16.8261
Total		146.8112	6.7400e-003	1.4000e-003	147.3858

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					
Mitigated	0.4703	8.4700e-003	0.6959	4.4000e-004		0.0425	0.0425		0.0425	0.0425	4.4612	9.2811	13.7423	0.0140	3.0000e-004	14.1297
Unmitigated	0.4703	8.4700e-003	0.6959	4.4000e-004		0.0425	0.0425		0.0425	0.0425	4.4612	9.2811	13.7423	0.0140	3.0000e-004	14.1297

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	0.0532					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2666					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1376	3.4900e-003	0.2639	4.2000e-004		0.0401	0.0401		0.0401	0.0401	4.4612	8.5729	13.0341	0.0133	3.0000e-004	13.4074
Landscaping	0.0129	4.9800e-003	0.4320	2.0000e-005		2.4000e-003	2.4000e-003		2.4000e-003	2.4000e-003	0.0000	0.7082	0.7082	6.8000e-004	0.0000	0.7224
Total	0.4703	8.4700e-003	0.6959	4.4000e-004		0.0425	0.0425		0.0425	0.0425	4.4612	9.2811	13.7423	0.0140	3.0000e-004	14.1297

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	0.0532					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2666					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1376	3.4900e-003	0.2639	4.2000e-004		0.0401	0.0401		0.0401	0.0401	4.4612	8.5729	13.0341	0.0133	3.0000e-004	13.4074
Landscaping	0.0129	4.9800e-003	0.4320	2.0000e-005		2.4000e-003	2.4000e-003		2.4000e-003	2.4000e-003	0.0000	0.7082	0.7082	6.8000e-004	0.0000	0.7224
Total	0.4703	8.4700e-003	0.6959	4.4000e-004		0.0425	0.0425		0.0425	0.0425	4.4612	9.2811	13.7423	0.0140	3.0000e-004	14.1297

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	29.2736	0.1614	4.0400e-003	33.9142
Unmitigated	29.2736	0.1614	4.0400e-003	33.9167

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	2.73647 / 1.72517	16.5496	0.0899	2.2500e-003	19.1362
General Office Building	0.826462 / 0.506541	4.9522	0.0272	6.8000e-004	5.7332
Hotel	0.202934 / 0.0225482	0.8922	6.6500e-003	1.6000e-004	1.0828
Regional Shopping Center	0.837019 / 0.513012	5.0155	0.0275	6.9000e-004	5.8065
Strip Mall	0.311105 / 0.190677	1.8642	0.0102	2.6000e-004	2.1582
Total		29.2736	0.1614	4.0400e-003	33.9167

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	2.73647 / 1.72517	16.5496	0.0899	2.2500e-003	19.1348
General Office Building	0.826462 / 0.506541	4.9522	0.0271	6.8000e-004	5.7328
Hotel	0.202934 / 0.0225482	0.8922	6.6500e-003	1.6000e-004	1.0826
Regional Shopping Center	0.837019 / 0.513012	5.0155	0.0275	6.9000e-004	5.8060
Strip Mall	0.311105 / 0.190677	1.8642	0.0102	2.6000e-004	2.1580
Total		29.2736	0.1614	4.0400e-003	33.9142

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.9925	0.5314	0.0000	20.1528
Unmitigated	8.9925	0.5314	0.0000	20.1528

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	19.32	3.9218	0.2318	0.0000	8.7890
General Office Building	4.32	0.8769	0.0518	0.0000	1.9652
Hotel	4.38	0.8891	0.0525	0.0000	1.9925
Regional Shopping Center	11.87	2.4095	0.1424	0.0000	5.3999
Strip Mall	4.41	0.8952	0.0529	0.0000	2.0062
Total		8.9925	0.5314	0.0000	20.1528

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	19.32	3.9218	0.2318	0.0000	8.7890
General Office Building	4.32	0.8769	0.0518	0.0000	1.9652
Hotel	4.38	0.8891	0.0525	0.0000	1.9925
Regional Shopping Center	11.87	2.4095	0.1424	0.0000	5.3999
Strip Mall	4.41	0.8952	0.0529	0.0000	2.0062
Total		8.9925	0.5314	0.0000	20.1528

9.0 Operational Offroad

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