Attachment 1

Air Quality Emissions Calculations & Health Risk Assessment

ESA

CalEEMod Outputs

Natomas II Apartments Phase I & Phase II Operation FINAL

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	24.00	1000sqft	0.55	24,000.00	0
Apartments Mid Rise	472.00	Dwelling Unit	15.91	717,011.00	1260

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 16.46 (total lot ac from pd) - 0.55 (default recreational ac) = 15.91 (residential ac)

Construction Phase - Total days of construction = sum of days for Phase 1 and Phase 2

Grading -

Vehicle Trips - Rec use by project residents only. Would not generate additional trips.

Energy Use -

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

Construction Off-road Equipment Mitigation - Not using construction output from this CalEEMod run.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	300.00	481.00
tblConstructionPhase	NumDays	30.00	40.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	PhaseEndDate	5/6/2022	3/19/2024
tblConstructionPhase	PhaseEndDate	3/11/2022	5/22/2023
tblConstructionPhase	PhaseEndDate	1/15/2021	4/30/2021
tblConstructionPhase	PhaseEndDate	4/8/2022	9/22/2023
tblConstructionPhase	PhaseEndDate	12/4/2020	12/18/2020
tblConstructionPhase	PhaseStartDate	4/9/2022	1/24/2024
tblConstructionPhase	PhaseStartDate	1/16/2021	7/19/2021
tblConstructionPhase	PhaseStartDate	12/5/2020	3/8/2021
tblConstructionPhase	PhaseStartDate	3/12/2022	7/31/2023
tblLandUse	LandUseSquareFeet	472,000.00	717,011.00
tblLandUse	LotAcreage	12.42	15.91
tblVehicleTrips	ST_TR	21.35	0.00
tblVehicleTrips	SU_TR	17.40	0.00
tblVehicleTrips	WD_TR	14.03	0.00

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	0.0414	0.4246	0.2201	3.9000e-004	0.1549	0.0220	0.1769	0.0848	0.0202	0.1050	0.0000	34.6020	34.6020	0.0109	0.0000	34.8731
2021	0.2822	2.3538	2.2423	5.1400e-003	0.3279	0.0992	0.4271	0.1102	0.0925	0.2027	0.0000	458.5131	458.5131	0.0767	0.0000	460.4295
2022	0.3895	2.8045	3.3624	8.2500e-003	0.3752	0.1092	0.4844	0.1007	0.1027	0.2035	0.0000	740.2747	740.2747	0.0881	0.0000	742.4763
2023	0.1608	1.1870	1.5568	3.6200e-003	0.1480	0.0467	0.1947	0.0397	0.0438	0.0835	0.0000	324.2171	324.2171	0.0464	0.0000	325.3766
2024	3.0723	0.0267	0.0639	1.5000e-004	0.0103	1.2900e-003	0.0116	2.7300e-003	1.2800e-003	4.0100e-003	0.0000	12.9553	12.9553	4.6000e-004	0.0000	12.9667
Maximum	**3.0723**	**2.8045**	**3.3624**	**8.2500e-003**	**0.3752**	**0.1092**	**0.4844**	**0.1102**	**0.1027**	**0.2035**	**0.0000**	**740.2747**	**740.2747**	**0.0881**	**0.0000**	**742.4763**

2.1 Overall Construction

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	0.0414	0.4246	0.2201	3.9000e-004	0.1549	0.0220	0.1769	0.0848	0.0202	0.1050	0.0000	34.6020	34.6020	0.0109	0.0000	34.8731
2021	0.2822	2.3538	2.2423	5.1400e-003	0.3279	0.0992	0.4271	0.1102	0.0925	0.2027	0.0000	458.5128	458.5128	0.0767	0.0000	460.4292
2022	0.3895	2.8045	3.3624	8.2500e-003	0.3752	0.1092	0.4844	0.1007	0.1027	0.2035	0.0000	740.2743	740.2743	0.0881	0.0000	742.4759
2023	0.1608	1.1870	1.5568	3.6200e-003	0.1480	0.0467	0.1947	0.0397	0.0438	0.0835	0.0000	324.2169	324.2169	0.0464	0.0000	325.3764
2024	3.0723	0.0267	0.0639	1.5000e-004	0.0103	1.2900e-003	0.0116	2.7300e-003	1.2800e-003	4.0100e-003	0.0000	12.9553	12.9553	4.6000e-004	0.0000	12.9667
Maximum	**3.0723**	**2.8045**	**3.3624**	**8.2500e-003**	**0.3752**	**0.1092**	**0.4844**	**0.1102**	**0.1027**	**0.2035**	**0.0000**	**740.2743**	**740.2743**	**0.0881**	**0.0000**	**742.4759**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-23-2020**	**2-22-2021**	0.4329	0.4329
2	**2-23-2021**	**5-22-2021**	0.9780	0.9780
3	**5-23-2021**	**8-22-2021**	0.3381	0.3381
4	**8-23-2021**	**11-22-2021**	0.8916	0.8916
5	**11-23-2021**	**2-22-2022**	0.8469	0.8469
6	**2-23-2022**	**5-22-2022**	0.7833	0.7833

7	**5-23-2022**	**8-22-2022**	0.8079	0.8079
8	**8-23-2022**	**11-22-2022**	0.8105	0.8105
9	**11-23-2022**	**2-22-2023**	0.7675	0.7675
10	**2-23-2023**	**5-22-2023**	0.7088	0.7088
11	**5-23-2023**	**8-22-2023**	0.0928	0.0928
12	**8-23-2023**	**11-22-2023**	0.1251	0.1251
13	**11-23-2023**	**2-22-2024**	1.6605	1.6605
14	**2-23-2024**	**5-22-2024**	1.4391	1.4391
		Highest	1.6605	1.6605

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	3.3468	0.0561	4.8658	2.6000e-004		0.0270	0.0270		0.0270	0.0270	0.0000	7.9517	7.9517	7.6300e-003	0.0000	8.1425
Energy	0.0294	0.2541	0.1256	1.6100e-003		0.0203	0.0203		0.0203	0.0203	0.0000	926.8890	926.8890	0.0368	0.0118	931.3259
Mobile	0.8966	3.9115	10.5455	0.0337	2.9358	0.0296	2.9654	0.7871	0.0277	0.8147	0.0000	3,101.5346	3,101.5346	0.1464	0.0000	3,105.1946
Waste						0.0000	0.0000		0.0000	0.0000	71.8426	0.0000	71.8426	4.2458	0.0000	177.9869
Water						0.0000	0.0000		0.0000	0.0000	11.3826	61.9068	73.2893	0.0422	0.0254	81.9088
Total	**4.2729**	**4.2217**	**15.5369**	**0.0356**	**2.9358**	**0.0769**	**3.0127**	**0.7871**	**0.0750**	**0.8620**	**83.2251**	**4,098.2820**	**4,181.5071**	**4.4788**	**0.0372**	**4,304.5587**

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	3.3468	0.0561	4.8658	2.6000e-004		0.0270	0.0270		0.0270	0.0270	0.0000	7.9517	7.9517	7.6300e-003	0.0000	8.1425
Energy	0.0294	0.2541	0.1256	1.6100e-003		0.0203	0.0203		0.0203	0.0203	0.0000	926.8890	926.8890	0.0368	0.0118	931.3259
Mobile	0.8966	3.9115	10.5455	0.0337	2.9358	0.0296	2.9654	0.7871	0.0277	0.8147	0.0000	3,101.5346	3,101.5346	0.1464	0.0000	3,105.1946
Waste						0.0000	0.0000		0.0000	0.0000	71.8426	0.0000	71.8426	4.2458	0.0000	177.9869
Water						0.0000	0.0000		0.0000	0.0000	11.3826	61.9068	73.2893	0.0422	0.0254	81.9088
Total	**4.2729**	**4.2217**	**15.5369**	**0.0356**	**2.9358**	**0.0769**	**3.0127**	**0.7871**	**0.0750**	**0.8620**	**83.2251**	**4,098.2820**	**4,181.5071**	**4.4788**	**0.0372**	**4,304.5587**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/23/2020	12/18/2020	5	20	
2	Grading	Grading	3/8/2021	4/30/2021	5	40	
3	Building Construction	Building Construction	7/19/2021	5/22/2023	5	481	
4	Paving	Paving	7/31/2023	9/22/2023	5	40	
5	Architectural Coating	Architectural Coating	1/24/2024	3/19/2024	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 955,800; Residential Outdoor: 318,600; Non-Residential Indoor: 36,000; Non-Residential Outdoor: 12,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	350.00	54.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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					0.1536	0.0000	0.1536	0.0844	0.0000	0.0844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0408	0.4242	0.2151	3.8000e-004		0.0220	0.0220		0.0202	0.0202	0.0000	33.4307	33.4307	0.0108	0.0000	33.7010
Total	**0.0408**	**0.4242**	**0.2151**	**3.8000e-004**	**0.1536**	**0.0220**	**0.1755**	**0.0844**	**0.0202**	**0.1046**	**0.0000**	**33.4307**	**33.4307**	**0.0108**	**0.0000**	**33.7010**

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	6.7000e-004	4.5000e-004	4.9800e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1713	1.1713	3.0000e-005	0.0000	1.1722
Total	**6.7000e-004**	**4.5000e-004**	**4.9800e-003**	**1.0000e-005**	**1.3200e-003**	**1.0000e-005**	**1.3300e-003**	**3.5000e-004**	**1.0000e-005**	**3.6000e-004**	**0.0000**	**1.1713**	**1.1713**	**3.0000e-005**	**0.0000**	**1.1722**

3.2 Site Preparation - 2020

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					0.1536	0.0000	0.1536	0.0844	0.0000	0.0844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0408	0.4242	0.2151	3.8000e-004		0.0220	0.0220		0.0202	0.0202	0.0000	33.4306	33.4306	0.0108	0.0000	33.7009
Total	**0.0408**	**0.4242**	**0.2151**	**3.8000e-004**	**0.1536**	**0.0220**	**0.1755**	**0.0844**	**0.0202**	**0.1046**	**0.0000**	**33.4306**	**33.4306**	**0.0108**	**0.0000**	**33.7009**

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	6.7000e-004	4.5000e-004	4.9800e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1713	1.1713	3.0000e-005	0.0000	1.1722
Total	**6.7000e-004**	**4.5000e-004**	**4.9800e-003**	**1.0000e-005**	**1.3200e-003**	**1.0000e-005**	**1.3300e-003**	**3.5000e-004**	**1.0000e-005**	**3.6000e-004**	**0.0000**	**1.1713**	**1.1713**	**3.0000e-005**	**0.0000**	**1.1722**

3.3 Grading - 2021

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					0.1518	0.0000	0.1518	0.0629	0.0000	0.0629	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0838	0.9280	0.6176	1.2400e-003		0.0397	0.0397		0.0365	0.0365	0.0000	108.9900	108.9900	0.0353	0.0000	109.8712
Total	**0.0838**	**0.9280**	**0.6176**	**1.2400e-003**	**0.1518**	**0.0397**	**0.1915**	**0.0629**	**0.0365**	**0.0995**	**0.0000**	**108.9900**	**108.9900**	**0.0353**	**0.0000**	**109.8712**

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	1.3900e-003	9.1000e-004	0.0101	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5143	2.5143	7.0000e-005	0.0000	2.5160
Total	**1.3900e-003**	**9.1000e-004**	**0.0101**	**3.0000e-005**	**2.9400e-003**	**2.0000e-005**	**2.9600e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.5143**	**2.5143**	**7.0000e-005**	**0.0000**	**2.5160**

3.3 Grading - 2021

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					0.1518	0.0000	0.1518	0.0629	0.0000	0.0629	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0838	0.9280	0.6176	1.2400e-003		0.0397	0.0397		0.0365	0.0365	0.0000	108.9898	108.9898	0.0353	0.0000	109.8711
Total	**0.0838**	**0.9280**	**0.6176**	**1.2400e-003**	**0.1518**	**0.0397**	**0.1915**	**0.0629**	**0.0365**	**0.0995**	**0.0000**	**108.9898**	**108.9898**	**0.0353**	**0.0000**	**109.8711**

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	1.3900e-003	9.1000e-004	0.0101	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5143	2.5143	7.0000e-005	0.0000	2.5160
Total	**1.3900e-003**	**9.1000e-004**	**0.0101**	**3.0000e-005**	**2.9400e-003**	**2.0000e-005**	**2.9600e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.5143**	**2.5143**	**7.0000e-005**	**0.0000**	**2.5160**

3.4 Building Construction - 2021

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	0.1141	1.0459	0.9945	1.6200e-003		0.0575	0.0575		0.0541	0.0541	0.0000	138.9824	138.9824	0.0335	0.0000	139.8206
Total	**0.1141**	**1.0459**	**0.9945**	**1.6200e-003**		**0.0575**	**0.0575**		**0.0541**	**0.0541**	**0.0000**	**138.9824**	**138.9824**	**0.0335**	**0.0000**	**139.8206**

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	0.0102	0.3314	0.0886	7.9000e-004	0.0189	9.2000e-004	0.0199	5.4700e-003	8.8000e-004	6.3500e-003	0.0000	76.0249	76.0249	4.3500e-003	0.0000	76.1335
Worker	0.0727	0.0475	0.5315	1.4600e-003	0.1542	1.0800e-003	0.1553	0.0410	9.9000e-004	0.0420	0.0000	132.0016	132.0016	3.4700e-003	0.0000	132.0882
Total	**0.0829**	**0.3790**	**0.6201**	**2.2500e-003**	**0.1732**	**2.0000e-003**	**0.1752**	**0.0465**	**1.8700e-003**	**0.0484**	**0.0000**	**208.0264**	**208.0264**	**7.8200e-003**	**0.0000**	**208.2217**

3.4 Building Construction - 2021

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	0.1141	1.0459	0.9945	1.6200e-003		0.0575	0.0575		0.0541	0.0541	0.0000	138.9822	138.9822	0.0335	0.0000	139.8205
Total	**0.1141**	**1.0459**	**0.9945**	**1.6200e-003**		**0.0575**	**0.0575**		**0.0541**	**0.0541**	**0.0000**	**138.9822**	**138.9822**	**0.0335**	**0.0000**	**139.8205**

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	0.0102	0.3314	0.0886	7.9000e-004	0.0189	9.2000e-004	0.0199	5.4700e-003	8.8000e-004	6.3500e-003	0.0000	76.0249	76.0249	4.3500e-003	0.0000	76.1335
Worker	0.0727	0.0475	0.5315	1.4600e-003	0.1542	1.0800e-003	0.1553	0.0410	9.9000e-004	0.0420	0.0000	132.0016	132.0016	3.4700e-003	0.0000	132.0882
Total	**0.0829**	**0.3790**	**0.6201**	**2.2500e-003**	**0.1732**	**2.0000e-003**	**0.1752**	**0.0465**	**1.8700e-003**	**0.0484**	**0.0000**	**208.0264**	**208.0264**	**7.8200e-003**	**0.0000**	**208.2217**

3.4 Building Construction - 2022

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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

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	0.0205	0.6819	0.1770	1.7000e-003	0.0410	1.7400e-003	0.0428	0.0119	1.6600e-003	0.0135	0.0000	163.2726	163.2726	9.1500e-003	0.0000	163.5013
Worker	0.1472	0.0926	1.0582	3.0500e-003	0.3342	2.2800e-003	0.3364	0.0889	2.1000e-003	0.0910	0.0000	275.7592	275.7592	6.7500e-003	0.0000	275.9279
Total	**0.1677**	**0.7744**	**1.2352**	**4.7500e-003**	**0.3752**	**4.0200e-003**	**0.3792**	**0.1007**	**3.7600e-003**	**0.1045**	**0.0000**	**439.0318**	**439.0318**	**0.0159**	**0.0000**	**439.4292**

3.4 Building Construction - 2022

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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

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	0.0205	0.6819	0.1770	1.7000e-003	0.0410	1.7400e-003	0.0428	0.0119	1.6600e-003	0.0135	0.0000	163.2726	163.2726	9.1500e-003	0.0000	163.5013
Worker	0.1472	0.0926	1.0582	3.0500e-003	0.3342	2.2800e-003	0.3364	0.0889	2.1000e-003	0.0910	0.0000	275.7592	275.7592	6.7500e-003	0.0000	275.9279
Total	**0.1677**	**0.7744**	**1.2352**	**4.7500e-003**	**0.3752**	**4.0200e-003**	**0.3792**	**0.1007**	**3.7600e-003**	**0.1045**	**0.0000**	**439.0318**	**439.0318**	**0.0159**	**0.0000**	**439.4292**

3.4 Building Construction - 2023

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	0.0794	0.7264	0.8203	1.3600e-003		0.0353	0.0353		0.0333	0.0333	0.0000	117.0614	117.0614	0.0279	0.0000	117.7576
Total	**0.0794**	**0.7264**	**0.8203**	**1.3600e-003**		**0.0353**	**0.0353**		**0.0333**	**0.0333**	**0.0000**	**117.0614**	**117.0614**	**0.0279**	**0.0000**	**117.7576**

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	6.2900e-003	0.2239	0.0608	6.5000e-004	0.0159	3.2000e-004	0.0163	4.6100e-003	3.1000e-004	4.9100e-003	0.0000	62.2528	62.2528	3.1900e-003	0.0000	62.3325
Worker	0.0535	0.0324	0.3775	1.1400e-003	0.1298	8.6000e-004	0.1307	0.0345	7.9000e-004	0.0353	0.0000	103.0993	103.0993	2.3500e-003	0.0000	103.1580
Total	**0.0598**	**0.2562**	**0.4384**	**1.7900e-003**	**0.1458**	**1.1800e-003**	**0.1469**	**0.0391**	**1.1000e-003**	**0.0402**	**0.0000**	**165.3521**	**165.3521**	**5.5400e-003**	**0.0000**	**165.4905**

3.4 Building Construction - 2023

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	0.0794	0.7264	0.8203	1.3600e-003		0.0353	0.0353		0.0333	0.0333	0.0000	117.0613	117.0613	0.0279	0.0000	117.7574
Total	**0.0794**	**0.7264**	**0.8203**	**1.3600e-003**		**0.0353**	**0.0353**		**0.0333**	**0.0333**	**0.0000**	**117.0613**	**117.0613**	**0.0279**	**0.0000**	**117.7574**

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	6.2900e-003	0.2239	0.0608	6.5000e-004	0.0159	3.2000e-004	0.0163	4.6100e-003	3.1000e-004	4.9100e-003	0.0000	62.2528	62.2528	3.1900e-003	0.0000	62.3325
Worker	0.0535	0.0324	0.3775	1.1400e-003	0.1298	8.6000e-004	0.1307	0.0345	7.9000e-004	0.0353	0.0000	103.0993	103.0993	2.3500e-003	0.0000	103.1580
Total	**0.0598**	**0.2562**	**0.4384**	**1.7900e-003**	**0.1458**	**1.1800e-003**	**0.1469**	**0.0391**	**1.1000e-003**	**0.0402**	**0.0000**	**165.3521**	**165.3521**	**5.5400e-003**	**0.0000**	**165.4905**

3.5 Paving - 2023

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	0.0207	0.2038	0.2917	4.6000e-004		0.0102	0.0102		9.3900e-003	9.3900e-003	0.0000	40.0537	40.0537	0.0130	0.0000	40.3776
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0207**	**0.2038**	**0.2917**	**4.6000e-004**		**0.0102**	**0.0102**		**9.3900e-003**	**9.3900e-003**	**0.0000**	**40.0537**	**40.0537**	**0.0130**	**0.0000**	**40.3776**

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	9.1000e-004	5.5000e-004	6.4100e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.7499	1.7499	4.0000e-005	0.0000	1.7509
Total	**9.1000e-004**	**5.5000e-004**	**6.4100e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2200e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.7499**	**1.7499**	**4.0000e-005**	**0.0000**	**1.7509**

3.5 Paving - 2023

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	0.0207	0.2038	0.2917	4.6000e-004		0.0102	0.0102		9.3900e-003	9.3900e-003	0.0000	40.0537	40.0537	0.0130	0.0000	40.3775
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0207**	**0.2038**	**0.2917**	**4.6000e-004**		**0.0102**	**0.0102**		**9.3900e-003**	**9.3900e-003**	**0.0000**	**40.0537**	**40.0537**	**0.0130**	**0.0000**	**40.3775**

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	9.1000e-004	5.5000e-004	6.4100e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.7499	1.7499	4.0000e-005	0.0000	1.7509
Total	**9.1000e-004**	**5.5000e-004**	**6.4100e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2200e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.7499**	**1.7499**	**4.0000e-005**	**0.0000**	**1.7509**

3.6 Architectural Coating - 2024

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	3.0647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6200e-003	0.0244	0.0362	6.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	5.1065	5.1065	2.9000e-004	0.0000	5.1137
Total	**3.0683**	**0.0244**	**0.0362**	**6.0000e-005**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**5.1065**	**5.1065**	**2.9000e-004**	**0.0000**	**5.1137**

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	3.9900e-003	2.3200e-003	0.0277	9.0000e-005	0.0103	7.0000e-005	0.0104	2.7300e-003	6.0000e-005	2.8000e-003	0.0000	7.8488	7.8488	1.7000e-004	0.0000	7.8530
Total	**3.9900e-003**	**2.3200e-003**	**0.0277**	**9.0000e-005**	**0.0103**	**7.0000e-005**	**0.0104**	**2.7300e-003**	**6.0000e-005**	**2.8000e-003**	**0.0000**	**7.8488**	**7.8488**	**1.7000e-004**	**0.0000**	**7.8530**

3.6 Architectural Coating - 2024

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	3.0647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6200e-003	0.0244	0.0362	6.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	5.1065	5.1065	2.9000e-004	0.0000	5.1137
Total	**3.0683**	**0.0244**	**0.0362**	**6.0000e-005**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**5.1065**	**5.1065**	**2.9000e-004**	**0.0000**	**5.1137**

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	3.9900e-003	2.3200e-003	0.0277	9.0000e-005	0.0103	7.0000e-005	0.0104	2.7300e-003	6.0000e-005	2.8000e-003	0.0000	7.8488	7.8488	1.7000e-004	0.0000	7.8530
Total	**3.9900e-003**	**2.3200e-003**	**0.0277**	**9.0000e-005**	**0.0103**	**7.0000e-005**	**0.0104**	**2.7300e-003**	**6.0000e-005**	**2.8000e-003**	**0.0000**	**7.8488**	**7.8488**	**1.7000e-004**	**0.0000**	**7.8530**

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	0.8966	3.9115	10.5455	0.0337	2.9358	0.0296	2.9654	0.7871	0.0277	0.8147	0.0000	3,101.5346	3,101.5346	0.1464	0.0000	3,105.1946
Unmitigated	0.8966	3.9115	10.5455	0.0337	2.9358	0.0296	2.9654	0.7871	0.0277	0.8147	0.0000	3,101.5346	3,101.5346	0.1464	0.0000	3,105.1946

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	3,138.80	3,016.08	2765.92	7,872,822	7,872,822
Racquet Club	0.00	0.00	0.00		
Total	3,138.80	3,016.08	2,765.92	7,872,822	7,872,822

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Racquet Club	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	635.4936	635.4936	0.0312	6.4600e-003	638.1989
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	635.4936	635.4936	0.0312	6.4600e-003	638.1989
NaturalGas Mitigated	0.0294	0.2541	0.1256	1.6100e-003		0.0203	0.0203		0.0203	0.0203	0.0000	291.3954	291.3954	5.5900e-003	5.3400e-003	293.1270
NaturalGas Unmitigated	0.0294	0.2541	0.1256	1.6100e-003		0.0203	0.0203		0.0203	0.0203	0.0000	291.3954	291.3954	5.5900e-003	5.3400e-003	293.1270

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	4.6011e+006	0.0248	0.2120	0.0902	1.3500e-003		0.0171	0.0171		0.0171	0.0171	0.0000	245.5324	245.5324	4.7100e-003	4.5000e-003	246.9915
Racquet Club	859440	4.6300e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003	0.0000	45.8630	45.8630	8.8000e-004	8.4000e-004	46.1355
Total		**0.0294**	**0.2541**	**0.1256**	**1.6000e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**	**0.0000**	**291.3954**	**291.3954**	**5.5900e-003**	**5.3400e-003**	**293.1270**

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 Mid Rise	4.6011e+006	0.0248	0.2120	0.0902	1.3500e-003		0.0171	0.0171		0.0171	0.0171	0.0000	245.5324	245.5324	4.7100e-003	4.5000e-003	246.9915
Racquet Club	859440	4.6300e-003	0.0421	0.0354	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003	0.0000	45.8630	45.8630	8.8000e-004	8.4000e-004	46.1355
Total		**0.0294**	**0.2541**	**0.1256**	**1.6000e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**	**0.0000**	**291.3954**	**291.3954**	**5.5900e-003**	**5.3400e-003**	**293.1270**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.00905e+006	537.9432	0.0264	5.4700e-003	540.2333
Racquet Club	364320	97.5504	4.7900e-003	9.9000e-004	97.9656
Total		**635.4936**	**0.0312**	**6.4600e-003**	**638.1989**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.00905e+006	537.9432	0.0264	5.4700e-003	540.2333
Racquet Club	364320	97.5504	4.7900e-003	9.9000e-004	97.9656
Total		**635.4936**	**0.0312**	**6.4600e-003**	**638.1989**

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	3.3468	0.0561	4.8658	2.6000e-004		0.0270	0.0270		0.0270	0.0270	0.0000	7.9517	7.9517	7.6300e-003	0.0000	8.1425
Unmitigated	3.3468	0.0561	4.8658	2.6000e-004		0.0270	0.0270		0.0270	0.0270	0.0000	7.9517	7.9517	7.6300e-003	0.0000	8.1425

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	0.3065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8940					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1463	0.0561	4.8658	2.6000e-004		0.0270	0.0270		0.0270	0.0270	0.0000	7.9517	7.9517	7.6300e-003	0.0000	8.1425
Total	**3.3468**	**0.0561**	**4.8658**	**2.6000e-004**		**0.0270**	**0.0270**		**0.0270**	**0.0270**	**0.0000**	**7.9517**	**7.9517**	**7.6300e-003**	**0.0000**	**8.1425**

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	0.3065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8940					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1463	0.0561	4.8658	2.6000e-004		0.0270	0.0270		0.0270	0.0270	0.0000	7.9517	7.9517	7.6300e-003	0.0000	8.1425
Total	**3.3468**	**0.0561**	**4.8658**	**2.6000e-004**		**0.0270**	**0.0270**		**0.0270**	**0.0270**	**0.0000**	**7.9517**	**7.9517**	**7.6300e-003**	**0.0000**	**8.1425**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	73.2893	0.0422	0.0254	81.9088
Unmitigated	73.2893	0.0422	0.0254	81.9088

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	30.7527 / 19.3876	70.0781	0.0404	0.0243	78.3174
Racquet Club	1.41944 / 0.869977	3.2112	1.8600e-003	1.1200e-003	3.5914
Total		**73.2893**	**0.0422**	**0.0254**	**81.9088**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	30.7527 / 19.3876	70.0781	0.0404	0.0243	78.3174
Racquet Club	1.41944 / 0.869977	3.2112	1.8600e-003	1.1200e-003	3.5914
Total		**73.2893**	**0.0422**	**0.0254**	**81.9088**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	71.8426	4.2458	0.0000	177.9869
Unmitigated	71.8426	4.2458	0.0000	177.9869

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	217.12	44.0734	2.6047	0.0000	109.1900
Racquet Club	136.8	27.7692	1.6411	0.0000	68.7969
Total		**71.8426**	**4.2458**	**0.0000**	**177.9869**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	217.12	44.0734	2.6047	0.0000	109.1900
Racquet Club	136.8	27.7692	1.6411	0.0000	68.7969
Total		**71.8426**	**4.2458**	**0.0000**	**177.9869**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase I & Phase II Operation FINAL

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	24.00	1000sqft	0.55	24,000.00	0
Apartments Mid Rise	472.00	Dwelling Unit	15.91	717,011.00	1260

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 16.46 (total lot ac from pd) - 0.55 (default recreational ac) = 15.91 (residential ac)

Construction Phase - Total days of construction = sum of days for Phase 1 and Phase 2

Grading -

Vehicle Trips - Rec use by project residents only. Would not generate additional trips.

Energy Use -

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

Construction Off-road Equipment Mitigation - Not using construction output from this CalEEMod run.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	300.00	481.00
tblConstructionPhase	NumDays	30.00	40.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	PhaseEndDate	5/6/2022	3/19/2024
tblConstructionPhase	PhaseEndDate	3/11/2022	5/22/2023
tblConstructionPhase	PhaseEndDate	1/15/2021	4/30/2021
tblConstructionPhase	PhaseEndDate	4/8/2022	9/22/2023
tblConstructionPhase	PhaseEndDate	12/4/2020	12/18/2020
tblConstructionPhase	PhaseStartDate	4/9/2022	1/24/2024
tblConstructionPhase	PhaseStartDate	1/16/2021	7/19/2021
tblConstructionPhase	PhaseStartDate	12/5/2020	3/8/2021
tblConstructionPhase	PhaseStartDate	3/12/2022	7/31/2023
tblLandUse	LandUseSquareFeet	472,000.00	717,011.00
tblLandUse	LotAcreage	12.42	15.91
tblVehicleTrips	ST_TR	21.35	0.00
tblVehicleTrips	SU_TR	17.40	0.00
tblVehicleTrips	WD_TR	14.03	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.1541	42.4585	22.1013	0.0395	15.4933	2.1984	17.6916	8.4774	2.0225	10.4999	0.0000	3,827.9339	3,827.9339	1.1959	0.0000	3,857.8321
2021	4.2713	46.4409	31.4768	0.0672	7.7413	1.9864	9.7277	3.1873	1.8275	5.0148	0.0000	6,648.0212	6,648.0212	1.9469	0.0000	6,667.1355
2022	3.1704	21.4180	27.2819	0.0661	2.9873	0.8396	3.8269	0.7997	0.7897	1.5895	0.0000	6,540.4668	6,540.4668	0.7511	0.0000	6,559.2432
2023	2.9190	19.3402	26.2514	0.0649	2.9873	0.7230	3.7103	0.7997	0.6800	1.4797	0.0000	6,418.1924	6,418.1924	0.7327	0.0000	6,436.5093
2024	153.6437	1.3239	3.4568	7.7700e-003	0.5325	0.0643	0.5968	0.1413	0.0640	0.2052	0.0000	759.9156	759.9156	0.0262	0.0000	760.5712
Maximum	**153.6437**	**46.4409**	**31.4768**	**0.0672**	**15.4933**	**2.1984**	**17.6916**	**8.4774**	**2.0225**	**10.4999**	**0.0000**	**6,648.0212**	**6,648.0212**	**1.9469**	**0.0000**	**6,667.1355**

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.1541	42.4585	22.1013	0.0395	15.4933	2.1984	17.6916	8.4774	2.0225	10.4999	0.0000	3,827.9339	3,827.9339	1.1959	0.0000	3,857.8321
2021	4.2713	46.4409	31.4768	0.0672	7.7413	1.9864	9.7277	3.1873	1.8275	5.0148	0.0000	6,648.0212	6,648.0212	1.9469	0.0000	6,667.1355
2022	3.1704	21.4180	27.2819	0.0661	2.9873	0.8396	3.8269	0.7997	0.7897	1.5895	0.0000	6,540.4668	6,540.4668	0.7511	0.0000	6,559.2432
2023	2.9190	19.3402	26.2514	0.0649	2.9873	0.7230	3.7103	0.7997	0.6800	1.4797	0.0000	6,418.1924	6,418.1924	0.7327	0.0000	6,436.5092
2024	153.6437	1.3239	3.4568	7.7700e-003	0.5325	0.0643	0.5968	0.1413	0.0640	0.2052	0.0000	759.9156	759.9156	0.0262	0.0000	760.5712
Maximum	**153.6437**	**46.4409**	**31.4768**	**0.0672**	**15.4933**	**2.1984**	**17.6916**	**8.4774**	**2.0225**	**10.4999**	**0.0000**	**6,648.0212**	**6,648.0212**	**1.9469**	**0.0000**	**6,667.1355**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**

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	lb/day										lb/day					
Area	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042
Energy	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052
Mobile	6.3589	21.1146	66.7536	0.2053	17.0841	0.1655	17.2495	4.5670	0.1548	4.7218		20,784.5144	20,784.5144	0.9325		20,807.8275
Total	**25.2278**	**22.9556**	**106.3686**	**0.2162**	**17.0841**	**0.4927**	**17.5767**	**4.5670**	**0.4820**	**5.0490**	**0.0000**	**22,614.6825**	**22,614.6825**	**1.0335**	**0.0323**	**22,650.1369**

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	lb/day										lb/day					
Area	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042
Energy	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052
Mobile	6.3589	21.1146	66.7536	0.2053	17.0841	0.1655	17.2495	4.5670	0.1548	4.7218		20,784.5144	20,784.5144	0.9325		20,807.8275
Total	**25.2278**	**22.9556**	**106.3686**	**0.2162**	**17.0841**	**0.4927**	**17.5767**	**4.5670**	**0.4820**	**5.0490**	**0.0000**	**22,614.6825**	**22,614.6825**	**1.0335**	**0.0323**	**22,650.1369**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/23/2020	12/18/2020	5	20	
2	Grading	Grading	3/8/2021	4/30/2021	5	40	
3	Building Construction	Building Construction	7/19/2021	5/22/2023	5	481	
4	Paving	Paving	7/31/2023	9/22/2023	5	40	
5	Architectural Coating	Architectural Coating	1/24/2024	3/19/2024	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 955,800; Residential Outdoor: 318,600; Non-Residential Indoor: 36,000; Non-Residential Outdoor: 12,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	350.00	54.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					15.3563	0.0000	15.3563	8.4411	0.0000	8.4411			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**15.3563**	**2.1974**	**17.5537**	**8.4411**	**2.0216**	**10.4627**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	lb/day										lb/day					
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
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
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

3.2 Site Preparation - 2020

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	lb/day										lb/day					
Fugitive Dust					15.3563	0.0000	15.3563	8.4411	0.0000	8.4411			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**15.3563**	**2.1974**	**17.5537**	**8.4411**	**2.0216**	**10.4627**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	lb/day										lb/day					
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
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
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

3.3 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					7.5892	0.0000	7.5892	3.1469	0.0000	3.1469			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.5892**	**1.9853**	**9.5745**	**3.1469**	**1.8265**	**4.9735**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	lb/day										lb/day					
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
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
Worker	0.0802	0.0410	0.5983	1.5400e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		153.2958	153.2958	4.0800e-003		153.3978
Total	**0.0802**	**0.0410**	**0.5983**	**1.5400e-003**	**0.1521**	**1.0300e-003**	**0.1532**	**0.0404**	**9.5000e-004**	**0.0413**		**153.2958**	**153.2958**	**4.0800e-003**		**153.3978**

3.3 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					7.5892	0.0000	7.5892	3.1469	0.0000	3.1469			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.5892**	**1.9853**	**9.5745**	**3.1469**	**1.8265**	**4.9735**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	lb/day										lb/day					
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
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
Worker	0.0802	0.0410	0.5983	1.5400e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		153.2958	153.2958	4.0800e-003		153.3978
Total	**0.0802**	**0.0410**	**0.5983**	**1.5400e-003**	**0.1521**	**1.0300e-003**	**0.1532**	**0.0404**	**9.5000e-004**	**0.0413**		**153.2958**	**153.2958**	**4.0800e-003**		**153.3978**

3.4 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	lb/day										lb/day					
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
Vendor	0.1669	5.4238	1.3850	0.0133	0.3249	0.0149	0.3398	0.0935	0.0142	0.1077		1,411.9807	1,411.9807	0.0772		1,413.9100
Worker	1.4028	0.7181	10.4704	0.0270	2.6625	0.0180	2.6804	0.7062	0.0166	0.7228		2,682.6766	2,682.6766	0.0714		2,684.4613
Total	**1.5697**	**6.1419**	**11.8554**	**0.0403**	**2.9874**	**0.0329**	**3.0202**	**0.7997**	**0.0308**	**0.8305**		**4,094.6573**	**4,094.6573**	**0.1486**		**4,098.3712**

3.4 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	lb/day										lb/day					
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
Vendor	0.1669	5.4238	1.3850	0.0133	0.3249	0.0149	0.3398	0.0935	0.0142	0.1077		1,411.9807	1,411.9807	0.0772		1,413.9100
Worker	1.4028	0.7181	10.4704	0.0270	2.6625	0.0180	2.6804	0.7062	0.0166	0.7228		2,682.6766	2,682.6766	0.0714		2,684.4613
Total	**1.5697**	**6.1419**	**11.8554**	**0.0403**	**2.9874**	**0.0329**	**3.0202**	**0.7997**	**0.0308**	**0.8305**		**4,094.6573**	**4,094.6573**	**0.1486**		**4,098.3712**

3.4 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
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
Vendor	0.1548	5.1565	1.2761	0.0132	0.3249	0.0130	0.3379	0.0935	0.0125	0.1060		1,399.6639	1,399.6639	0.0749		1,401.5375
Worker	1.3094	0.6458	9.6425	0.0260	2.6625	0.0175	2.6800	0.7062	0.0161	0.7224		2,586.4693	2,586.4693	0.0642		2,588.0735
Total	**1.4642**	**5.8023**	**10.9185**	**0.0392**	**2.9873**	**0.0305**	**3.0179**	**0.7997**	**0.0286**	**0.8283**		**3,986.1332**	**3,986.1332**	**0.1391**		**3,989.6110**

3.4 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
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
Vendor	0.1548	5.1565	1.2761	0.0132	0.3249	0.0130	0.3379	0.0935	0.0125	0.1060		1,399.6639	1,399.6639	0.0749		1,401.5375
Worker	1.3094	0.6458	9.6425	0.0260	2.6625	0.0175	2.6800	0.7062	0.0161	0.7224		2,586.4693	2,586.4693	0.0642		2,588.0735
Total	**1.4642**	**5.8023**	**10.9185**	**0.0392**	**2.9873**	**0.0305**	**3.0179**	**0.7997**	**0.0286**	**0.8283**		**3,986.1332**	**3,986.1332**	**0.1391**		**3,989.6110**

3.4 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	lb/day										lb/day					
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
Vendor	0.1224	4.3740	1.1320	0.0130	0.3249	6.1500e-003	0.3310	0.0935	5.8800e-003	0.0994		1,373.7537	1,373.7537	0.0673		1,375.4365
Worker	1.2238	0.5813	8.8754	0.0250	2.6625	0.0171	2.6795	0.7062	0.0157	0.7220		2,489.2288	2,489.2288	0.0575		2,490.6667
Total	**1.3462**	**4.9553**	**10.0074**	**0.0379**	**2.9873**	**0.0232**	**3.0105**	**0.7997**	**0.0216**	**0.8213**		**3,862.9825**	**3,862.9825**	**0.1248**		**3,866.1032**

3.4 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	lb/day										lb/day					
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
Vendor	0.1224	4.3740	1.1320	0.0130	0.3249	6.1500e-003	0.3310	0.0935	5.8800e-003	0.0994		1,373.7537	1,373.7537	0.0673		1,375.4365
Worker	1.2238	0.5813	8.8754	0.0250	2.6625	0.0171	2.6795	0.7062	0.0157	0.7220		2,489.2288	2,489.2288	0.0575		2,490.6667
Total	**1.3462**	**4.9553**	**10.0074**	**0.0379**	**2.9873**	**0.0232**	**3.0105**	**0.7997**	**0.0216**	**0.8213**		**3,862.9825**	**3,862.9825**	**0.1248**		**3,866.1032**

3.5 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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	lb/day										lb/day					
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
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
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	**0.0525**	**0.0249**	**0.3804**	**1.0700e-003**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**106.6812**	**106.6812**	**2.4700e-003**		**106.7429**

3.5 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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	lb/day										lb/day					
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
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
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	**0.0525**	**0.0249**	**0.3804**	**1.0700e-003**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**106.6812**	**106.6812**	**2.4700e-003**		**106.7429**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
Archit. Coating	153.2331					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**153.4139**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.2299	0.1051	1.6467	4.8000e-003	0.5325	3.3400e-003	0.5358	0.1413	3.0800e-003	0.1443		478.4675	478.4675	0.0104		478.7270
Total	**0.2299**	**0.1051**	**1.6467**	**4.8000e-003**	**0.5325**	**3.3400e-003**	**0.5358**	**0.1413**	**3.0800e-003**	**0.1443**		**478.4675**	**478.4675**	**0.0104**		**478.7270**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
Archit. Coating	153.2331					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**153.4139**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.2299	0.1051	1.6467	4.8000e-003	0.5325	3.3400e-003	0.5358	0.1413	3.0800e-003	0.1443		478.4675	478.4675	0.0104		478.7270
Total	**0.2299**	**0.1051**	**1.6467**	**4.8000e-003**	**0.5325**	**3.3400e-003**	**0.5358**	**0.1413**	**3.0800e-003**	**0.1443**		**478.4675**	**478.4675**	**0.0104**		**478.7270**

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	lb/day										lb/day					
Mitigated	6.3589	21.1146	66.7536	0.2053	17.0841	0.1655	17.2495	4.5670	0.1548	4.7218		20,784.5144	20,784.5144	0.9325		20,807.8275
Unmitigated	6.3589	21.1146	66.7536	0.2053	17.0841	0.1655	17.2495	4.5670	0.1548	4.7218		20,784.5144	20,784.5144	0.9325		20,807.8275

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	3,138.80	3,016.08	2765.92	7,872,822	7,872,822
Racquet Club	0.00	0.00	0.00		
Total	3,138.80	3,016.08	2,765.92	7,872,822	7,872,822

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Racquet Club	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052
NaturalGas Unmitigated	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052

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	lb/day										lb/day					
Apartments Mid Rise	12605.8	0.1359	1.1617	0.4943	7.4200e-003		0.0939	0.0939		0.0939	0.0939		1,483.0309	1,483.0309	0.0284	0.0272	1,491.8438
Racquet Club	2354.63	0.0254	0.2309	0.1939	1.3900e-003		0.0175	0.0175		0.0175	0.0175		277.0153	277.0153	5.3100e-003	5.0800e-003	278.6615
Total		**0.1613**	**1.3926**	**0.6883**	**8.8100e-003**		**0.1115**	**0.1115**		**0.1115**	**0.1115**		**1,760.0462**	**1,760.0462**	**0.0337**	**0.0323**	**1,770.5052**

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	lb/day										lb/day					
Apartments Mid Rise	12.6058	0.1359	1.1617	0.4943	7.4200e-003		0.0939	0.0939		0.0939	0.0939		1,483.0309	1,483.0309	0.0284	0.0272	1,491.8438
Racquet Club	2.35463	0.0254	0.2309	0.1939	1.3900e-003		0.0175	0.0175		0.0175	0.0175		277.0153	277.0153	5.3100e-003	5.0800e-003	278.6615
Total		**0.1613**	**1.3926**	**0.6883**	**8.8100e-003**		**0.1115**	**0.1115**		**0.1115**	**0.1115**		**1,760.0462**	**1,760.0462**	**0.0337**	**0.0323**	**1,770.5052**

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	lb/day										lb/day					
Mitigated	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042
Unmitigated	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042

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	lb/day										lb/day					
Architectural Coating	1.6793					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.8576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1706	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158		70.1219	70.1219	0.0673		71.8042
Total	**18.7075**	**0.4485**	**38.9267**	**2.0600e-003**		**0.2158**	**0.2158**		**0.2158**	**0.2158**	**0.0000**	**70.1219**	**70.1219**	**0.0673**	**0.0000**	**71.8042**

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	lb/day										lb/day					
Architectural Coating	1.6793					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.8576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1706	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158		70.1219	70.1219	0.0673		71.8042
Total	**18.7075**	**0.4485**	**38.9267**	**2.0600e-003**		**0.2158**	**0.2158**		**0.2158**	**0.2158**	**0.0000**	**70.1219**	**70.1219**	**0.0673**	**0.0000**	**71.8042**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase I & Phase II Operation FINAL

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	24.00	1000sqft	0.55	24,000.00	0
Apartments Mid Rise	472.00	Dwelling Unit	15.91	717,011.00	1260

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 16.46 (total lot ac from pd) - 0.55 (default recreational ac) = 15.91 (residential ac)

Construction Phase - Total days of construction = sum of days for Phase 1 and Phase 2

Grading -

Vehicle Trips - Rec use by project residents only. Would not generate additional trips.

Energy Use -

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

Construction Off-road Equipment Mitigation - Not using construction output from this CalEEMod run.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	300.00	481.00
tblConstructionPhase	NumDays	30.00	40.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	PhaseEndDate	5/6/2022	3/19/2024
tblConstructionPhase	PhaseEndDate	3/11/2022	5/22/2023
tblConstructionPhase	PhaseEndDate	1/15/2021	4/30/2021
tblConstructionPhase	PhaseEndDate	4/8/2022	9/22/2023
tblConstructionPhase	PhaseEndDate	12/4/2020	12/18/2020
tblConstructionPhase	PhaseStartDate	4/9/2022	1/24/2024
tblConstructionPhase	PhaseStartDate	1/16/2021	7/19/2021
tblConstructionPhase	PhaseStartDate	12/5/2020	3/8/2021
tblConstructionPhase	PhaseStartDate	3/12/2022	7/31/2023
tblLandUse	LandUseSquareFeet	472,000.00	717,011.00
tblLandUse	LotAcreage	12.42	15.91
tblVehicleTrips	ST_TR	21.35	0.00
tblVehicleTrips	SU_TR	17.40	0.00
tblVehicleTrips	WD_TR	14.03	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.1479	42.4682	22.0168	0.0393	15.4933	2.1984	17.6916	8.4774	2.0225	10.4999	0.0000	3,810.5415	3,810.5415	1.1955	0.0000	3,840.4276
2021	4.2650	46.4505	31.3888	0.0636	7.7413	1.9864	9.7277	3.1873	1.8275	5.0148	0.0000	6,285.0999	6,285.0999	1.9464	0.0000	6,304.1593
2022	3.0784	21.6451	26.0343	0.0626	2.9873	0.8404	3.8277	0.7997	0.7906	1.5903	0.0000	6,189.4869	6,189.4869	0.7495	0.0000	6,208.2233
2023	2.8348	19.5201	25.0530	0.0615	2.9873	0.7235	3.7108	0.7997	0.6806	1.4803	0.0000	6,079.9411	6,079.9411	0.7309	0.0000	6,098.2137
2024	153.6270	1.3484	3.1976	7.1900e-003	0.5325	0.0643	0.5968	0.1413	0.0640	0.2052	0.0000	701.7440	701.7440	0.0249	0.0000	702.3669
Maximum	**153.6270**	**46.4505**	**31.3888**	**0.0636**	**15.4933**	**2.1984**	**17.6916**	**8.4774**	**2.0225**	**10.4999**	**0.0000**	**6,285.0999**	**6,285.0999**	**1.9464**	**0.0000**	**6,304.1593**

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.1479	42.4682	22.0168	0.0393	15.4933	2.1984	17.6916	8.4774	2.0225	10.4999	0.0000	3,810.5415	3,810.5415	1.1955	0.0000	3,840.4276
2021	4.2650	46.4505	31.3888	0.0636	7.7413	1.9864	9.7277	3.1873	1.8275	5.0148	0.0000	6,285.0999	6,285.0999	1.9464	0.0000	6,304.1593
2022	3.0784	21.6451	26.0343	0.0626	2.9873	0.8404	3.8277	0.7997	0.7906	1.5903	0.0000	6,189.4869	6,189.4869	0.7495	0.0000	6,208.2233
2023	2.8348	19.5201	25.0530	0.0615	2.9873	0.7235	3.7108	0.7997	0.6806	1.4803	0.0000	6,079.9411	6,079.9411	0.7309	0.0000	6,098.2137
2024	153.6270	1.3484	3.1976	7.1900e-003	0.5325	0.0643	0.5968	0.1413	0.0640	0.2052	0.0000	701.7440	701.7440	0.0249	0.0000	702.3669
Maximum	**153.6270**	**46.4505**	**31.3888**	**0.0636**	**15.4933**	**2.1984**	**17.6916**	**8.4774**	**2.0225**	**10.4999**	**0.0000**	**6,285.0999**	**6,285.0999**	**1.9464**	**0.0000**	**6,304.1593**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**

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	lb/day										lb/day					
Area	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042
Energy	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052
Mobile	4.7679	22.6064	61.3769	0.1853	17.0841	0.1677	17.2518	4.5670	0.1570	4.7240		18,781.8555	18,781.8555	0.9235		18,804.9420
Total	**23.6367**	**24.4475**	**100.9918**	**0.1961**	**17.0841**	**0.4949**	**17.5790**	**4.5670**	**0.4842**	**5.0512**	**0.0000**	**20,612.0236**	**20,612.0236**	**1.0245**	**0.0323**	**20,647.2515**

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	lb/day										lb/day					
Area	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042
Energy	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052
Mobile	4.7679	22.6064	61.3769	0.1853	17.0841	0.1677	17.2518	4.5670	0.1570	4.7240		18,781.8555	18,781.8555	0.9235		18,804.9420
Total	**23.6367**	**24.4475**	**100.9918**	**0.1961**	**17.0841**	**0.4949**	**17.5790**	**4.5670**	**0.4842**	**5.0512**	**0.0000**	**20,612.0236**	**20,612.0236**	**1.0245**	**0.0323**	**20,647.2515**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/23/2020	12/18/2020	5	20	
2	Grading	Grading	3/8/2021	4/30/2021	5	40	
3	Building Construction	Building Construction	7/19/2021	5/22/2023	5	481	
4	Paving	Paving	7/31/2023	9/22/2023	5	40	
5	Architectural Coating	Architectural Coating	1/24/2024	3/19/2024	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 955,800; Residential Outdoor: 318,600; Non-Residential Indoor: 36,000; Non-Residential Outdoor: 12,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	350.00	54.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					15.3563	0.0000	15.3563	8.4411	0.0000	8.4411			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**15.3563**	**2.1974**	**17.5537**	**8.4411**	**2.0216**	**10.4627**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	lb/day										lb/day					
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
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
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

3.2 Site Preparation - 2020

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	lb/day										lb/day					
Fugitive Dust					15.3563	0.0000	15.3563	8.4411	0.0000	8.4411			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**15.3563**	**2.1974**	**17.5537**	**8.4411**	**2.0216**	**10.4627**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	lb/day										lb/day					
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
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
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

3.3 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					7.5892	0.0000	7.5892	3.1469	0.0000	3.1469			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.5892**	**1.9853**	**9.5745**	**3.1469**	**1.8265**	**4.9735**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	lb/day										lb/day					
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
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
Worker	0.0738	0.0507	0.5103	1.3500e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		134.6329	134.6329	3.5900e-003		134.7226
Total	**0.0738**	**0.0507**	**0.5103**	**1.3500e-003**	**0.1521**	**1.0300e-003**	**0.1532**	**0.0404**	**9.5000e-004**	**0.0413**		**134.6329**	**134.6329**	**3.5900e-003**		**134.7226**

3.3 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					7.5892	0.0000	7.5892	3.1469	0.0000	3.1469			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.5892**	**1.9853**	**9.5745**	**3.1469**	**1.8265**	**4.9735**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	lb/day										lb/day					
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
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
Worker	0.0738	0.0507	0.5103	1.3500e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		134.6329	134.6329	3.5900e-003		134.7226
Total	**0.0738**	**0.0507**	**0.5103**	**1.3500e-003**	**0.1521**	**1.0300e-003**	**0.1532**	**0.0404**	**9.5000e-004**	**0.0413**		**134.6329**	**134.6329**	**3.5900e-003**		**134.7226**

3.4 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	lb/day										lb/day					
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
Vendor	0.1768	5.5130	1.6063	0.0130	0.3249	0.0158	0.3407	0.0935	0.0151	0.1086		1,375.6612	1,375.6612	0.0836		1,377.7505
Worker	1.2918	0.8869	8.9307	0.0237	2.6625	0.0180	2.6804	0.7062	0.0166	0.7228		2,356.0749	2,356.0749	0.0628		2,357.6445
Total	**1.4686**	**6.3999**	**10.5369**	**0.0367**	**2.9874**	**0.0338**	**3.0212**	**0.7997**	**0.0317**	**0.8314**		**3,731.7360**	**3,731.7360**	**0.1464**		**3,735.3950**

3.4 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	lb/day										lb/day					
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
Vendor	0.1768	5.5130	1.6063	0.0130	0.3249	0.0158	0.3407	0.0935	0.0151	0.1086		1,375.6612	1,375.6612	0.0836		1,377.7505
Worker	1.2918	0.8869	8.9307	0.0237	2.6625	0.0180	2.6804	0.7062	0.0166	0.7228		2,356.0749	2,356.0749	0.0628		2,357.6445
Total	**1.4686**	**6.3999**	**10.5369**	**0.0367**	**2.9874**	**0.0338**	**3.0212**	**0.7997**	**0.0317**	**0.8314**		**3,731.7360**	**3,731.7360**	**0.1464**		**3,735.3950**

3.4 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
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
Vendor	0.1641	5.2321	1.4814	0.0129	0.3249	0.0139	0.3388	0.0935	0.0133	0.1068		1,363.4378	1,363.4378	0.0812		1,365.4678
Worker	1.2081	0.7973	8.1895	0.0228	2.6625	0.0175	2.6800	0.7062	0.0161	0.7224		2,271.7155	2,271.7155	0.0563		2,273.1233
Total	**1.3721**	**6.0294**	**9.6709**	**0.0357**	**2.9873**	**0.0314**	**3.0187**	**0.7997**	**0.0294**	**0.8291**		**3,635.1533**	**3,635.1533**	**0.1375**		**3,638.5911**

3.4 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	lb/day										lb/day					
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
Vendor	0.1641	5.2321	1.4814	0.0129	0.3249	0.0139	0.3388	0.0935	0.0133	0.1068		1,363.4378	1,363.4378	0.0812		1,365.4678
Worker	1.2081	0.7973	8.1895	0.0228	2.6625	0.0175	2.6800	0.7062	0.0161	0.7224		2,271.7155	2,271.7155	0.0563		2,273.1233
Total	**1.3721**	**6.0294**	**9.6709**	**0.0357**	**2.9873**	**0.0314**	**3.0187**	**0.7997**	**0.0294**	**0.8291**		**3,635.1533**	**3,635.1533**	**0.1375**		**3,638.5911**

3.4 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	lb/day										lb/day					
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
Vendor	0.1300	4.4180	1.3055	0.0126	0.3249	6.6800e-003	0.3315	0.0935	6.3900e-003	0.0999		1,338.2914	1,338.2914	0.0727		1,340.1089
Worker	1.1320	0.7172	7.5035	0.0219	2.6625	0.0171	2.6795	0.7062	0.0157	0.7220		2,186.4398	2,186.4398	0.0504		2,187.6987
Total	**1.2620**	**5.1352**	**8.8090**	**0.0346**	**2.9873**	**0.0238**	**3.0111**	**0.7997**	**0.0221**	**0.8218**		**3,524.7312**	**3,524.7312**	**0.1231**		**3,527.8077**

3.4 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	lb/day										lb/day					
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
Vendor	0.1300	4.4180	1.3055	0.0126	0.3249	6.6800e-003	0.3315	0.0935	6.3900e-003	0.0999		1,338.2914	1,338.2914	0.0727		1,340.1089
Worker	1.1320	0.7172	7.5035	0.0219	2.6625	0.0171	2.6795	0.7062	0.0157	0.7220		2,186.4398	2,186.4398	0.0504		2,187.6987
Total	**1.2620**	**5.1352**	**8.8090**	**0.0346**	**2.9873**	**0.0238**	**3.0111**	**0.7997**	**0.0221**	**0.8218**		**3,524.7312**	**3,524.7312**	**0.1231**		**3,527.8077**

3.5 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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	lb/day										lb/day					
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
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
Worker	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585
Total	**0.0485**	**0.0307**	**0.3216**	**9.4000e-004**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**93.7046**	**93.7046**	**2.1600e-003**		**93.7585**

3.5 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

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	lb/day										lb/day					
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
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
Worker	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585
Total	**0.0485**	**0.0307**	**0.3216**	**9.4000e-004**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**93.7046**	**93.7046**	**2.1600e-003**		**93.7585**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
Archit. Coating	153.2331					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**153.4139**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.2132	0.1296	1.3875	4.2200e-003	0.5325	3.3400e-003	0.5358	0.1413	3.0800e-003	0.1443		420.2960	420.2960	9.0700e-003		420.5227
Total	**0.2132**	**0.1296**	**1.3875**	**4.2200e-003**	**0.5325**	**3.3400e-003**	**0.5358**	**0.1413**	**3.0800e-003**	**0.1443**		**420.2960**	**420.2960**	**9.0700e-003**		**420.5227**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
Archit. Coating	153.2331					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**153.4139**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.2132	0.1296	1.3875	4.2200e-003	0.5325	3.3400e-003	0.5358	0.1413	3.0800e-003	0.1443		420.2960	420.2960	9.0700e-003		420.5227
Total	**0.2132**	**0.1296**	**1.3875**	**4.2200e-003**	**0.5325**	**3.3400e-003**	**0.5358**	**0.1413**	**3.0800e-003**	**0.1443**		**420.2960**	**420.2960**	**9.0700e-003**		**420.5227**

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	lb/day										lb/day					
Mitigated	4.7679	22.6064	61.3769	0.1853	17.0841	0.1677	17.2518	4.5670	0.1570	4.7240		18,781.8555	18,781.8555	0.9235		18,804.9420
Unmitigated	4.7679	22.6064	61.3769	0.1853	17.0841	0.1677	17.2518	4.5670	0.1570	4.7240		18,781.8555	18,781.8555	0.9235		18,804.9420

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	3,138.80	3,016.08	2765.92	7,872,822	7,872,822
Racquet Club	0.00	0.00	0.00		
Total	3,138.80	3,016.08	2,765.92	7,872,822	7,872,822

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Racquet Club	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052
NaturalGas Unmitigated	0.1613	1.3926	0.6883	8.8000e-003		0.1115	0.1115		0.1115	0.1115		1,760.0462	1,760.0462	0.0337	0.0323	1,770.5052

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	lb/day										lb/day					
Apartments Mid Rise	12605.8	0.1359	1.1617	0.4943	7.4200e-003		0.0939	0.0939		0.0939	0.0939		1,483.0309	1,483.0309	0.0284	0.0272	1,491.8438
Racquet Club	2354.63	0.0254	0.2309	0.1939	1.3900e-003		0.0175	0.0175		0.0175	0.0175		277.0153	277.0153	5.3100e-003	5.0800e-003	278.6615
Total		**0.1613**	**1.3926**	**0.6883**	**8.8100e-003**		**0.1115**	**0.1115**		**0.1115**	**0.1115**		**1,760.0462**	**1,760.0462**	**0.0337**	**0.0323**	**1,770.5052**

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	lb/day										lb/day					
Apartments Mid Rise	12.6058	0.1359	1.1617	0.4943	7.4200e-003		0.0939	0.0939		0.0939	0.0939		1,483.0309	1,483.0309	0.0284	0.0272	1,491.8438
Racquet Club	2.35463	0.0254	0.2309	0.1939	1.3900e-003		0.0175	0.0175		0.0175	0.0175		277.0153	277.0153	5.3100e-003	5.0800e-003	278.6615
Total		**0.1613**	**1.3926**	**0.6883**	**8.8100e-003**		**0.1115**	**0.1115**		**0.1115**	**0.1115**		**1,760.0462**	**1,760.0462**	**0.0337**	**0.0323**	**1,770.5052**

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	lb/day										lb/day					
Mitigated	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042
Unmitigated	18.7075	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158	0.0000	70.1219	70.1219	0.0673	0.0000	71.8042

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	lb/day										lb/day					
Architectural Coating	1.6793					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.8576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1706	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158		70.1219	70.1219	0.0673		71.8042
Total	**18.7075**	**0.4485**	**38.9267**	**2.0600e-003**		**0.2158**	**0.2158**		**0.2158**	**0.2158**	**0.0000**	**70.1219**	**70.1219**	**0.0673**	**0.0000**	**71.8042**

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	lb/day										lb/day					
Architectural Coating	1.6793					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.8576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1706	0.4485	38.9267	2.0600e-003		0.2158	0.2158		0.2158	0.2158		70.1219	70.1219	0.0673		71.8042
Total	**18.7075**	**0.4485**	**38.9267**	**2.0600e-003**		**0.2158**	**0.2158**		**0.2158**	**0.2158**	**0.0000**	**70.1219**	**70.1219**	**0.0673**	**0.0000**	**71.8042**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase I FINAL

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	12.00	1000sqft	0.28	12,000.00	0
Apartments Mid Rise	270.00	Dwelling Unit	9.18	412,050.00	721

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Sf from PD. 9.46 ac (area from PD) - 0.28ac (Rec area CalEEMod Default) = 9.18 ac (Residential area)

Construction Phase - Phase I req. increased # of work days compared to Phase II

Vehicle Trips -

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final mitigation for onsite equipment.

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

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	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	251.00
tblLandUse	LandUseSquareFeet	270,000.00	412,050.00
tblLandUse	LotAcreage	7.11	9.18

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	0.0207	0.2123	0.1101	2.0000e-004	0.0910	0.0110	0.1020	0.0498	0.0101	0.0599	0.0000	17.3010	17.3010	5.4200e-003	0.0000	17.4366
2021	0.2519	2.0373	2.0714	4.4200e-003	0.2063	0.0947	0.3010	0.0715	0.0888	0.1603	0.0000	392.0412	392.0412	0.0623	0.0000	393.5982
2022	2.7476	0.8972	1.0586	2.2300e-003	0.0706	0.0400	0.1106	0.0189	0.0376	0.0565	0.0000	197.8093	197.8093	0.0320	0.0000	198.6103
Maximum	**2.7476**	**2.0373**	**2.0714**	**4.4200e-003**	**0.2063**	**0.0947**	**0.3010**	**0.0715**	**0.0888**	**0.1603**	**0.0000**	**392.0412**	**392.0412**	**0.0623**	**0.0000**	**393.5982**

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	2.6600e-003	0.0103	0.1068	2.0000e-004	0.0413	3.2000e-004	0.0416	0.0225	3.1000e-004	0.0228	0.0000	17.3010	17.3010	5.4200e-003	0.0000	17.4366
2021	0.0989	0.5139	2.1656	4.4200e-003	0.1702	5.5700e-003	0.1758	0.0529	5.4700e-003	0.0584	0.0000	392.0410	392.0410	0.0623	0.0000	393.5979
2022	2.6818	0.2434	1.1303	2.2300e-003	0.0706	2.8100e-003	0.0734	0.0189	2.7600e-003	0.0217	0.0000	197.8092	197.8092	0.0320	0.0000	198.6102
Maximum	**2.6818**	**0.5139**	**2.1656**	**4.4200e-003**	**0.1702**	**5.5700e-003**	**0.1758**	**0.0529**	**5.4700e-003**	**0.0584**	**0.0000**	**392.0410**	**392.0410**	**0.0623**	**0.0000**	**393.5979**

Natomas II Apartments Phase I FINAL - Sacramento Metropolitan AQMD Air District, 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	N20	CO2e
Percent Reduction	**7.84**	**75.61**	**-5.02**	**0.00**	**23.30**	**94.03**	**43.37**	**32.68**	**93.74**	**62.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-23-2020**	**2-22-2021**	0.3451	0.0220
2	**2-23-2021**	**5-22-2021**	0.2168	0.0404
3	**5-23-2021**	**8-22-2021**	0.7803	0.2293
4	**8-23-2021**	**11-22-2021**	0.7820	0.2310
5	**11-23-2021**	**2-22-2022**	0.7401	0.2272
6	**2-23-2022**	**5-22-2022**	0.4767	0.1499
7	**5-23-2022**	**8-22-2022**	0.1143	0.0147
8	**8-23-2022**	**9-30-2022**	2.6523	2.6377
		Highest	2.6523	2.6377

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	2.0037	0.0322	2.7876	1.5000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	4.5486	4.5486	4.3900e-003	0.0000	4.6583
Energy	0.0165	0.1423	0.0693	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	519.8813	519.8813	0.0207	6.6200e-003	522.3698
Mobile	0.5581	2.4107	6.4366	0.0204	1.7713	0.0180	1.7893	0.4749	0.0168	0.4917	0.0000	1,876.8327	1,876.8327	0.0893	0.0000	1,879.0642
Waste						0.0000	0.0000		0.0000	0.0000	39.0961	0.0000	39.0961	2.3105	0.0000	96.8588
Water						0.0000	0.0000		0.0000	0.0000	6.4750	35.2176	41.6927	0.0240	0.0144	46.5959
Total	**2.5783**	**2.5852**	**9.2935**	**0.0215**	**1.7713**	**0.0448**	**1.8161**	**0.4749**	**0.0436**	**0.5185**	**45.5711**	**2,436.4802**	**2,482.0513**	**2.4488**	**0.0211**	**2,549.5470**

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	2.0037	0.0322	2.7876	1.5000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	4.5486	4.5486	4.3900e-003	0.0000	4.6583
Energy	0.0165	0.1423	0.0693	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	519.8813	519.8813	0.0207	6.6200e-003	522.3698
Mobile	0.5581	2.4107	6.4366	0.0204	1.7713	0.0180	1.7893	0.4749	0.0168	0.4917	0.0000	1,876.8327	1,876.8327	0.0893	0.0000	1,879.0642
Waste						0.0000	0.0000		0.0000	0.0000	39.0961	0.0000	39.0961	2.3105	0.0000	96.8588
Water						0.0000	0.0000		0.0000	0.0000	6.4750	35.2176	41.6927	0.0240	0.0144	46.5959
Total	**2.5783**	**2.5852**	**9.2935**	**0.0215**	**1.7713**	**0.0448**	**1.8161**	**0.4749**	**0.0436**	**0.5185**	**45.5711**	**2,436.4802**	**2,482.0513**	**2.4488**	**0.0211**	**2,549.5470**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/23/2020	12/4/2020	5	10	
2	Grading	Grading	2/8/2021	3/5/2021	5	20	
3	Building Construction	Building Construction	5/10/2021	4/25/2022	5	251	
4	Paving	Paving	5/30/2022	6/24/2022	5	20	
5	Architectural Coating	Architectural Coating	8/25/2022	9/21/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 834,401; Residential Outdoor: 278,134; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	199.00	31.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.2 Site Preparation - 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	3.4000e-004	2.3000e-004	2.4900e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5857	0.5857	2.0000e-005	0.0000	0.5861
Total	**3.4000e-004**	**2.3000e-004**	**2.4900e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.7000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5857**	**0.5857**	**2.0000e-005**	**0.0000**	**0.5861**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0407**	**3.1000e-004**	**0.0410**	**0.0223**	**3.1000e-004**	**0.0227**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.2 Site Preparation - 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	3.4000e-004	2.3000e-004	2.4900e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5857	0.5857	2.0000e-005	0.0000	0.5861
Total	**3.4000e-004**	**2.3000e-004**	**2.4900e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.7000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5857**	**0.5857**	**2.0000e-005**	**0.0000**	**0.5861**

3.3 Grading - 2021

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2474	0.1586	3.0000e-004		0.0116	0.0116		0.0107	0.0107	0.0000	26.0537	26.0537	8.4300e-003	0.0000	26.2644
Total	**0.0229**	**0.2474**	**0.1586**	**3.0000e-004**	**0.0655**	**0.0116**	**0.0771**	**0.0337**	**0.0107**	**0.0443**	**0.0000**	**26.0537**	**26.0537**	**8.4300e-003**	**0.0000**	**26.2644**

3.3 Grading - 2021

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	5.2000e-004	3.4000e-004	3.8000e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9429	0.9429	2.0000e-005	0.0000	0.9435
Total	**5.2000e-004**	**3.4000e-004**	**3.8000e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9429**	**0.9429**	**2.0000e-005**	**0.0000**	**0.9435**

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					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6300e-003	0.0157	0.1775	3.0000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	26.0537	26.0537	8.4300e-003	0.0000	26.2643
Total	**3.6300e-003**	**0.0157**	**0.1775**	**3.0000e-004**	**0.0295**	**4.8000e-004**	**0.0300**	**0.0152**	**4.8000e-004**	**0.0156**	**0.0000**	**26.0537**	**26.0537**	**8.4300e-003**	**0.0000**	**26.2643**

3.3 Grading - 2021

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	5.2000e-004	3.4000e-004	3.8000e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9429	0.9429	2.0000e-005	0.0000	0.9435
Total	**5.2000e-004**	**3.4000e-004**	**3.8000e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9429**	**0.9429**	**2.0000e-005**	**0.0000**	**0.9435**

3.4 Building Construction - 2021

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	0.1616	1.4817	1.4089	2.2900e-003		0.0815	0.0815		0.0766	0.0766	0.0000	196.8917	196.8917	0.0475	0.0000	198.0792
Total	**0.1616**	**1.4817**	**1.4089**	**2.2900e-003**		**0.0815**	**0.0815**		**0.0766**	**0.0766**	**0.0000**	**196.8917**	**196.8917**	**0.0475**	**0.0000**	**198.0792**

3.4 Building Construction - 2021

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	8.2900e-003	0.2696	0.0721	6.4000e-004	0.0154	7.4000e-004	0.0162	4.4500e-003	7.1000e-004	5.1600e-003	0.0000	61.8289	61.8289	3.5400e-003	0.0000	61.9172
Worker	0.0586	0.0383	0.4281	1.1800e-003	0.1242	8.7000e-004	0.1251	0.0330	8.0000e-004	0.0338	0.0000	106.3241	106.3241	2.7900e-003	0.0000	106.3939
Total	**0.0669**	**0.3078**	**0.5002**	**1.8200e-003**	**0.1396**	**1.6100e-003**	**0.1413**	**0.0375**	**1.5100e-003**	**0.0390**	**0.0000**	**168.1530**	**168.1530**	**6.3300e-003**	**0.0000**	**168.3111**

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	0.0279	0.1900	1.4841	2.2900e-003		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003	0.0000	196.8915	196.8915	0.0475	0.0000	198.0790
Total	**0.0279**	**0.1900**	**1.4841**	**2.2900e-003**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**	**0.0000**	**196.8915**	**196.8915**	**0.0475**	**0.0000**	**198.0790**

3.4 Building Construction - 2021

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	8.2900e-003	0.2696	0.0721	6.4000e-004	0.0154	7.4000e-004	0.0162	4.4500e-003	7.1000e-004	5.1600e-003	0.0000	61.8289	61.8289	3.5400e-003	0.0000	61.9172
Worker	0.0586	0.0383	0.4281	1.1800e-003	0.1242	8.7000e-004	0.1251	0.0330	8.0000e-004	0.0338	0.0000	106.3241	106.3241	2.7900e-003	0.0000	106.3939
Total	**0.0669**	**0.3078**	**0.5002**	**1.8200e-003**	**0.1396**	**1.6100e-003**	**0.1413**	**0.0375**	**1.5100e-003**	**0.0390**	**0.0000**	**168.1530**	**168.1530**	**6.3300e-003**	**0.0000**	**168.3111**

3.4 Building Construction - 2022

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	0.0691	0.6324	0.6627	1.0900e-003		0.0328	0.0328		0.0308	0.0308	0.0000	93.8487	93.8487	0.0225	0.0000	94.4108
Total	**0.0691**	**0.6324**	**0.6627**	**1.0900e-003**		**0.0328**	**0.0328**		**0.0308**	**0.0308**	**0.0000**	**93.8487**	**93.8487**	**0.0225**	**0.0000**	**94.4108**

3.4 Building Construction - 2022

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	3.6600e-003	0.1220	0.0317	3.0000e-004	7.3400e-003	3.1000e-004	7.6500e-003	2.1200e-003	3.0000e-004	2.4200e-003	0.0000	29.2007	29.2007	1.6400e-003	0.0000	29.2416
Worker	0.0261	0.0164	0.1875	5.4000e-004	0.0592	4.0000e-004	0.0596	0.0157	3.7000e-004	0.0161	0.0000	48.8458	48.8458	1.2000e-003	0.0000	48.8756
Total	**0.0297**	**0.1384**	**0.2191**	**8.4000e-004**	**0.0665**	**7.1000e-004**	**0.0673**	**0.0179**	**6.7000e-004**	**0.0185**	**0.0000**	**78.0464**	**78.0464**	**2.8400e-003**	**0.0000**	**78.1172**

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	0.0133	0.0905	0.7071	1.0900e-003		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003	0.0000	93.8486	93.8486	0.0225	0.0000	94.4107
Total	**0.0133**	**0.0905**	**0.7071**	**1.0900e-003**		**1.6500e-003**	**1.6500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**93.8486**	**93.8486**	**0.0225**	**0.0000**	**94.4107**

3.4 Building Construction - 2022

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	3.6600e-003	0.1220	0.0317	3.0000e-004	7.3400e-003	3.1000e-004	7.6500e-003	2.1200e-003	3.0000e-004	2.4200e-003	0.0000	29.2007	29.2007	1.6400e-003	0.0000	29.2416
Worker	0.0261	0.0164	0.1875	5.4000e-004	0.0592	4.0000e-004	0.0596	0.0157	3.7000e-004	0.0161	0.0000	48.8458	48.8458	1.2000e-003	0.0000	48.8756
Total	**0.0297**	**0.1384**	**0.2191**	**8.4000e-004**	**0.0665**	**7.1000e-004**	**0.0673**	**0.0179**	**6.7000e-004**	**0.0185**	**0.0000**	**78.0464**	**78.0464**	**2.8400e-003**	**0.0000**	**78.1172**

3.5 Paving - 2022

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0110**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

3.5 Paving - 2022

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	4.9000e-004	3.1000e-004	3.4900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9091	0.9091	2.0000e-005	0.0000	0.9097
Total	**4.9000e-004**	**3.1000e-004**	**3.4900e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9091**	**0.9091**	**2.0000e-005**	**0.0000**	**0.9097**

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	2.8000e-003	0.0122	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

3.5 Paving - 2022

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	4.9000e-004	3.1000e-004	3.4900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9091	0.9091	2.0000e-005	0.0000	0.9097
Total	**4.9000e-004**	**3.1000e-004**	**3.4900e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9091**	**0.9091**	**2.0000e-005**	**0.0000**	**0.9097**

3.6 Architectural Coating - 2022

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	2.6339					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.6360**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

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	1.2900e-003	8.1000e-004	9.3000e-003	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4243	2.4243	6.0000e-005	0.0000	2.4257
Total	**1.2900e-003**	**8.1000e-004**	**9.3000e-003**	**3.0000e-005**	**2.9400e-003**	**2.0000e-005**	**2.9600e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4243**	**2.4243**	**6.0000e-005**	**0.0000**	**2.4257**

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	2.6339					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.6342**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

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	1.2900e-003	8.1000e-004	9.3000e-003	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.4243	2.4243	6.0000e-005	0.0000	2.4257
Total	**1.2900e-003**	**8.1000e-004**	**9.3000e-003**	**3.0000e-005**	**2.9400e-003**	**2.0000e-005**	**2.9600e-003**	**7.8000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.4243**	**2.4243**	**6.0000e-005**	**0.0000**	**2.4257**

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	0.5581	2.4107	6.4366	0.0204	1.7713	0.0180	1.7893	0.4749	0.0168	0.4917	0.0000	1,876.8327	1,876.8327	0.0893	0.0000	1,879.0642
Unmitigated	0.5581	2.4107	6.4366	0.0204	1.7713	0.0180	1.7893	0.4749	0.0168	0.4917	0.0000	1,876.8327	1,876.8327	0.0893	0.0000	1,879.0642

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,795.50	1,725.30	1582.20	4,503,521	4,503,521
Racquet Club	168.36	256.20	208.80	246,505	246,505
Total	1,963.86	1,981.50	1,791.00	4,750,026	4,750,026

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Racquet Club	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	356.4969	356.4969	0.0175	3.6200e-003	358.0146
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	356.4969	356.4969	0.0175	3.6200e-003	358.0146
NaturalGas Mitigated	0.0165	0.1423	0.0693	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	163.3844	163.3844	3.1300e-003	3.0000e-003	164.3553
NaturalGas Unmitigated	0.0165	0.1423	0.0693	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	163.3844	163.3844	3.1300e-003	3.0000e-003	164.3553

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	2.63199e+006	0.0142	0.1213	0.0516	7.7000e-004		9.8100e-003	9.8100e-003		9.8100e-003	9.8100e-003	0.0000	140.4529	140.4529	2.6900e-003	2.5700e-003	141.2875
Racquet Club	429720	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003	0.0000	22.9315	22.9315	4.4000e-004	4.2000e-004	23.0678
Total		**0.0165**	**0.1423**	**0.0693**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**	**0.0000**	**163.3844**	**163.3844**	**3.1300e-003**	**2.9900e-003**	**164.3553**

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 Mid Rise	2.63199e+006	0.0142	0.1213	0.0516	7.7000e-004		9.8100e-003	9.8100e-003		9.8100e-003	9.8100e-003	0.0000	140.4529	140.4529	2.6900e-003	2.5700e-003	141.2875
Racquet Club	429720	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003	0.0000	22.9315	22.9315	4.4000e-004	4.2000e-004	23.0678
Total		**0.0165**	**0.1423**	**0.0693**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**	**0.0000**	**163.3844**	**163.3844**	**3.1300e-003**	**2.9900e-003**	**164.3553**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.14924e+006	307.7218	0.0151	3.1300e-003	309.0318
Racquet Club	182160	48.7752	2.4000e-003	5.0000e-004	48.9828
Total		**356.4969**	**0.0175**	**3.6300e-003**	**358.0146**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.14924e+006	307.7218	0.0151	3.1300e-003	309.0318
Racquet Club	182160	48.7752	2.4000e-003	5.0000e-004	48.9828
Total		**356.4969**	**0.0175**	**3.6300e-003**	**358.0146**

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	2.0037	0.0322	2.7876	1.5000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	4.5486	4.5486	4.3900e-003	0.0000	4.6583
Unmitigated	2.0037	0.0322	2.7876	1.5000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	4.5486	4.5486	4.3900e-003	0.0000	4.6583

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	0.2634					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6561					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0842	0.0322	2.7876	1.5000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	4.5486	4.5486	4.3900e-003	0.0000	4.6583
Total	**2.0037**	**0.0322**	**2.7876**	**1.5000e-004**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**4.5486**	**4.5486**	**4.3900e-003**	**0.0000**	**4.6583**

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	0.2634					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6561					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0842	0.0322	2.7876	1.5000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	4.5486	4.5486	4.3900e-003	0.0000	4.6583
Total	**2.0037**	**0.0322**	**2.7876**	**1.5000e-004**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**4.5486**	**4.5486**	**4.3900e-003**	**0.0000**	**4.6583**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	41.6927	0.0240	0.0144	46.5959
Unmitigated	41.6927	0.0240	0.0144	46.5959

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	17.5916 / 11.0903	40.0870	0.0231	0.0139	44.8002
Racquet Club	0.709718 / 0.434988	1.6056	9.3000e-004	5.6000e-004	1.7957
Total		**41.6927**	**0.0240**	**0.0144**	**46.5959**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	17.5916 / 11.0903	40.0870	0.0231	0.0139	44.8002
Racquet Club	0.709718 / 0.434988	1.6056	9.3000e-004	5.6000e-004	1.7957
Total		**41.6927**	**0.0240**	**0.0144**	**46.5959**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.0961	2.3105	0.0000	96.8588
Unmitigated	39.0961	2.3105	0.0000	96.8588

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	124.2	25.2115	1.4900	0.0000	62.4604
Racquet Club	68.4	13.8846	0.8206	0.0000	34.3985
Total		**39.0961**	**2.3105**	**0.0000**	**96.8588**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	124.2	25.2115	1.4900	0.0000	62.4604
Racquet Club	68.4	13.8846	0.8206	0.0000	34.3985
Total		**39.0961**	**2.3105**	**0.0000**	**96.8588**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase I FINAL

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	12.00	1000sqft	0.28	12,000.00	0
Apartments Mid Rise	270.00	Dwelling Unit	9.18	412,050.00	721

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Sf from PD. 9.46 ac (area from PD) - 0.28ac (Rec area CalEEMod Default) = 9.18 ac (Residential area)

Construction Phase - Phase I req. increased # of work days compared to Phase II

Vehicle Trips -

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final mitigation for onsite equipment.

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

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	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	251.00
tblLandUse	LandUseSquareFeet	270,000.00	412,050.00
tblLandUse	LotAcreage	7.11	9.18

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.1541	42.4585	22.1013	0.0395	18.2032	2.1984	20.4016	9.9670	2.0225	11.9895	0.0000	3,827.9339	3,827.9339	1.1959	0.0000	3,857.8321
2021	2.7943	24.7675	23.3234	0.0499	6.6664	1.1607	7.8271	3.3978	1.0678	4.4656	0.0000	4,889.2387	4,889.2387	0.9319	0.0000	4,906.7613
2022	263.7462	18.9430	22.5784	0.0493	1.7003	0.8265	2.5267	0.4552	0.7775	1.2327	0.0000	4,828.4369	4,828.4369	0.7168	0.0000	4,845.7232
Maximum	**263.7462**	**42.4585**	**23.3234**	**0.0499**	**18.2032**	**2.1984**	**20.4016**	**9.9670**	**2.0225**	**11.9895**	**0.0000**	**4,889.2387**	**4,889.2387**	**1.1959**	**0.0000**	**4,906.7613**

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	lb/day										lb/day					
2020	0.5432	2.0587	21.4567	0.0395	8.2668	0.0630	8.3298	4.5051	0.0630	4.5681	0.0000	3,827.9339	3,827.9339	1.1959	0.0000	3,857.8321
2021	1.2212	5.7566	24.2085	0.0499	3.0627	0.0596	3.1119	1.5456	0.0584	1.5948	0.0000	4,889.2387	4,889.2387	0.9319	0.0000	4,906.7613
2022	263.5713	5.5621	23.6752	0.0493	1.7003	0.0582	1.7585	0.4552	0.0571	0.5123	0.0000	4,828.4369	4,828.4369	0.7168	0.0000	4,845.7232
Maximum	**263.5713**	**5.7566**	**24.2085**	**0.0499**	**8.2668**	**0.0630**	**8.3298**	**4.5051**	**0.0630**	**4.5681**	**0.0000**	**4,889.2387**	**4,889.2387**	**1.1959**	**0.0000**	**4,906.7613**

Natomas II Apartments Phase I FINAL - Sacramento Metropolitan AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.98**	**84.48**	**-1.97**	**0.00**	**50.96**	**95.68**	**57.08**	**52.92**	**95.39**	**62.26**	**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	lb/day										lb/day					
Area	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793
Energy	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159
Mobile	4.0821	13.3492	41.4548	0.1265	10.4902	0.1024	10.5926	2.8043	0.0958	2.9001		12,810.1265	12,810.1265	0.5796		12,824.6160
Total	**15.3642**	**14.3864**	**64.1351**	**0.1326**	**10.4902**	**0.2881**	**10.7783**	**2.8043**	**0.2815**	**3.0858**	**0.0000**	**13,837.0898**	**13,837.0898**	**0.6372**	**0.0181**	**13,858.4112**

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	lb/day										lb/day					
Area	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793
Energy	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159
Mobile	4.0821	13.3492	41.4548	0.1265	10.4902	0.1024	10.5926	2.8043	0.0958	2.9001		12,810.1265	12,810.1265	0.5796		12,824.6160
Total	**15.3642**	**14.3864**	**64.1351**	**0.1326**	**10.4902**	**0.2881**	**10.7783**	**2.8043**	**0.2815**	**3.0858**	**0.0000**	**13,837.0898**	**13,837.0898**	**0.6372**	**0.0181**	**13,858.4112**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/23/2020	12/4/2020	5	10	
2	Grading	Grading	2/8/2021	3/5/2021	5	20	
3	Building Construction	Building Construction	5/10/2021	4/25/2022	5	251	
4	Paving	Paving	5/30/2022	6/24/2022	5	20	
5	Architectural Coating	Architectural Coating	8/25/2022	9/21/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 834,401; Residential Outdoor: 278,134; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	199.00	31.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 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	lb/day										lb/day					
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
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
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**8.1298**	**0.0621**	**8.1919**	**4.4688**	**0.0621**	**4.5309**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 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	lb/day										lb/day					
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
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
Worker	0.0776	0.0412	0.5877	1.4400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		142.8323	142.8323	4.0900e-003		142.9346
Total	**0.0776**	**0.0412**	**0.5877**	**1.4400e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**142.8323**	**142.8323**	**4.0900e-003**		**142.9346**

3.3 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

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	lb/day										lb/day					
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
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
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0601**	**0.0308**	**0.4487**	**1.1500e-003**	**0.1141**	**7.7000e-004**	**0.1149**	**0.0303**	**7.1000e-004**	**0.0310**		**114.9719**	**114.9719**	**3.0600e-003**		**115.0483**

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	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0296		0.0484	0.0484		0.0484	0.0484	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**0.3632**	**1.5737**	**17.7527**	**0.0296**	**2.9486**	**0.0484**	**2.9970**	**1.5154**	**0.0484**	**1.5638**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

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	lb/day										lb/day					
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
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
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	**0.0601**	**0.0308**	**0.4487**	**1.1500e-003**	**0.1141**	**7.7000e-004**	**0.1149**	**0.0303**	**7.1000e-004**	**0.0310**		**114.9719**	**114.9719**	**3.0600e-003**		**115.0483**

3.4 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	lb/day										lb/day					
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
Vendor	0.0958	3.1137	0.7951	7.6500e-003	0.1865	8.5400e-003	0.1951	0.0537	8.1700e-003	0.0618		810.5815	810.5815	0.0443		811.6890
Worker	0.7976	0.4083	5.9532	0.0153	1.5138	0.0102	1.5240	0.4016	9.4200e-003	0.4110		1,525.2933	1,525.2933	0.0406		1,526.3080
Total	**0.8934**	**3.5219**	**6.7482**	**0.0230**	**1.7003**	**0.0188**	**1.7191**	**0.4552**	**0.0176**	**0.4728**		**2,335.8748**	**2,335.8748**	**0.0849**		**2,337.9970**

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	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	lb/day										lb/day					
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
Vendor	0.0958	3.1137	0.7951	7.6500e-003	0.1865	8.5400e-003	0.1951	0.0537	8.1700e-003	0.0618		810.5815	810.5815	0.0443		811.6890
Worker	0.7976	0.4083	5.9532	0.0153	1.5138	0.0102	1.5240	0.4016	9.4200e-003	0.4110		1,525.2933	1,525.2933	0.0406		1,526.3080
Total	**0.8934**	**3.5219**	**6.7482**	**0.0230**	**1.7003**	**0.0188**	**1.7191**	**0.4552**	**0.0176**	**0.4728**		**2,335.8748**	**2,335.8748**	**0.0849**		**2,337.9970**

3.4 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	lb/day										lb/day					
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
Vendor	0.0889	2.9602	0.7326	7.5800e-003	0.1865	7.4800e-003	0.1940	0.0537	7.1500e-003	0.0608		803.5107	803.5107	0.0430		804.5863
Worker	0.7445	0.3672	5.4824	0.0148	1.5138	9.9500e-003	1.5237	0.4016	9.1700e-003	0.4107		1,470.5926	1,470.5926	0.0365		1,471.5046
Total	**0.8334**	**3.3274**	**6.2150**	**0.0224**	**1.7003**	**0.0174**	**1.7177**	**0.4552**	**0.0163**	**0.4715**		**2,274.1033**	**2,274.1033**	**0.0795**		**2,276.0910**

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	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	lb/day										lb/day					
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
Vendor	0.0889	2.9602	0.7326	7.5800e-003	0.1865	7.4800e-003	0.1940	0.0537	7.1500e-003	0.0608		803.5107	803.5107	0.0430		804.5863
Worker	0.7445	0.3672	5.4824	0.0148	1.5138	9.9500e-003	1.5237	0.4016	9.1700e-003	0.4107		1,470.5926	1,470.5926	0.0365		1,471.5046
Total	**0.8334**	**3.3274**	**6.2150**	**0.0224**	**1.7003**	**0.0174**	**1.7177**	**0.4552**	**0.0163**	**0.4715**		**2,274.1033**	**2,274.1033**	**0.0795**		**2,276.0910**

3.5 Paving - 2022

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	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	lb/day										lb/day					
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
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
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	**0.0561**	**0.0277**	**0.4133**	**1.1100e-003**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**110.8487**	**110.8487**	**2.7500e-003**		**110.9174**

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	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2805**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	lb/day										lb/day					
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
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
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	**0.0561**	**0.0277**	**0.4133**	**1.1100e-003**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**110.8487**	**110.8487**	**2.7500e-003**		**110.9174**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
Archit. Coating	263.3920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**263.5965**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
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
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
Worker	0.1496	0.0738	1.1020	2.9700e-003	0.3043	2.0000e-003	0.3063	0.0807	1.8400e-003	0.0826		295.5965	295.5965	7.3300e-003		295.7798
Total	**0.1496**	**0.0738**	**1.1020**	**2.9700e-003**	**0.3043**	**2.0000e-003**	**0.3063**	**0.0807**	**1.8400e-003**	**0.0826**		**295.5965**	**295.5965**	**7.3300e-003**		**295.7798**

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	lb/day										lb/day					
Archit. Coating	263.3920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**263.4217**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
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
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
Worker	0.1496	0.0738	1.1020	2.9700e-003	0.3043	2.0000e-003	0.3063	0.0807	1.8400e-003	0.0826		295.5965	295.5965	7.3300e-003		295.7798
Total	**0.1496**	**0.0738**	**1.1020**	**2.9700e-003**	**0.3043**	**2.0000e-003**	**0.3063**	**0.0807**	**1.8400e-003**	**0.0826**		**295.5965**	**295.5965**	**7.3300e-003**		**295.7798**

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	lb/day										lb/day					
Mitigated	4.0821	13.3492	41.4548	0.1265	10.4902	0.1024	10.5926	2.8043	0.0958	2.9001		12,810.1265	12,810.1265	0.5796		12,824.6160
Unmitigated	4.0821	13.3492	41.4548	0.1265	10.4902	0.1024	10.5926	2.8043	0.0958	2.9001		12,810.1265	12,810.1265	0.5796		12,824.6160

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,795.50	1,725.30	1582.20	4,503,521	4,503,521
Racquet Club	168.36	256.20	208.80	246,505	246,505
Total	1,963.86	1,981.50	1,791.00	4,750,026	4,750,026

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Racquet Club	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159
NaturalGas Unmitigated	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159

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	lb/day										lb/day					
Apartments Mid Rise	7210.92	0.0778	0.6645	0.2828	4.2400e-003		0.0537	0.0537		0.0537	0.0537		848.3439	848.3439	0.0163	0.0156	853.3852
Racquet Club	1177.32	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0905**	**0.7800**	**0.3797**	**4.9300e-003**		**0.0625**	**0.0625**		**0.0625**	**0.0625**		**986.8516**	**986.8516**	**0.0189**	**0.0181**	**992.7159**

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	lb/day										lb/day					
Apartments Mid Rise	7.21092	0.0778	0.6645	0.2828	4.2400e-003		0.0537	0.0537		0.0537	0.0537		848.3439	848.3439	0.0163	0.0156	853.3852
Racquet Club	1.17732	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0905**	**0.7800**	**0.3797**	**4.9300e-003**		**0.0625**	**0.0625**		**0.0625**	**0.0625**		**986.8516**	**986.8516**	**0.0189**	**0.0181**	**992.7159**

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	lb/day										lb/day					
Mitigated	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793
Unmitigated	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793

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	lb/day										lb/day					
Architectural Coating	1.4432					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.0747					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6737	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232		40.1118	40.1118	0.0387		41.0793
Total	**11.1916**	**0.2572**	**22.3006**	**1.1800e-003**		**0.1232**	**0.1232**		**0.1232**	**0.1232**	**0.0000**	**40.1118**	**40.1118**	**0.0387**	**0.0000**	**41.0793**

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	lb/day										lb/day					
Architectural Coating	1.4432					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.0747					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6737	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232		40.1118	40.1118	0.0387		41.0793
Total	**11.1916**	**0.2572**	**22.3006**	**1.1800e-003**		**0.1232**	**0.1232**		**0.1232**	**0.1232**	**0.0000**	**40.1118**	**40.1118**	**0.0387**	**0.0000**	**41.0793**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase I FINAL

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	12.00	1000sqft	0.28	12,000.00	0
Apartments Mid Rise	270.00	Dwelling Unit	9.18	412,050.00	721

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Natomas II Apartments Phase I FINAL - Sacramento Metropolitan AQMD Air District, Winter

Project Characteristics -

Land Use - Sf from PD. 9.46 ac (area from PD) - 0.28ac (Rec area CalEEMod Default) = 9.18 ac (Residential area)

Construction Phase - Phase I req. increased # of work days compared to Phase II

Vehicle Trips -

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final mitigation for onsite equipment.

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

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	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	251.00
tblLandUse	LandUseSquareFeet	270,000.00	412,050.00
tblLandUse	LotAcreage	7.11	9.18

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.1479	42.4682	22.0168	0.0393	18.2032	2.1984	20.4016	9.9670	2.0225	11.9895	0.0000	3,810.5415	3,810.5415	1.1955	0.0000	3,840.4276
2021	2.7369	24.7747	22.5750	0.0478	6.6664	1.1607	7.8271	3.3978	1.0678	4.4656	0.0000	4,682.6922	4,682.6922	0.9315	0.0000	4,700.1844
2022	263.7346	19.0726	21.8701	0.0473	1.7003	0.8269	2.5272	0.4552	0.7780	1.2332	0.0000	4,628.6804	4,628.6804	0.7164	0.0000	4,645.9449
Maximum	**263.7346**	**42.4682**	**22.5750**	**0.0478**	**18.2032**	**2.1984**	**20.4016**	**9.9670**	**2.0225**	**11.9895**	**0.0000**	**4,682.6922**	**4,682.6922**	**1.1955**	**0.0000**	**4,700.1844**

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	lb/day										lb/day					
2020	0.5370	2.0684	21.3722	0.0393	8.2668	0.0630	8.3298	4.5051	0.0630	4.5681	0.0000	3,810.5415	3,810.5415	1.1955	0.0000	3,840.4276
2021	1.1638	5.9038	23.4601	0.0478	3.0627	0.0601	3.1119	1.5456	0.0589	1.5948	0.0000	4,682.6922	4,682.6922	0.9315	0.0000	4,700.1844
2022	263.5598	5.6917	22.9670	0.0473	1.7003	0.0587	1.7590	0.4552	0.0576	0.5128	0.0000	4,628.6804	4,628.6804	0.7164	0.0000	4,645.9449
Maximum	**263.5598**	**5.9038**	**23.4601**	**0.0478**	**8.2668**	**0.0630**	**8.3298**	**4.5051**	**0.0630**	**4.5681**	**0.0000**	**4,682.6922**	**4,682.6922**	**1.1955**	**0.0000**	**4,700.1844**

Natomas II Apartments Phase I FINAL - Sacramento Metropolitan AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.98**	**84.17**	**-2.01**	**0.00**	**50.96**	**95.66**	**57.08**	**52.92**	**95.36**	**62.26**	**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	lb/day										lb/day					
Area	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793
Energy	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159
Mobile	3.0455	14.2624	38.3769	0.1142	10.4902	0.1039	10.5941	2.8043	0.0972	2.9015		11,576.5398	11,576.5398	0.5757		11,590.9320
Total	**14.3276**	**15.2995**	**61.0572**	**0.1203**	**10.4902**	**0.2896**	**10.7798**	**2.8043**	**0.2830**	**3.0873**	**0.0000**	**12,603.5032**	**12,603.5032**	**0.6333**	**0.0181**	**12,624.7273**

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	lb/day										lb/day					
Area	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793
Energy	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159
Mobile	3.0455	14.2624	38.3769	0.1142	10.4902	0.1039	10.5941	2.8043	0.0972	2.9015		11,576.5398	11,576.5398	0.5757		11,590.9320
Total	**14.3276**	**15.2995**	**61.0572**	**0.1203**	**10.4902**	**0.2896**	**10.7798**	**2.8043**	**0.2830**	**3.0873**	**0.0000**	**12,603.5032**	**12,603.5032**	**0.6333**	**0.0181**	**12,624.7273**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/23/2020	12/4/2020	5	10	
2	Grading	Grading	2/8/2021	3/5/2021	5	20	
3	Building Construction	Building Construction	5/10/2021	4/25/2022	5	251	
4	Paving	Paving	5/30/2022	6/24/2022	5	20	
5	Architectural Coating	Architectural Coating	8/25/2022	9/21/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 834,401; Residential Outdoor: 278,134; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	199.00	31.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 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	lb/day										lb/day					
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
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
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**8.1298**	**0.0621**	**8.1919**	**4.4688**	**0.0621**	**4.5309**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.2 Site Preparation - 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	lb/day										lb/day					
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
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
Worker	0.0714	0.0509	0.5032	1.2600e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		125.4399	125.4399	3.6100e-003		125.5301
Total	**0.0714**	**0.0509**	**0.5032**	**1.2600e-003**	**0.1369**	**9.5000e-004**	**0.1379**	**0.0363**	**8.8000e-004**	**0.0372**		**125.4399**	**125.4399**	**3.6100e-003**		**125.5301**

3.3 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

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	lb/day										lb/day					
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
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
Worker	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419
Total	**0.0554**	**0.0380**	**0.3827**	**1.0100e-003**	**0.1141**	**7.7000e-004**	**0.1149**	**0.0303**	**7.1000e-004**	**0.0310**		**100.9746**	**100.9746**	**2.6900e-003**		**101.0419**

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	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0296		0.0484	0.0484		0.0484	0.0484	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**0.3632**	**1.5737**	**17.7527**	**0.0296**	**2.9486**	**0.0484**	**2.9970**	**1.5154**	**0.0484**	**1.5638**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.3 Grading - 2021

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	lb/day										lb/day					
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
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
Worker	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419
Total	**0.0554**	**0.0380**	**0.3827**	**1.0100e-003**	**0.1141**	**7.7000e-004**	**0.1149**	**0.0303**	**7.1000e-004**	**0.0310**		**100.9746**	**100.9746**	**2.6900e-003**		**101.0419**

3.4 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	lb/day										lb/day					
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
Vendor	0.1015	3.1649	0.9221	7.4600e-003	0.1865	9.0700e-003	0.1956	0.0537	8.6800e-003	0.0624		789.7314	789.7314	0.0480		790.9308
Worker	0.7345	0.5043	5.0777	0.0135	1.5138	0.0102	1.5240	0.4016	9.4200e-003	0.4110		1,339.5969	1,339.5969	0.0357		1,340.4893
Total	**0.8360**	**3.6691**	**5.9998**	**0.0209**	**1.7003**	**0.0193**	**1.7196**	**0.4552**	**0.0181**	**0.4733**		**2,129.3283**	**2,129.3283**	**0.0837**		**2,131.4202**

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	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

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	lb/day										lb/day					
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
Vendor	0.1015	3.1649	0.9221	7.4600e-003	0.1865	9.0700e-003	0.1956	0.0537	8.6800e-003	0.0624		789.7314	789.7314	0.0480		790.9308
Worker	0.7345	0.5043	5.0777	0.0135	1.5138	0.0102	1.5240	0.4016	9.4200e-003	0.4110		1,339.5969	1,339.5969	0.0357		1,340.4893
Total	**0.8360**	**3.6691**	**5.9998**	**0.0209**	**1.7003**	**0.0193**	**1.7196**	**0.4552**	**0.0181**	**0.4733**		**2,129.3283**	**2,129.3283**	**0.0837**		**2,131.4202**

3.4 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	lb/day										lb/day					
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
Vendor	0.0942	3.0036	0.8504	7.3800e-003	0.1865	7.9700e-003	0.1945	0.0537	7.6200e-003	0.0613		782.7143	782.7143	0.0466		783.8797
Worker	0.6869	0.4533	4.6563	0.0130	1.5138	9.9500e-003	1.5237	0.4016	9.1700e-003	0.4107		1,291.6325	1,291.6325	0.0320		1,292.4330
Total	**0.7811**	**3.4570**	**5.5067**	**0.0204**	**1.7003**	**0.0179**	**1.7182**	**0.4552**	**0.0168**	**0.4720**		**2,074.3468**	**2,074.3468**	**0.0786**		**2,076.3126**

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	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

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	lb/day										lb/day					
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
Vendor	0.0942	3.0036	0.8504	7.3800e-003	0.1865	7.9700e-003	0.1945	0.0537	7.6200e-003	0.0613		782.7143	782.7143	0.0466		783.8797
Worker	0.6869	0.4533	4.6563	0.0130	1.5138	9.9500e-003	1.5237	0.4016	9.1700e-003	0.4107		1,291.6325	1,291.6325	0.0320		1,292.4330
Total	**0.7811**	**3.4570**	**5.5067**	**0.0204**	**1.7003**	**0.0179**	**1.7182**	**0.4552**	**0.0168**	**0.4720**		**2,074.3468**	**2,074.3468**	**0.0786**		**2,076.3126**

3.5 Paving - 2022

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	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	lb/day										lb/day					
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
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
Worker	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196
Total	**0.0518**	**0.0342**	**0.3510**	**9.8000e-004**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**97.3592**	**97.3592**	**2.4100e-003**		**97.4196**

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	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2805**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.5 Paving - 2022

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	lb/day										lb/day					
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
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
Worker	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196
Total	**0.0518**	**0.0342**	**0.3510**	**9.8000e-004**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**97.3592**	**97.3592**	**2.4100e-003**		**97.4196**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
Archit. Coating	263.3920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**263.5965**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
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
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
Worker	0.1381	0.0911	0.9359	2.6100e-003	0.3043	2.0000e-003	0.3063	0.0807	1.8400e-003	0.0826		259.6246	259.6246	6.4400e-003		259.7855
Total	**0.1381**	**0.0911**	**0.9359**	**2.6100e-003**	**0.3043**	**2.0000e-003**	**0.3063**	**0.0807**	**1.8400e-003**	**0.0826**		**259.6246**	**259.6246**	**6.4400e-003**		**259.7855**

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	lb/day										lb/day					
Archit. Coating	263.3920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**263.4217**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
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
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
Worker	0.1381	0.0911	0.9359	2.6100e-003	0.3043	2.0000e-003	0.3063	0.0807	1.8400e-003	0.0826		259.6246	259.6246	6.4400e-003		259.7855
Total	**0.1381**	**0.0911**	**0.9359**	**2.6100e-003**	**0.3043**	**2.0000e-003**	**0.3063**	**0.0807**	**1.8400e-003**	**0.0826**		**259.6246**	**259.6246**	**6.4400e-003**		**259.7855**

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	lb/day										lb/day					
Mitigated	3.0455	14.2624	38.3769	0.1142	10.4902	0.1039	10.5941	2.8043	0.0972	2.9015		11,576.5398	11,576.5398	0.5757		11,590.9320
Unmitigated	3.0455	14.2624	38.3769	0.1142	10.4902	0.1039	10.5941	2.8043	0.0972	2.9015		11,576.5398	11,576.5398	0.5757		11,590.9320

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,795.50	1,725.30	1582.20	4,503,521	4,503,521
Racquet Club	168.36	256.20	208.80	246,505	246,505
Total	1,963.86	1,981.50	1,791.00	4,750,026	4,750,026

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Racquet Club	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159
NaturalGas Unmitigated	0.0905	0.7800	0.3797	4.9300e-003		0.0625	0.0625		0.0625	0.0625		986.8516	986.8516	0.0189	0.0181	992.7159

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	lb/day										lb/day					
Apartments Mid Rise	7210.92	0.0778	0.6645	0.2828	4.2400e-003		0.0537	0.0537		0.0537	0.0537		848.3439	848.3439	0.0163	0.0156	853.3852
Racquet Club	1177.32	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0905**	**0.7800**	**0.3797**	**4.9300e-003**		**0.0625**	**0.0625**		**0.0625**	**0.0625**		**986.8516**	**986.8516**	**0.0189**	**0.0181**	**992.7159**

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	lb/day										lb/day					
Apartments Mid Rise	7.21092	0.0778	0.6645	0.2828	4.2400e-003		0.0537	0.0537		0.0537	0.0537		848.3439	848.3439	0.0163	0.0156	853.3852
Racquet Club	1.17732	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0905**	**0.7800**	**0.3797**	**4.9300e-003**		**0.0625**	**0.0625**		**0.0625**	**0.0625**		**986.8516**	**986.8516**	**0.0189**	**0.0181**	**992.7159**

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	lb/day										lb/day					
Mitigated	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793
Unmitigated	11.1916	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232	0.0000	40.1118	40.1118	0.0387	0.0000	41.0793

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	lb/day										lb/day					
Architectural Coating	1.4432					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.0747					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6737	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232		40.1118	40.1118	0.0387		41.0793
Total	**11.1916**	**0.2572**	**22.3006**	**1.1800e-003**		**0.1232**	**0.1232**		**0.1232**	**0.1232**	**0.0000**	**40.1118**	**40.1118**	**0.0387**	**0.0000**	**41.0793**

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	lb/day										lb/day					
Architectural Coating	1.4432					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.0747					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6737	0.2572	22.3006	1.1800e-003		0.1232	0.1232		0.1232	0.1232		40.1118	40.1118	0.0387		41.0793
Total	**11.1916**	**0.2572**	**22.3006**	**1.1800e-003**		**0.1232**	**0.1232**		**0.1232**	**0.1232**	**0.0000**	**40.1118**	**40.1118**	**0.0387**	**0.0000**	**41.0793**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase II FINAL

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	12.00	1000sqft	0.28	12,000.00	0
Apartments Mid Rise	202.00	Dwelling Unit	6.72	304,961.00	539

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Sf from client. 7 (Phase 2 ac from client) - 0.28 (Caleemod default ac from sf) = 6.72 (res ac)

Construction Phase -

Grading -

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final mitigation for onsite equipment.

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

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	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblLandUse	LandUseSquareFeet	202,000.00	304,961.00
tblLandUse	LotAcreage	5.32	6.72

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					
2022	0.0361	0.3745	0.2568	5.0000e-004	0.1576	0.0175	0.1751	0.0838	0.0161	0.0999	0.0000	44.2290	44.2290	0.0139	0.0000	44.5758
2023	0.2449	1.9635	2.3726	4.9900e-003	0.1434	0.0842	0.2276	0.0385	0.0792	0.1177	0.0000	440.6527	440.6527	0.0722	0.0000	442.4573
2024	1.9717	0.0604	0.0987	1.7000e-004	2.7500e-003	2.9700e-003	5.7200e-003	7.3000e-004	2.7800e-003	3.5100e-003	0.0000	14.6689	14.6689	3.4300e-003	0.0000	14.7546
Maximum	**1.9717**	**1.9635**	**2.3726**	**4.9900e-003**	**0.1576**	**0.0842**	**0.2276**	**0.0838**	**0.0792**	**0.1177**	**0.0000**	**440.6527**	**440.6527**	**0.0722**	**0.0000**	**442.4573**

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					
2022	6.7400e-003	0.0263	0.2875	5.0000e-004	0.0719	8.1000e-004	0.0727	0.0380	8.1000e-004	0.0388	0.0000	44.2290	44.2290	0.0139	0.0000	44.5757
2023	0.0980	0.5214	2.5260	4.9900e-003	0.1434	6.0500e-003	0.1494	0.0385	5.9700e-003	0.0445	0.0000	440.6524	440.6524	0.0722	0.0000	442.4570
2024	1.9666	7.9800e-003	0.1122	1.7000e-004	2.7500e-003	2.4000e-004	3.0000e-003	7.3000e-004	2.4000e-004	9.8000e-004	0.0000	14.6689	14.6689	3.4300e-003	0.0000	14.7546
Maximum	**1.9666**	**0.5214**	**2.5260**	**4.9900e-003**	**0.1434**	**6.0500e-003**	**0.1494**	**0.0385**	**5.9700e-003**	**0.0445**	**0.0000**	**440.6524**	**440.6524**	**0.0722**	**0.0000**	**442.4570**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**8.05**	**76.83**	**-7.24**	**0.00**	**28.22**	**93.21**	**44.88**	**37.25**	**92.84**	**61.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-22-2022**	**12-21-2022**	0.3943	0.0317
2	**12-22-2022**	**3-21-2023**	0.5296	0.1517
3	**3-22-2023**	**6-21-2023**	0.6156	0.1754
4	**6-22-2023**	**9-21-2023**	0.6154	0.1753
5	**9-22-2023**	**12-21-2023**	0.3981	0.1116
6	**12-22-2023**	**3-21-2024**	2.0650	1.9792
		Highest	2.0650	1.9792

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	1.4969	0.0240	2.0824	1.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	3.4031	3.4031	3.2700e-003	0.0000	3.4847
Energy	0.0129	0.1118	0.0563	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.0000	407.0077	407.0077	0.0162	5.1800e-003	408.9561
Mobile	0.3702	1.5325	4.2337	0.0145	1.3476	0.0114	1.3590	0.3612	0.0106	0.3718	0.0000	1,338.4219	1,338.4219	0.0591	0.0000	1,339.8984
Waste						0.0000	0.0000		0.0000	0.0000	32.7465	0.0000	32.7465	1.9353	0.0000	81.1281
Water						0.0000	0.0000		0.0000	0.0000	4.9075	26.6891	31.5967	0.0182	0.0109	35.3129
Total	**1.8800**	**1.6683**	**6.3725**	**0.0154**	**1.3476**	**0.0319**	**1.3795**	**0.3612**	**0.0311**	**0.3923**	**37.6540**	**1,775.5218**	**1,813.1759**	**2.0320**	**0.0161**	**1,868.7802**

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	1.4969	0.0240	2.0824	1.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	3.4031	3.4031	3.2700e-003	0.0000	3.4847
Energy	0.0129	0.1118	0.0563	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.0000	407.0077	407.0077	0.0162	5.1800e-003	408.9561
Mobile	0.3702	1.5325	4.2337	0.0145	1.3476	0.0114	1.3590	0.3612	0.0106	0.3718	0.0000	1,338.4219	1,338.4219	0.0591	0.0000	1,339.8984
Waste						0.0000	0.0000		0.0000	0.0000	32.7465	0.0000	32.7465	1.9353	0.0000	81.1281
Water						0.0000	0.0000		0.0000	0.0000	4.9075	26.6891	31.5967	0.0182	0.0109	35.3129
Total	**1.8800**	**1.6683**	**6.3725**	**0.0154**	**1.3476**	**0.0319**	**1.3795**	**0.3612**	**0.0311**	**0.3923**	**37.6540**	**1,775.5218**	**1,813.1759**	**2.0320**	**0.0161**	**1,868.7802**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/22/2022	10/5/2022	5	10	
2	Grading	Grading	11/21/2022	12/16/2022	5	20	
3	Building Construction	Building Construction	1/2/2023	11/17/2023	5	230	
4	Paving	Paving	12/18/2023	1/12/2024	5	20	
5	Architectural Coating	Architectural Coating	2/21/2024	3/19/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 617,546; Residential Outdoor: 205,849; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	150.00	24.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

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	2.9000e-004	1.8000e-004	2.0900e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5455	0.5455	1.0000e-005	0.0000	0.5458
Total	**2.9000e-004**	**1.8000e-004**	**2.0900e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.7000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5455**	**0.5455**	**1.0000e-005**	**0.0000**	**0.5458**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0407**	**3.1000e-004**	**0.0410**	**0.0223**	**3.1000e-004**	**0.0227**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

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	2.9000e-004	1.8000e-004	2.0900e-003	1.0000e-005	6.6000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5455	0.5455	1.0000e-005	0.0000	0.5458
Total	**2.9000e-004**	**1.8000e-004**	**2.0900e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.7000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5455**	**0.5455**	**1.0000e-005**	**0.0000**	**0.5458**

3.3 Grading - 2022

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654
Total	**0.0195**	**0.2086**	**0.1527**	**3.0000e-004**	**0.0655**	**9.4100e-003**	**0.0749**	**0.0337**	**8.6600e-003**	**0.0423**	**0.0000**	**26.0548**	**26.0548**	**8.4300e-003**	**0.0000**	**26.2654**

3.3 Grading - 2022

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	4.9000e-004	3.1000e-004	3.4900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9091	0.9091	2.0000e-005	0.0000	0.9097
Total	**4.9000e-004**	**3.1000e-004**	**3.4900e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9091**	**0.9091**	**2.0000e-005**	**0.0000**	**0.9097**

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					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6300e-003	0.0157	0.1775	3.0000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654
Total	**3.6300e-003**	**0.0157**	**0.1775**	**3.0000e-004**	**0.0295**	**4.8000e-004**	**0.0300**	**0.0152**	**4.8000e-004**	**0.0156**	**0.0000**	**26.0547**	**26.0547**	**8.4300e-003**	**0.0000**	**26.2654**

3.3 Grading - 2022

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	4.9000e-004	3.1000e-004	3.4900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9091	0.9091	2.0000e-005	0.0000	0.9097
Total	**4.9000e-004**	**3.1000e-004**	**3.4900e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9091**	**0.9091**	**2.0000e-005**	**0.0000**	**0.9097**

3.4 Building Construction - 2023

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	0.1809	1.6543	1.8681	3.1000e-003		0.0805	0.0805		0.0757	0.0757	0.0000	266.5755	266.5755	0.0634	0.0000	268.1608
Total	**0.1809**	**1.6543**	**1.8681**	**3.1000e-003**		**0.0805**	**0.0805**		**0.0757**	**0.0757**	**0.0000**	**266.5755**	**266.5755**	**0.0634**	**0.0000**	**268.1608**

3.4 Building Construction - 2023

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	6.3700e-003	0.2266	0.0616	6.5000e-004	0.0161	3.3000e-004	0.0165	4.6600e-003	3.1000e-004	4.9700e-003	0.0000	63.0061	63.0061	3.2300e-003	0.0000	63.0868
Worker	0.0523	0.0316	0.3685	1.1100e-003	0.1267	8.4000e-004	0.1275	0.0337	7.8000e-004	0.0345	0.0000	100.6202	100.6202	2.2900e-003	0.0000	100.6776
Total	**0.0586**	**0.2582**	**0.4300**	**1.7600e-003**	**0.1428**	**1.1700e-003**	**0.1440**	**0.0384**	**1.0900e-003**	**0.0394**	**0.0000**	**163.6264**	**163.6264**	**5.5200e-003**	**0.0000**	**163.7644**

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	0.0377	0.2570	2.0079	3.1000e-003		4.6900e-003	4.6900e-003		4.6900e-003	4.6900e-003	0.0000	266.5751	266.5751	0.0634	0.0000	268.1605
Total	**0.0377**	**0.2570**	**2.0079**	**3.1000e-003**		**4.6900e-003**	**4.6900e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**266.5751**	**266.5751**	**0.0634**	**0.0000**	**268.1605**

3.4 Building Construction - 2023

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	6.3700e-003	0.2266	0.0616	6.5000e-004	0.0161	3.3000e-004	0.0165	4.6600e-003	3.1000e-004	4.9700e-003	0.0000	63.0061	63.0061	3.2300e-003	0.0000	63.0868
Worker	0.0523	0.0316	0.3685	1.1100e-003	0.1267	8.4000e-004	0.1275	0.0337	7.8000e-004	0.0345	0.0000	100.6202	100.6202	2.2900e-003	0.0000	100.6776
Total	**0.0586**	**0.2582**	**0.4300**	**1.7600e-003**	**0.1428**	**1.1700e-003**	**0.1440**	**0.0384**	**1.0900e-003**	**0.0394**	**0.0000**	**163.6264**	**163.6264**	**5.5200e-003**	**0.0000**	**163.7644**

3.5 Paving - 2023

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	5.1600e-003	0.0510	0.0729	1.1000e-004		2.5500e-003	2.5500e-003		2.3500e-003	2.3500e-003	0.0000	10.0134	10.0134	3.2400e-003	0.0000	10.0944
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.1600e-003**	**0.0510**	**0.0729**	**1.1000e-004**		**2.5500e-003**	**2.5500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**10.0134**	**10.0134**	**3.2400e-003**	**0.0000**	**10.0944**

3.5 Paving - 2023

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	2.3000e-004	1.4000e-004	1.6000e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4375	0.4375	1.0000e-005	0.0000	0.4377
Total	**2.3000e-004**	**1.4000e-004**	**1.6000e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4375**	**0.4375**	**1.0000e-005**	**0.0000**	**0.4377**

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	1.4000e-003	6.0800e-003	0.0865	1.1000e-004		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	10.0134	10.0134	3.2400e-003	0.0000	10.0944
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-003**	**6.0800e-003**	**0.0865**	**1.1000e-004**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**10.0134**	**10.0134**	**3.2400e-003**	**0.0000**	**10.0944**

3.5 Paving - 2023

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	2.3000e-004	1.4000e-004	1.6000e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4375	0.4375	1.0000e-005	0.0000	0.4377
Total	**2.3000e-004**	**1.4000e-004**	**1.6000e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4375**	**0.4375**	**1.0000e-005**	**0.0000**	**0.4377**

3.5 Paving - 2024

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	4.9400e-003	0.0476	0.0731	1.1000e-004		2.3400e-003	2.3400e-003		2.1600e-003	2.1600e-003	0.0000	10.0133	10.0133	3.2400e-003	0.0000	10.0942
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.9400e-003**	**0.0476**	**0.0731**	**1.1000e-004**		**2.3400e-003**	**2.3400e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**10.0133**	**10.0133**	**3.2400e-003**	**0.0000**	**10.0942**

3.5 Paving - 2024

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	2.1000e-004	1.2000e-004	1.4800e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4205	0.4205	1.0000e-005	0.0000	0.4207
Total	**2.1000e-004**	**1.2000e-004**	**1.4800e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4205**	**0.4205**	**1.0000e-005**	**0.0000**	**0.4207**

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	1.4000e-003	6.0800e-003	0.0865	1.1000e-004		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	10.0133	10.0133	3.2400e-003	0.0000	10.0942
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-003**	**6.0800e-003**	**0.0865**	**1.1000e-004**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**10.0133**	**10.0133**	**3.2400e-003**	**0.0000**	**10.0942**

3.5 Paving - 2024

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	2.1000e-004	1.2000e-004	1.4800e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4205	0.4205	1.0000e-005	0.0000	0.4207
Total	**2.1000e-004**	**1.2000e-004**	**1.4800e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4205**	**0.4205**	**1.0000e-005**	**0.0000**	**0.4207**

3.6 Architectural Coating - 2024

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	1.9638					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**1.9657**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

3.6 Architectural Coating - 2024

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	8.5000e-004	5.0000e-004	5.9300e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.6819	1.6819	4.0000e-005	0.0000	1.6828
Total	**8.5000e-004**	**5.0000e-004**	**5.9300e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2200e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.6819**	**1.6819**	**4.0000e-005**	**0.0000**	**1.6828**

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	1.9638					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	1.2900e-003	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**1.9641**	**1.2900e-003**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

3.6 Architectural Coating - 2024

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	8.5000e-004	5.0000e-004	5.9300e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.6819	1.6819	4.0000e-005	0.0000	1.6828
Total	**8.5000e-004**	**5.0000e-004**	**5.9300e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2200e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.6819**	**1.6819**	**4.0000e-005**	**0.0000**	**1.6828**

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	0.3702	1.5325	4.2337	0.0145	1.3476	0.0114	1.3590	0.3612	0.0106	0.3718	0.0000	1,338.4219	1,338.4219	0.0591	0.0000	1,339.8984
Unmitigated	0.3702	1.5325	4.2337	0.0145	1.3476	0.0114	1.3590	0.3612	0.0106	0.3718	0.0000	1,338.4219	1,338.4219	0.0591	0.0000	1,339.8984

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,343.30	1,290.78	1183.72	3,369,301	3,369,301
Racquet Club	168.36	256.20	208.80	246,505	246,505
Total	1,511.66	1,546.98	1,392.52	3,615,806	3,615,806

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776
Racquet Club	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	278.9966	278.9966	0.0137	2.8400e-003	280.1844
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	278.9966	278.9966	0.0137	2.8400e-003	280.1844
NaturalGas Mitigated	0.0129	0.1118	0.0563	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.0000	128.0110	128.0110	2.4500e-003	2.3500e-003	128.7717
NaturalGas Unmitigated	0.0129	0.1118	0.0563	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.0000	128.0110	128.0110	2.4500e-003	2.3500e-003	128.7717

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	1.96912e+006	0.0106	0.0907	0.0386	5.8000e-004		7.3400e-003	7.3400e-003		7.3400e-003	7.3400e-003	0.0000	105.0795	105.0795	2.0100e-003	1.9300e-003	105.7040
Racquet Club	429720	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003	0.0000	22.9315	22.9315	4.4000e-004	4.2000e-004	23.0678
Total		**0.0129**	**0.1118**	**0.0563**	**7.1000e-004**		**8.9400e-003**	**8.9400e-003**		**8.9400e-003**	**8.9400e-003**	**0.0000**	**128.0110**	**128.0110**	**2.4500e-003**	**2.3500e-003**	**128.7717**

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 Mid Rise	1.96912e+006	0.0106	0.0907	0.0386	5.8000e-004		7.3400e-003	7.3400e-003		7.3400e-003	7.3400e-003	0.0000	105.0795	105.0795	2.0100e-003	1.9300e-003	105.7040
Racquet Club	429720	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003	0.0000	22.9315	22.9315	4.4000e-004	4.2000e-004	23.0678
Total		**0.0129**	**0.1118**	**0.0563**	**7.1000e-004**		**8.9400e-003**	**8.9400e-003**		**8.9400e-003**	**8.9400e-003**	**0.0000**	**128.0110**	**128.0110**	**2.4500e-003**	**2.3500e-003**	**128.7717**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	859805	230.2215	0.0113	2.3400e-003	231.2015
Racquet Club	182160	48.7752	2.4000e-003	5.0000e-004	48.9828
Total		**278.9966**	**0.0137**	**2.8400e-003**	**280.1844**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	859805	230.2215	0.0113	2.3400e-003	231.2015
Racquet Club	182160	48.7752	2.4000e-003	5.0000e-004	48.9828
Total		**278.9966**	**0.0137**	**2.8400e-003**	**280.1844**

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	1.4969	0.0240	2.0824	1.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	3.4031	3.4031	3.2700e-003	0.0000	3.4847
Unmitigated	1.4969	0.0240	2.0824	1.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	3.4031	3.4031	3.2700e-003	0.0000	3.4847

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	0.1964					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0626	0.0240	2.0824	1.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	3.4031	3.4031	3.2700e-003	0.0000	3.4847
Total	**1.4969**	**0.0240**	**2.0824**	**1.1000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**3.4031**	**3.4031**	**3.2700e-003**	**0.0000**	**3.4847**

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	0.1964					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0626	0.0240	2.0824	1.1000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	3.4031	3.4031	3.2700e-003	0.0000	3.4847
Total	**1.4969**	**0.0240**	**2.0824**	**1.1000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**3.4031**	**3.4031**	**3.2700e-003**	**0.0000**	**3.4847**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	31.5967	0.0182	0.0109	35.3129
Unmitigated	31.5967	0.0182	0.0109	35.3129

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	13.1611 / 8.29722	29.9910	0.0173	0.0104	33.5172
Racquet Club	0.709718 / 0.434988	1.6056	9.3000e-004	5.6000e-004	1.7957
Total		**31.5967**	**0.0182**	**0.0109**	**35.3129**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	13.1611 / 8.29722	29.9910	0.0173	0.0104	33.5172
Racquet Club	0.709718 / 0.434988	1.6056	9.3000e-004	5.6000e-004	1.7957
Total		**31.5967**	**0.0182**	**0.0109**	**35.3129**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	32.7465	1.9353	0.0000	81.1281
Unmitigated	32.7465	1.9353	0.0000	81.1281

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	92.92	18.8619	1.1147	0.0000	46.7296
Racquet Club	68.4	13.8846	0.8206	0.0000	34.3985
Total		**32.7465**	**1.9353**	**0.0000**	**81.1281**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	92.92	18.8619	1.1147	0.0000	46.7296
Racquet Club	68.4	13.8846	0.8206	0.0000	34.3985
Total		**32.7465**	**1.9353**	**0.0000**	**81.1281**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase II FINAL

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	12.00	1000sqft	0.28	12,000.00	0
Apartments Mid Rise	202.00	Dwelling Unit	6.72	304,961.00	539

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Sf from client. 7 (Phase 2 ac from client) - 0.28 (Caleemod default ac from sf) = 6.72 (res ac)

Construction Phase -

Grading -

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final mitigation for onsite equipment.

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

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	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblLandUse	LandUseSquareFeet	202,000.00	304,961.00
tblLandUse	LotAcreage	5.32	6.72

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	3.2375	33.1167	20.1937	0.0394	18.2032	1.6135	19.8167	9.9670	1.4844	11.4514	0.0000	3,819.0803	3,819.0803	1.1955	0.0000	3,848.9665
2023	2.1516	16.5780	20.5508	0.0434	1.2854	0.7098	1.9952	0.3442	0.6678	1.0120	0.0000	4,232.5794	4,232.5794	0.7165	0.0000	4,249.1398
2024	196.6631	9.5471	14.9786	0.0238	0.2282	0.4692	0.5833	0.0605	0.4317	0.4620	0.0000	2,310.0760	2,310.0760	0.7162	0.0000	2,327.9807
Maximum	**196.6631**	**33.1167**	**20.5508**	**0.0434**	**18.2032**	**1.6135**	**19.8167**	**9.9670**	**1.4844**	**11.4514**	**0.0000**	**4,232.5794**	**4,232.5794**	**1.1955**	**0.0000**	**4,249.1398**

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	lb/day										lb/day					
2022	0.5329	2.0507	21.3649	0.0394	8.2668	0.0630	8.3297	4.5051	0.0629	4.5680	0.0000	3,819.0803	3,819.0803	1.1955	0.0000	3,848.9665
2023	0.9067	4.4278	21.7671	0.0434	1.2854	0.0508	1.3363	0.3442	0.0501	0.3944	0.0000	4,232.5794	4,232.5794	0.7165	0.0000	4,249.1398
2024	196.5120	1.2379	17.6485	0.0238	0.2282	0.0381	0.2336	0.0605	0.0381	0.0683	0.0000	2,310.0760	2,310.0760	0.7162	0.0000	2,327.9807
Maximum	**196.5120**	**4.4278**	**21.7671**	**0.0434**	**8.2668**	**0.0630**	**8.3297**	**4.5051**	**0.0629**	**4.5680**	**0.0000**	**4,232.5794**	**4,232.5794**	**1.1955**	**0.0000**	**4,249.1398**

Natomas II Apartments Phase II FINAL - Sacramento Metropolitan AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.03**	**86.97**	**-9.08**	**0.00**	**50.40**	**94.56**	**55.80**	**52.66**	**94.15**	**61.08**	**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	lb/day										lb/day					
Area	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302
Energy	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893
Mobile	2.7503	8.5894	27.4919	0.0905	8.0246	0.0656	8.0901	2.1444	0.0611	2.2055		9,179.0524	9,179.0524	0.3847		9,188.6700
Total	**11.1812**	**9.3940**	**44.4599**	**0.0953**	**8.0246**	**0.2069**	**8.2314**	**2.1444**	**0.2024**	**2.3468**	**0.0000**	**9,982.2571**	**9,982.2571**	**0.4283**	**0.0142**	**9,997.1895**

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	lb/day										lb/day					
Area	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302
Energy	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893
Mobile	2.7503	8.5894	27.4919	0.0905	8.0246	0.0656	8.0901	2.1444	0.0611	2.2055		9,179.0524	9,179.0524	0.3847		9,188.6700
Total	**11.1812**	**9.3940**	**44.4599**	**0.0953**	**8.0246**	**0.2069**	**8.2314**	**2.1444**	**0.2024**	**2.3468**	**0.0000**	**9,982.2571**	**9,982.2571**	**0.4283**	**0.0142**	**9,997.1895**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/22/2022	10/5/2022	5	10	
2	Grading	Grading	11/21/2022	12/16/2022	5	20	
3	Building Construction	Building Construction	1/2/2023	11/17/2023	5	230	
4	Paving	Paving	12/18/2023	1/12/2024	5	20	
5	Architectural Coating	Architectural Coating	2/21/2024	3/19/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 617,546; Residential Outdoor: 205,849; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	150.00	24.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.2 Site Preparation - 2022

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	lb/day										lb/day					
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
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
Worker	0.0673	0.0332	0.4959	1.3400e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		133.0184	133.0184	3.3000e-003		133.1009
Total	**0.0673**	**0.0332**	**0.4959**	**1.3400e-003**	**0.1369**	**9.0000e-004**	**0.1378**	**0.0363**	**8.3000e-004**	**0.0372**		**133.0184**	**133.0184**	**3.3000e-003**		**133.1009**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**8.1298**	**0.0621**	**8.1919**	**4.4688**	**0.0621**	**4.5309**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.2 Site Preparation - 2022

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	lb/day										lb/day					
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
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
Worker	0.0673	0.0332	0.4959	1.3400e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		133.0184	133.0184	3.3000e-003		133.1009
Total	**0.0673**	**0.0332**	**0.4959**	**1.3400e-003**	**0.1369**	**9.0000e-004**	**0.1378**	**0.0363**	**8.3000e-004**	**0.0372**		**133.0184**	**133.0184**	**3.3000e-003**		**133.1009**

3.3 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**6.5523**	**0.9409**	**7.4932**	**3.3675**	**0.8656**	**4.2331**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

3.3 Grading - 2022

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	lb/day										lb/day					
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
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
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	**0.0561**	**0.0277**	**0.4133**	**1.1100e-003**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**110.8487**	**110.8487**	**2.7500e-003**		**110.9174**

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	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		0.0484	0.0484		0.0484	0.0484	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**0.3632**	**1.5737**	**17.7527**	**0.0297**	**2.9486**	**0.0484**	**2.9970**	**1.5154**	**0.0484**	**1.5638**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

3.3 Grading - 2022

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	lb/day										lb/day					
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
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
Worker	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	**0.0561**	**0.0277**	**0.4133**	**1.1100e-003**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**110.8487**	**110.8487**	**2.7500e-003**		**110.9174**

3.4 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

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	lb/day										lb/day					
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
Vendor	0.0544	1.9440	0.5031	5.7500e-003	0.1444	2.7300e-003	0.1471	0.0415	2.6100e-003	0.0442		610.5572	610.5572	0.0299		611.3051
Worker	0.5245	0.2492	3.8038	0.0107	1.1411	7.3200e-003	1.1484	0.3027	6.7400e-003	0.3094		1,066.8123	1,066.8123	0.0247		1,067.4286
Total	**0.5789**	**2.1931**	**4.3068**	**0.0165**	**1.2854**	**0.0101**	**1.2955**	**0.3442**	**9.3500e-003**	**0.3536**		**1,677.3695**	**1,677.3695**	**0.0546**		**1,678.7337**

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	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

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	lb/day										lb/day					
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
Vendor	0.0544	1.9440	0.5031	5.7500e-003	0.1444	2.7300e-003	0.1471	0.0415	2.6100e-003	0.0442		610.5572	610.5572	0.0299		611.3051
Worker	0.5245	0.2492	3.8038	0.0107	1.1411	7.3200e-003	1.1484	0.3027	6.7400e-003	0.3094		1,066.8123	1,066.8123	0.0247		1,067.4286
Total	**0.5789**	**2.1931**	**4.3068**	**0.0165**	**1.2854**	**0.0101**	**1.2955**	**0.3442**	**9.3500e-003**	**0.3536**		**1,677.3695**	**1,677.3695**	**0.0546**		**1,678.7337**

3.5 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

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	lb/day										lb/day					
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
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
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	**0.0525**	**0.0249**	**0.3804**	**1.0700e-003**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**106.6812**	**106.6812**	**2.4700e-003**		**106.7429**

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	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2805**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

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	lb/day										lb/day					
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
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
Worker	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	**0.0525**	**0.0249**	**0.3804**	**1.0700e-003**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**106.6812**	**106.6812**	**2.4700e-003**		**106.7429**

3.5 Paving - 2024

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	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	lb/day										lb/day					
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
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
Worker	0.0493	0.0225	0.3529	1.0300e-003	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		102.5288	102.5288	2.2200e-003		102.5844
Total	**0.0493**	**0.0225**	**0.3529**	**1.0300e-003**	**0.1141**	**7.2000e-004**	**0.1148**	**0.0303**	**6.6000e-004**	**0.0309**		**102.5288**	**102.5288**	**2.2200e-003**		**102.5844**

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	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2805**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	lb/day										lb/day					
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
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
Worker	0.0493	0.0225	0.3529	1.0300e-003	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		102.5288	102.5288	2.2200e-003		102.5844
Total	**0.0493**	**0.0225**	**0.3529**	**1.0300e-003**	**0.1141**	**7.2000e-004**	**0.1148**	**0.0303**	**6.6000e-004**	**0.0309**		**102.5288**	**102.5288**	**2.2200e-003**		**102.5844**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
Archit. Coating	196.3838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**196.5646**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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
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
Worker	0.0985	0.0451	0.7057	2.0600e-003	0.2282	1.4300e-003	0.2296	0.0605	1.3200e-003	0.0619		205.0575	205.0575	4.4500e-003		205.1687
Total	**0.0985**	**0.0451**	**0.7057**	**2.0600e-003**	**0.2282**	**1.4300e-003**	**0.2296**	**0.0605**	**1.3200e-003**	**0.0619**		**205.0575**	**205.0575**	**4.4500e-003**		**205.1687**

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	lb/day										lb/day					
Archit. Coating	196.3838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**196.4135**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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
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
Worker	0.0985	0.0451	0.7057	2.0600e-003	0.2282	1.4300e-003	0.2296	0.0605	1.3200e-003	0.0619		205.0575	205.0575	4.4500e-003		205.1687
Total	**0.0985**	**0.0451**	**0.7057**	**2.0600e-003**	**0.2282**	**1.4300e-003**	**0.2296**	**0.0605**	**1.3200e-003**	**0.0619**		**205.0575**	**205.0575**	**4.4500e-003**		**205.1687**

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	lb/day										lb/day					
Mitigated	2.7503	8.5894	27.4919	0.0905	8.0246	0.0656	8.0901	2.1444	0.0611	2.2055		9,179.0524	9,179.0524	0.3847		9,188.6700
Unmitigated	2.7503	8.5894	27.4919	0.0905	8.0246	0.0656	8.0901	2.1444	0.0611	2.2055		9,179.0524	9,179.0524	0.3847		9,188.6700

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,343.30	1,290.78	1183.72	3,369,301	3,369,301
Racquet Club	168.36	256.20	208.80	246,505	246,505
Total	1,511.66	1,546.98	1,392.52	3,615,806	3,615,806

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776
Racquet Club	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893
NaturalGas Unmitigated	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893

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	lb/day										lb/day					
Apartments Mid Rise	5394.84	0.0582	0.4972	0.2116	3.1700e-003		0.0402	0.0402		0.0402	0.0402		634.6869	634.6869	0.0122	0.0116	638.4586
Racquet Club	1177.32	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0709**	**0.6126**	**0.3085**	**3.8600e-003**		**0.0490**	**0.0490**		**0.0490**	**0.0490**		**773.1946**	**773.1946**	**0.0148**	**0.0142**	**777.7893**

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	lb/day										lb/day					
Apartments Mid Rise	5.39484	0.0582	0.4972	0.2116	3.1700e-003		0.0402	0.0402		0.0402	0.0402		634.6869	634.6869	0.0122	0.0116	638.4586
Racquet Club	1.17732	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0709**	**0.6126**	**0.3085**	**3.8600e-003**		**0.0490**	**0.0490**		**0.0490**	**0.0490**		**773.1946**	**773.1946**	**0.0148**	**0.0142**	**777.7893**

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	lb/day										lb/day					
Mitigated	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302
Unmitigated	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302

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	lb/day										lb/day					
Architectural Coating	1.0761					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5010	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923		30.0102	30.0102	0.0288		30.7302
Total	**8.3600**	**0.1919**	**16.6595**	**8.8000e-004**		**0.0923**	**0.0923**		**0.0923**	**0.0923**	**0.0000**	**30.0102**	**30.0102**	**0.0288**	**0.0000**	**30.7302**

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	lb/day										lb/day					
Architectural Coating	1.0761					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5010	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923		30.0102	30.0102	0.0288		30.7302
Total	**8.3600**	**0.1919**	**16.6595**	**8.8000e-004**		**0.0923**	**0.0923**		**0.0923**	**0.0923**	**0.0000**	**30.0102**	**30.0102**	**0.0288**	**0.0000**	**30.7302**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Natomas II Apartments Phase II FINAL

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Racquet Club	12.00	1000sqft	0.28	12,000.00	0
Apartments Mid Rise	202.00	Dwelling Unit	6.72	304,961.00	539

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Sf from client. 7 (Phase 2 ac from client) - 0.28 (Caleemod default ac from sf) = 6.72 (res ac)

Construction Phase -

Grading -

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final mitigation for onsite equipment.

Trips and VMT -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

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	3.00
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblLandUse	LandUseSquareFeet	202,000.00	304,961.00
tblLandUse	LotAcreage	5.32	6.72

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	3.2323	33.1245	20.1189	0.0392	18.2032	1.6135	19.8167	9.9670	1.4844	11.4514	0.0000	3,802.8929	3,802.8929	1.1951	0.0000	3,832.7690
2023	2.1157	16.6558	20.0400	0.0420	1.2854	0.7100	1.9955	0.3442	0.6680	1.0122	0.0000	4,087.0517	4,087.0517	0.7161	0.0000	4,103.5952
2024	196.6559	9.5524	14.9231	0.0237	0.2282	0.4692	0.5833	0.0605	0.4317	0.4620	0.0000	2,297.6106	2,297.6106	0.7159	0.0000	2,315.5083
Maximum	**196.6559**	**33.1245**	**20.1189**	**0.0420**	**18.2032**	**1.6135**	**19.8167**	**9.9670**	**1.4844**	**11.4514**	**0.0000**	**4,087.0517**	**4,087.0517**	**1.1951**	**0.0000**	**4,103.5952**

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	lb/day										lb/day					
2022	0.5277	2.0585	21.2902	0.0392	8.2668	0.0630	8.3297	4.5051	0.0629	4.5680	0.0000	3,802.8929	3,802.8929	1.1951	0.0000	3,832.7690
2023	0.8707	4.5056	21.2563	0.0420	1.2854	0.0511	1.3365	0.3442	0.0504	0.3946	0.0000	4,087.0517	4,087.0517	0.7161	0.0000	4,103.5952
2024	196.5049	1.2432	17.5930	0.0237	0.2282	0.0381	0.2336	0.0605	0.0381	0.0683	0.0000	2,297.6106	2,297.6106	0.7159	0.0000	2,315.5083
Maximum	**196.5049**	**4.5056**	**21.2902**	**0.0420**	**8.2668**	**0.0630**	**8.3297**	**4.5051**	**0.0629**	**4.5680**	**0.0000**	**4,087.0517**	**4,087.0517**	**1.1951**	**0.0000**	**4,103.5952**

Natomas II Apartments Phase II FINAL - Sacramento Metropolitan AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.03**	**86.84**	**-9.18**	**0.00**	**50.40**	**94.55**	**55.80**	**52.66**	**94.14**	**61.08**	**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	lb/day										lb/day					
Area	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302
Energy	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893
Mobile	2.0231	9.1269	25.3436	0.0818	8.0246	0.0663	8.0908	2.1444	0.0618	2.2062		8,303.7446	8,303.7446	0.3834		8,313.3288
Total	**10.4540**	**9.9314**	**42.3116**	**0.0866**	**8.0246**	**0.2076**	**8.2321**	**2.1444**	**0.2031**	**2.3475**	**0.0000**	**9,106.9493**	**9,106.9493**	**0.4270**	**0.0142**	**9,121.8482**

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	lb/day										lb/day					
Area	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302
Energy	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893
Mobile	2.0231	9.1269	25.3436	0.0818	8.0246	0.0663	8.0908	2.1444	0.0618	2.2062		8,303.7446	8,303.7446	0.3834		8,313.3288
Total	**10.4540**	**9.9314**	**42.3116**	**0.0866**	**8.0246**	**0.2076**	**8.2321**	**2.1444**	**0.2031**	**2.3475**	**0.0000**	**9,106.9493**	**9,106.9493**	**0.4270**	**0.0142**	**9,121.8482**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/22/2022	10/5/2022	5	10	
2	Grading	Grading	11/21/2022	12/16/2022	5	20	
3	Building Construction	Building Construction	1/2/2023	11/17/2023	5	230	
4	Paving	Paving	12/18/2023	1/12/2024	5	20	
5	Architectural Coating	Architectural Coating	2/21/2024	3/19/2024	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 617,546; Residential Outdoor: 205,849; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	150.00	24.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.2 Site Preparation - 2022

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	lb/day										lb/day					
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
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
Worker	0.0621	0.0410	0.4212	1.1700e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		116.8311	116.8311	2.9000e-003		116.9035
Total	**0.0621**	**0.0410**	**0.4212**	**1.1700e-003**	**0.1369**	**9.0000e-004**	**0.1378**	**0.0363**	**8.3000e-004**	**0.0372**		**116.8311**	**116.8311**	**2.9000e-003**		**116.9035**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**8.1298**	**0.0621**	**8.1919**	**4.4688**	**0.0621**	**4.5309**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.2 Site Preparation - 2022

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	lb/day										lb/day					
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
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
Worker	0.0621	0.0410	0.4212	1.1700e-003	0.1369	9.0000e-004	0.1378	0.0363	8.3000e-004	0.0372		116.8311	116.8311	2.9000e-003		116.9035
Total	**0.0621**	**0.0410**	**0.4212**	**1.1700e-003**	**0.1369**	**9.0000e-004**	**0.1378**	**0.0363**	**8.3000e-004**	**0.0372**		**116.8311**	**116.8311**	**2.9000e-003**		**116.9035**

3.3 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**6.5523**	**0.9409**	**7.4932**	**3.3675**	**0.8656**	**4.2331**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

3.3 Grading - 2022

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	lb/day										lb/day					
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
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
Worker	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196
Total	**0.0518**	**0.0342**	**0.3510**	**9.8000e-004**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**97.3592**	**97.3592**	**2.4100e-003**		**97.4196**

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	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		0.0484	0.0484		0.0484	0.0484	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**0.3632**	**1.5737**	**17.7527**	**0.0297**	**2.9486**	**0.0484**	**2.9970**	**1.5154**	**0.0484**	**1.5638**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

3.3 Grading - 2022

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	lb/day										lb/day					
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
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
Worker	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196
Total	**0.0518**	**0.0342**	**0.3510**	**9.8000e-004**	**0.1141**	**7.5000e-004**	**0.1149**	**0.0303**	**6.9000e-004**	**0.0310**		**97.3592**	**97.3592**	**2.4100e-003**		**97.4196**

3.4 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

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	lb/day										lb/day					
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
Vendor	0.0578	1.9635	0.5802	5.6100e-003	0.1444	2.9700e-003	0.1474	0.0415	2.8400e-003	0.0444		594.7962	594.7962	0.0323		595.6040
Worker	0.4851	0.3074	3.2158	9.4000e-003	1.1411	7.3200e-003	1.1484	0.3027	6.7400e-003	0.3094		937.0456	937.0456	0.0216		937.5852
Total	**0.5429**	**2.2709**	**3.7960**	**0.0150**	**1.2854**	**0.0103**	**1.2957**	**0.3442**	**9.5800e-003**	**0.3538**		**1,531.8418**	**1,531.8418**	**0.0539**		**1,533.1892**

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	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		0.0408	0.0408		0.0408	0.0408	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**0.0408**	**0.0408**		**0.0408**	**0.0408**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

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	lb/day										lb/day					
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
Vendor	0.0578	1.9635	0.5802	5.6100e-003	0.1444	2.9700e-003	0.1474	0.0415	2.8400e-003	0.0444		594.7962	594.7962	0.0323		595.6040
Worker	0.4851	0.3074	3.2158	9.4000e-003	1.1411	7.3200e-003	1.1484	0.3027	6.7400e-003	0.3094		937.0456	937.0456	0.0216		937.5852
Total	**0.5429**	**2.2709**	**3.7960**	**0.0150**	**1.2854**	**0.0103**	**1.2957**	**0.3442**	**9.5800e-003**	**0.3538**		**1,531.8418**	**1,531.8418**	**0.0539**		**1,533.1892**

3.5 Paving - 2023

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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

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	lb/day										lb/day					
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
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
Worker	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585
Total	**0.0485**	**0.0307**	**0.3216**	**9.4000e-004**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**93.7046**	**93.7046**	**2.1600e-003**		**93.7585**

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	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2805**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

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	lb/day										lb/day					
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
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
Worker	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585
Total	**0.0485**	**0.0307**	**0.3216**	**9.4000e-004**	**0.1141**	**7.3000e-004**	**0.1148**	**0.0303**	**6.7000e-004**	**0.0309**		**93.7046**	**93.7046**	**2.1600e-003**		**93.7585**

3.5 Paving - 2024

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	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	lb/day										lb/day					
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
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
Worker	0.0457	0.0278	0.2973	9.0000e-004	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		90.0634	90.0634	1.9400e-003		90.1120
Total	**0.0457**	**0.0278**	**0.2973**	**9.0000e-004**	**0.1141**	**7.2000e-004**	**0.1148**	**0.0303**	**6.6000e-004**	**0.0309**		**90.0634**	**90.0634**	**1.9400e-003**		**90.1120**

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	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2805**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.5 Paving - 2024

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	lb/day										lb/day					
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
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
Worker	0.0457	0.0278	0.2973	9.0000e-004	0.1141	7.2000e-004	0.1148	0.0303	6.6000e-004	0.0309		90.0634	90.0634	1.9400e-003		90.1120
Total	**0.0457**	**0.0278**	**0.2973**	**9.0000e-004**	**0.1141**	**7.2000e-004**	**0.1148**	**0.0303**	**6.6000e-004**	**0.0309**		**90.0634**	**90.0634**	**1.9400e-003**		**90.1120**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
Archit. Coating	196.3838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**196.5646**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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
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
Worker	0.0914	0.0556	0.5946	1.8100e-003	0.2282	1.4300e-003	0.2296	0.0605	1.3200e-003	0.0619		180.1269	180.1269	3.8900e-003		180.2240
Total	**0.0914**	**0.0556**	**0.5946**	**1.8100e-003**	**0.2282**	**1.4300e-003**	**0.2296**	**0.0605**	**1.3200e-003**	**0.0619**		**180.1269**	**180.1269**	**3.8900e-003**		**180.2240**

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	lb/day										lb/day					
Archit. Coating	196.3838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**196.4135**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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
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
Worker	0.0914	0.0556	0.5946	1.8100e-003	0.2282	1.4300e-003	0.2296	0.0605	1.3200e-003	0.0619		180.1269	180.1269	3.8900e-003		180.2240
Total	**0.0914**	**0.0556**	**0.5946**	**1.8100e-003**	**0.2282**	**1.4300e-003**	**0.2296**	**0.0605**	**1.3200e-003**	**0.0619**		**180.1269**	**180.1269**	**3.8900e-003**		**180.2240**

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	lb/day										lb/day					
Mitigated	2.0231	9.1269	25.3436	0.0818	8.0246	0.0663	8.0908	2.1444	0.0618	2.2062		8,303.7446	8,303.7446	0.3834		8,313.3288
Unmitigated	2.0231	9.1269	25.3436	0.0818	8.0246	0.0663	8.0908	2.1444	0.0618	2.2062		8,303.7446	8,303.7446	0.3834		8,313.3288

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,343.30	1,290.78	1183.72	3,369,301	3,369,301
Racquet Club	168.36	256.20	208.80	246,505	246,505
Total	1,511.66	1,546.98	1,392.52	3,615,806	3,615,806

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776
Racquet Club	0.566033	0.037143	0.208217	0.113428	0.016713	0.004955	0.018463	0.024036	0.001978	0.001883	0.005758	0.000618	0.000776

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893
NaturalGas Unmitigated	0.0709	0.6126	0.3085	3.8700e-003		0.0490	0.0490		0.0490	0.0490		773.1946	773.1946	0.0148	0.0142	777.7893

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	lb/day										lb/day					
Apartments Mid Rise	5394.84	0.0582	0.4972	0.2116	3.1700e-003		0.0402	0.0402		0.0402	0.0402		634.6869	634.6869	0.0122	0.0116	638.4586
Racquet Club	1177.32	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0709**	**0.6126**	**0.3085**	**3.8600e-003**		**0.0490**	**0.0490**		**0.0490**	**0.0490**		**773.1946**	**773.1946**	**0.0148**	**0.0142**	**777.7893**

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	lb/day										lb/day					
Apartments Mid Rise	5.39484	0.0582	0.4972	0.2116	3.1700e-003		0.0402	0.0402		0.0402	0.0402		634.6869	634.6869	0.0122	0.0116	638.4586
Racquet Club	1.17732	0.0127	0.1154	0.0970	6.9000e-004		8.7700e-003	8.7700e-003		8.7700e-003	8.7700e-003		138.5077	138.5077	2.6500e-003	2.5400e-003	139.3307
Total		**0.0709**	**0.6126**	**0.3085**	**3.8600e-003**		**0.0490**	**0.0490**		**0.0490**	**0.0490**		**773.1946**	**773.1946**	**0.0148**	**0.0142**	**777.7893**

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	lb/day										lb/day					
Mitigated	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302
Unmitigated	8.3600	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923	0.0000	30.0102	30.0102	0.0288	0.0000	30.7302

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	lb/day										lb/day					
Architectural Coating	1.0761					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5010	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923		30.0102	30.0102	0.0288		30.7302
Total	**8.3600**	**0.1919**	**16.6595**	**8.8000e-004**		**0.0923**	**0.0923**		**0.0923**	**0.0923**	**0.0000**	**30.0102**	**30.0102**	**0.0288**	**0.0000**	**30.7302**

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	lb/day										lb/day					
Architectural Coating	1.0761					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5010	0.1919	16.6595	8.8000e-004		0.0923	0.0923		0.0923	0.0923		30.0102	30.0102	0.0288		30.7302
Total	**8.3600**	**0.1919**	**16.6595**	**8.8000e-004**		**0.0923**	**0.0923**		**0.0923**	**0.0923**	**0.0000**	**30.0102**	**30.0102**	**0.0288**	**0.0000**	**30.7302**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Emissions Calculations

CRITERIA POLLUTANT EMISSIONS CALCULATIONS

Construction Emissions PHASE 1

Unmitigated Max lbs/day			
	NOx	PM10	PM2.5
2020	42.4682	20.4016	11.9895
2021	24.7747	7.8271	4.4656
2022	19.0726	2.5272	1.2332

Unmitigated Annual tons/year			
	NOx	PM10	PM2.5
2020	0.2123	0.102	0.0599
2021	2.0373	0.301	0.1603
2022	0.8972	0.1106	0.0565

Mitigated Max lbs/day			
	NOx	PM10	PM2.5
2020	2.0684	8.3298	4.5681
2021	5.9038	3.1119	1.5948
2022	5.6917	1.759	0.5128

Mitigated Annual tons/year			
	NOx	PM10	PM2.5
2020	0.0103	0.0416	0.0228
2021	0.5139	0.1758	0.0584
2022	0.2434	0.0734	0.0217

Construction Emissions PHASE 2

Unmitigaed Max lbs/day			
	NOx	PM10	PM2.5
2022	33.1245	19.8167	11.4514
2023	16.6558	1.9955	1.0122
2024	9.5524	0.5833	0.462

Unmitigated Annual tons/year			
	NOx	PM10	PM2.5
2022	0.3745	0.1751	0.0999
2023	1.9635	0.2276	0.1177
2024	0.0604	0.00572	0.00351

Mitigated Max lbs/day			
	NOx	PM10	PM2.5
2022	2.0585	8.3297	4.568
2023	4.5056	1.3365	0.3946
2024	1.2432	0.2336	0.0683

Mitigated Annual tons/year			
	NOx	PM10	PM2.5
2022	0.0263	0.0727	0.0388
2023	0.5214	0.1494	0.0445
2024	0.00798	0.003	0.00098

Operational Emissions

Unmitigated Max lb/day				
	ROG	NOx	PM10	PM2.5
Area	18.7075	0.4485	0.2158	0.2158
Energy	0.1613	1.3926	0.1115	0.1115
Mobile	6.3589	22.6064	17.2518	4.724
Waste	0	0	0	0
Water	0	0	0	0
Total	**25.2277**	**24.4475**	**17.5791**	**5.0513**

Unmitigated Annual tons/year				
	ROG	NOx	PM10	PM2.5
Area	3.3468	0.0561	0.027	0.027
Energy	0.0294	0.2541	0.0203	0.0203
Mobile	0.8966	3.9115	2.9654	0.8147
Waste	0	0	0	0
Water	0	0	0	0
Total	**4.2728**	**4.2217**	**3.0127**	**0.862**

Mitigated Max lb/day				
	ROG	NOx	PM10	PM2.5
Area	18.7075	0.4485	0.2158	0.2158
Energy	0.1613	1.3926	0.1115	0.1115
Mobile	6.3589	22.6064	17.2518	4.724
Waste	0	0	0	0
Water	0	0	0	0
Total	**25.2277**	**24.4475**	**17.5791**	**5.0513**
After Implementation of AQMP Measures Max lb/day (15% NOx & ROG reduction)				
	ROG	NOx	PM10	PM2.5
Area	15.901375	0.381225	0.2158	0.2158
Energy	0.137105	1.18371	0.1115	0.1115
Mobile	5.405065	19.21544	17.2518	4.724
Waste	0	0	0	0
Water	0	0	0	0
Total	**21.443545**	**20.780375**	**17.5791**	**5.0513**

Mitigated Annual tons/year				
	ROG	NOx	PM10	PM2.5
Area	3.3468	0.0561	0.027	0.027
Energy	0.0294	0.2541	0.0203	0.0203
Mobile	0.8966	3.9115	2.9654	0.8147
Waste	0	0	0	0
Water	0	0	0	0
Total	**4.2728**	**4.2217**	**3.0127**	**0.862**
After Implementation of AQMP Measures Annual tons/year (15% NOx & ROG reduction)				
	ROG	NOx	PM10	PM2.5
Area	2.84478	0.047685	0.027	0.027
Energy	0.02499	0.215985	0.0203	0.0203
Mobile	0.76211	3.324775	2.9654	0.8147
Waste	0	0	0	0
Water	0	0	0	0
Total	**3.63188**	**3.588445**	**3.0127**	**0.862**

GREENHOUSE GAS EMISSIONS CALCULATIONS

Construction Emissions PHASE 1

Unmitigated Annual Tons/Year	
	CO2e
2020	17.4366
2021	393.5982
2022	198.6103

Mitigated Annual Tons/Year	
	CO2e
2020	17.4366
2021	393.5979
2022	198.6102

Life of Project	
40	Years

Construction Emissions PHASE 2

Unmitigated Annual Tons/Year	
	CO2e
2022	44.5758
2023	442.4573
2024	14.7546

Mitigated Annual Tons/Year	
	CO2e
2022	44.5757
2023	442.457
2024	14.7546

Total Construction Emissions	
	CO2e
Total	1111.4328
Amortized Cons	27.78582

Mitigated Total Construction Emissions	
	CO2e
Total	1111.432
Amortized Cons	27.7858

Operational Emissions (PHASE 1 + PHASE 2)

Unmitigated Annual tons/year	
Area	8.1425
Energy	931.3259
Mobile	3105.1946
Waste	177.9869
Water	81.9088
Total	**4304.5587**

Mitigated Annual tons/year	
Area	8.1425
Energy	931.3259
Mobile	3105.1946
Waste	177.9869
Water	81.9088
Total	**4304.5587**

Annual GHG Emissions (AMORTIZED CONSTRUCTION + OPERATION)

Unmitigated Total Annual Emissions	
	CO2e
Operational	4304.5587
Amortized Construction	27.78582
Total Annual	4332.34452

Mitigated Total Annual Emissions	
	CO2e
Operational	4304.5587
Amortized Construction	27.7858
Total Annual	4332.3445

Health Risk Assessment

HRA Natomas II Apartments Construction, Existing Offsite Residential

MEIR 133 10

MEIR	Construction Area	Distance (ft)	Distance (m)	AERSCREEN OUT [ug/m^3]/[g/s] max	AERSCREEN OUT [ug/m^3]/[g/s] annual
Residence to East[1]	Ph1 Area	438	133	537.4	53.7
	Ph2 Area	793	242	148.1	14.8

[1]Residence east of the proposed project site, between E. Commerce Way and Sam Shepard St.

	DPM Exhaust (tons)[2] Unmitigated	DPM Exhaust (tons)[2] Mitigated	Start Date[3]	End Date[3]	Duration Days
Construction - Ph1	0.1434	0.0063	11/23/2020	9/21/2022	668
Construction - Ph2	0.1035	0.0059	9/22/2022	3/19/2024	545

[2]CalEEMod PM_{10} exhaust, construction years 2020, 2021, and 2022

[3]See construction schedule screenshot from CalEEMod

	DPM Exhaust (g/s) Unmitigated	DPM Exhaust (g/s) Mitigated
Construction - Ph1	0.0023	0.0001
Construction - Ph2	0.0020	0.0001

Cancer Risk = Dose inhalation × Inhalation CPF × ASF × ED/AT × FAH **(Equation 8.2.4 A)**

Where:

Cancer Risk = residential inhalation cancer risk

Dose inhalation (mg/kg-day) = C_{AIR} × DBR × A × EF × 10^{-6} **(Equation 5.4.1.1)**

Inhalation CPF = inhalation cancer potency factor ([mg/kg/day]$^{-1}$)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years)

AT = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

Where:

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10^{-6} = micrograms to milligrams conversion, liters to cubic meters conversion

Hazard Quotient = C_{air} / REL **(Section 8.3.1)**

Where:

Hazard Quotient = chronic non-cancer hazard

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

REL = Chronic non-cancer Reference Exposure Level for substance (µg/m^3)

Dose Inhalation Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	C_{AIR} (µg/m^3) Unmitigated	C_{AIR} (µg/m^3) Mitigated	DBR (L/kg-day)	A (unitless)	EF (days/year)
Off-Site Child Resident	Construction	3rd Trimester	1.21E-01	5.34E-03	361	1	0.96
		Age 0<2	1.21E-01	5.34E-03	1090	1	0.96
Off-Site Child Resident	Construction	Age 0<2	2.95E-02	1.68E-03	1090	1	0.96
		Age 2<16	2.95E-02	1.68E-03	745	1	0.96

Daily breathing rate is based on the OEHHA 95th percentile (Table 5.7).

Dose Inhalation Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Dose inhalation (mg/kg-day) Unmitigated	Dose inhalation (mg/kg-day) Mitigated
Off-Site Child Resident	Construction Ph1	3rd Trimester	4.19E-05	1.85E-06
		Age 0<2	1.27E-04	5.58E-06
Off-Site Child Resident	Construction Ph2	Age 0<2	3.08E-05	1.76E-06
		Age 2<16	2.11E-05	1.20E-06

Risk Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	CPF (mg/kg-day^{-1})	ASF (unitless)	ED (years)	AT (years)	FAH (unitless)	MAF (unitless)
Off-Site Child Resident	Construction Ph1	3rd Trimester	1.1	10	0.25	70.00	0.85	1
		Age 0<2	1.1	10	1.58	70.00	0.85	1
Off-Site Child Resident	Construction Ph2	Age 0<2	1.1	10	0.42	70.00	0.85	1
		Age 2<16	1.1	3	1.07	70.00	0.72	1

Inhalation cancer potency factor from Table 7.1

Fraction of time at home is set to 1 for residential since the nearest school unmitigated cancer risk is >1 per million, per OEHHA Table 8.4.

Risk Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Cancer Risk Unmitigated	Cancer Risk Mitigated	Hazard Risk Unmitigated	Hazard Risk Mitigated
Off-Site Child Resident	Construction Ph1	3rd Trimester	1.40E-06	6.17E-08	0.02	0.001
		Age 0<2	2.67E-05	1.18E-06		
Off-Site Child Resident	Construction Ph2	Age 0<2	1.73E-06	9.86E-08	0.01	0.000
		Age 2<16	7.68E-07	4.38E-08		
		Total Cancer Risk (per million)	30.6	1.4		

Risk Outputs - Vendor Trips

Receptor Type	Exposure Scenario	Receptor Group Age	Cancer Risk Unmitigated	Cancer Risk Mitigated	Hazard Risk Unmitigated	Hazard Risk Mitigated
Off-Site Child	Vendor Trips	3rd Tri < 16	0.1	0.1	0.0002	0.0002

Risk Outputs - Project Total

Receptor Type	Exposure Scenario	Receptor Group Age	Cancer Risk Unmitigated	Cancer Risk Mitigated	Hazard Risk Unmitigated	Hazard Risk Mitigated
Off-Site Child Resident	Total Project	3rd Tri < 16	30.8	1.5	0.02	0.001

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* February.

Construction Schedule

Phase 1

CalEEMod Version: CalEEMod.2016.3.2 Page 8 of 32

Natomas II Apartments Phase I FINAL - Sacramento Metropolitan AQMD Air D

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Site Preparation	Site Preparation	11/23/2020	12/4/2020	5	10
2	Grading	Grading	2/8/2021	3/5/2021	5	20
3	Building Construction	Building Construction	5/10/2021	4/25/2022	5	251
4	Paving	Paving	5/30/2022	6/24/2022	5	20
5	Architectural Coating	Architectural Coating	8/25/2022	9/21/2022	5	20

Phase1

CalEEMod output (tons/yr)

Unmitigated	PM10 Exh	Mitigated[4]	PM10 Exh
Site Prep On Site 2020	0.011	Site Prep On Site 2020	0.0003
Grading On Site 2021	0.0116	Grading On Site 2021	0.0005
Bldg Const On Site 2021	0.0815	Bldg Const On Site 2021	0.0035
Bldg Const On Site 2022	0.0328	Bldg Const On Site 2022	0.0017
Paving On Site 2022	0.0057	Paving On Site 2022	0.0004
Arch Coat On Site 2022	0.0008	Arch Coat On Site 2022	0.00004
	0.1434		**0.00632**

[4]Use of Tier 4 Final equipment

Phase 2

CalEEMod output (tons/yr)

Unmitigated	PM10 Exh	Mitigated[4]	PM10 Exh
Site Prep On Site 2022	8.06E-03	Site Prep On Site 2022	0.0003
Grading On Site 2022	9.40E-03	Grading On Site 2022	0.0005
Bldg Const On Site 2023	0.0805	Bldg Const On Site 2023	0.00469
Paving On Site 2023	0.00255	Paving On Site 2023	0.0002
Paving On Site 2024	0.0023	Paving On Site 2024	0.0002
Arch Coat On Site 2024	0.0006	Arch Coat On Site 2024	0.00004
	0.10346		**0.00590**

[4]Use of Tier 4 Final equipment

HRA Natomas II Apartments Construction, New Onsite Residents

MEIR

	Distance		AERSCREEN OUT [ug/m^3]/[g/s]	
	(ft)	(m)	max	annual
Residence in Phase 1	315	96	685.8	68.6

[1]Residence directly to the south, in the Phase 1 development, which would be occupied during constrcuction of Phase 2.

	DPM Exhaust (tons)[2]	DPM Exhaust (tons)[2]	Start Date[3]	End Date[3]	Duration
	Unmitigated	Mitigated			Days
Construction	0.1035	0.0059	9/22/2022	3/19/2024	545

[2]CalEEMod PM_{10} exhaust, construction years 2021, and 2022

[3]See construction schedule screenshot from CalEEMod

	DPM Exhaust (g/s)	DPM Exhaust (g/s)
	Unmitigated	Mitigated
Construction	0.0020	0.0001

Cancer Risk = Dose inhalation × Inhalation CPF × ASF × ED/AT × FAH **(Equation 8.2.4 A)**

Where:

Cancer Risk = residential inhalation cancer risk

Dose inhalation (mg/kg-day) = C_{AIR} × DBR × A × EF × 10^{-6} **(Equation 5.4.1.1)**

Inhalation CPF = inhalation cancer potency factor ([mg/kg/day]$^{-1}$)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years)

AT = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

Where:

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10^{-6} = micrograms to milligrams conversion, liters to cubic meters conversion

Hazard Quotient = C_{air} / REL **(Section 8.3.1)**

Where:

Hazard Quotient = chronic non-cancer hazard

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

REL = Chronic non-cancer Reference Exposure Level for substance (µg/m^3)

Dose Inhalation Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	C_{AIR} (µg/m^3) Unmitigated	C_{AIR} (µg/m^3) Mitigated	DBR (L/kg-day)	A (unitless)	EF (days/year)
Off-Site Child Resident	Construction	3rd Trimester	1.37E-01	7.80E-03	361	1	0.96
		Age 0<2	1.37E-01	7.80E-03	1090	1	0.96

Daily breathing rate is based on the OEHHA 95th percentile (Table 5.7).

Dose Inhalation Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Dose inhalation (mg/kg-day) Unmitigated	Dose inhalation (mg/kg-day) Mitigated
Off-Site Child Resident	Construction	3rd Trimester	4.73E-05	2.70E-06
		Age 0<2	1.43E-04	8.15E-06

Risk Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	CPF (mg/kg-day^{-1})	ASF (unitless)	ED (years)	AT (years)	FAH (unitless)	MAF (unitless)
Off-Site Child Resident	Construction	3rd Trimester	1.1	10	0.25	70.00	0.85	1
		Age 0<2	1.1	10	1.24	70.00	0.85	1

Inhalation cancer potency factor from Table 7.1

Fraction of time at home is set to 1 for residential since the nearest school unmitigated cancer risk is >1 per million, per OEHHA Table 8.4.

Risk Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Cancer Risk Unmitigated	Cancer Risk Mitigated	Hazard Risk Unmitigated	Hazard Risk Mitigated
Off-Site Child Resident	Construction	3rd Trimester	1.58E-06	9.01E-08	0.03	0.002
		Age 0<2	2.37E-05	1.35E-06		
		Total Cancer Risk (per million)	25.3	1.4		

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February.

CONSTRUCTION SCHEDULE

Phase 2

CalEEMod Version: CalEEMod.2016.3.2 Page 7 of 31

Natomas II Apartments Phase II FINAL - Sacramento Metropolitan AQMD Air I

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Site Preparation	Site Preparation	9/22/2022	10/5/2022	5	10
2	Grading	Grading	11/21/2022	12/16/2022	5	20
3	Building Construction	Building Construction	1/2/2023	11/17/2023	5	230
4	Paving	Paving	12/18/2023	1/12/2024	5	20
5	Architectural Coating	Architectural Coating	2/21/2024	3/19/2024	5	20

CalEEMod output (tons/yr)

Unmitigated	PM10 Exh	Mitigated[4]	PM10 Exh
Site Prep On Site 2022	8.06E-03	Site Prep On Site 2022	0.0003
Grading On Site 2022	9.40E-03	Grading On Site 2022	0.0005
Bldg Const On Site 2023	0.0805	Bldg Const On Site 2023	0.00469
Paving On Site 2023	0.00255	Paving On Site 2023	0.0002
Paving On Site 2024	0.0023	Paving On Site 2024	0.0002
Arch Coat On Site 2024	0.0006	Arch Coat On Site 2024	0.00004
	0.10346		**0.00590**

[4]Use of Tier 4 Final equipment

Natomas II Vendor Trucks

MEIR

Distance from Area Source to Residence to East[1]	Distance		AERSCREEN OUT [ug/m^3]/[g/s]	
	(ft)	(m)	max	annual
Area source 1	62	19	12661.2	1266.1
Area source 2	108	33	4541.9	454.2
Area source 3	190	58	1593.8	159.4
Area source 4	98	30	5421.3	542.1
Area source 5	207	63	1366.9	136.7
Total Contribution to Residence			25585.2	2558.5

[1]A series of area sources were modeled to represent vendor truck trips on East Commerce Way.

	DPM Exhaust (tons)[2]	Building Construction Start Date[3]	Building Construction End Date[3]	Duration
	Unmitigated			Days
Construction	1.25E-05	5/10/2021	4/25/2022	351

[2]CalEEMod PM_{10} exhaust, building construction, for default vendor haul trip length of 6.5 miles. CalEEMod emissions were scaled from 6.5 miles to 25 meters to represent emissions per area source length. CalEEMod emissions from building construction are presented in screenshots in this tab.

[3]See construction schedule screenshot from CalEEMod and also CalEEMod output files in Appendix XX.

	DPM Exhaust (g/s)
	Unmitigated
Construction	3.75E-07

Cancer Risk = Dose inhalation × Inhalation CPF × ASF × ED/AT × FAH **(Equation 8.2.4 A)**

Where:

Cancer Risk = residential inhalation cancer risk

Dose inhalation (mg/kg-day) = C_{AIR} × DBR × A × EF × 10^{-6} **(Equation 5.4.1.1)**

Inhalation CPF = inhalation cancer potency factor ([mg/kg/day]$^{-1}$)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years)

AT = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

Where:

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10^{-6} = micrograms to milligrams conversion, liters to cubic meters conversion

Hazard Quotient = C_{air} / REL **(Section 8.3.1)**

Where:

Hazard Quotient = chronic non-cancer hazard

C_{AIR} = concentration of compound in air in micrograms per cubic meter (µg/m^3)

REL = Chronic non-cancer Reference Exposure Level for substance (µg/m^3)

Dose Inhalation Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	Unmitigated C_{AIR} (µg/m^3)	DBR (L/kg-day)	A (unitless)	EF (days/year)
Off-Site Child Resident	Construction	3rd Trimester	9.60E-04	361	1	0.96
		Age 0<2	9.60E-04	1090	1	0.96

Daily breathing rate is based on the OEHHA 95th percentile (Table 5.7).

Dose Inhalation Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Unmitigated Dose inhalation (mg/kg-day)
Off-Site Child Resident	Construction	3rd Trimester	3.32E-07
		Age 0<2	1.00E-06

Risk Inputs

Receptor Type	Exposure Scenario	Receptor Group Age	CPF (mg/kg-day^{-1})	ASF (unitless)	ED (years)	AT (years)	FAH (unitless)	MAF (unitless)
Off-Site Child Resident	Construction	3rd Trimester	1.1	10	0.25	70.00	0.85	1
		Age 0<2	1.1	10	0.96	70.00	0.85	1

Inhalation cancer potency factor from Table 7.1

Fraction of time at home is set to 1 for residential since the nearest school unmitigated cancer risk is >1 per million, per OEHHA Table 8.4.

Risk Outputs

Receptor Type	Exposure Scenario	Receptor Group Age	Unmitigated Cancer Risk	Unmitigated Hazard Risk
Off-Site Child Resident	Construction	3rd Trimester	1.11E-08	0.00019
		Age 0<2	1.29E-07	
		Total Cancer Risk (per million)	0.14	

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February.

Construction Schedule

Phase 1 - Worst Case Construction Emissions vs. Phase 2

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Site Preparation	Site Preparation	11/23/2020	12/4/2020	5	10
2	Grading	Grading	2/8/2021	3/5/2021	5	20
3	Building Construction	Building Construction	5/10/2021	4/25/2022	5	251
4	Paving	Paving	5/30/2022	6/24/2022	5	20
5	Architectural Coating	Architectural Coating	8/25/2022	9/21/2022	5	20

3.4 Building Construction - 2021

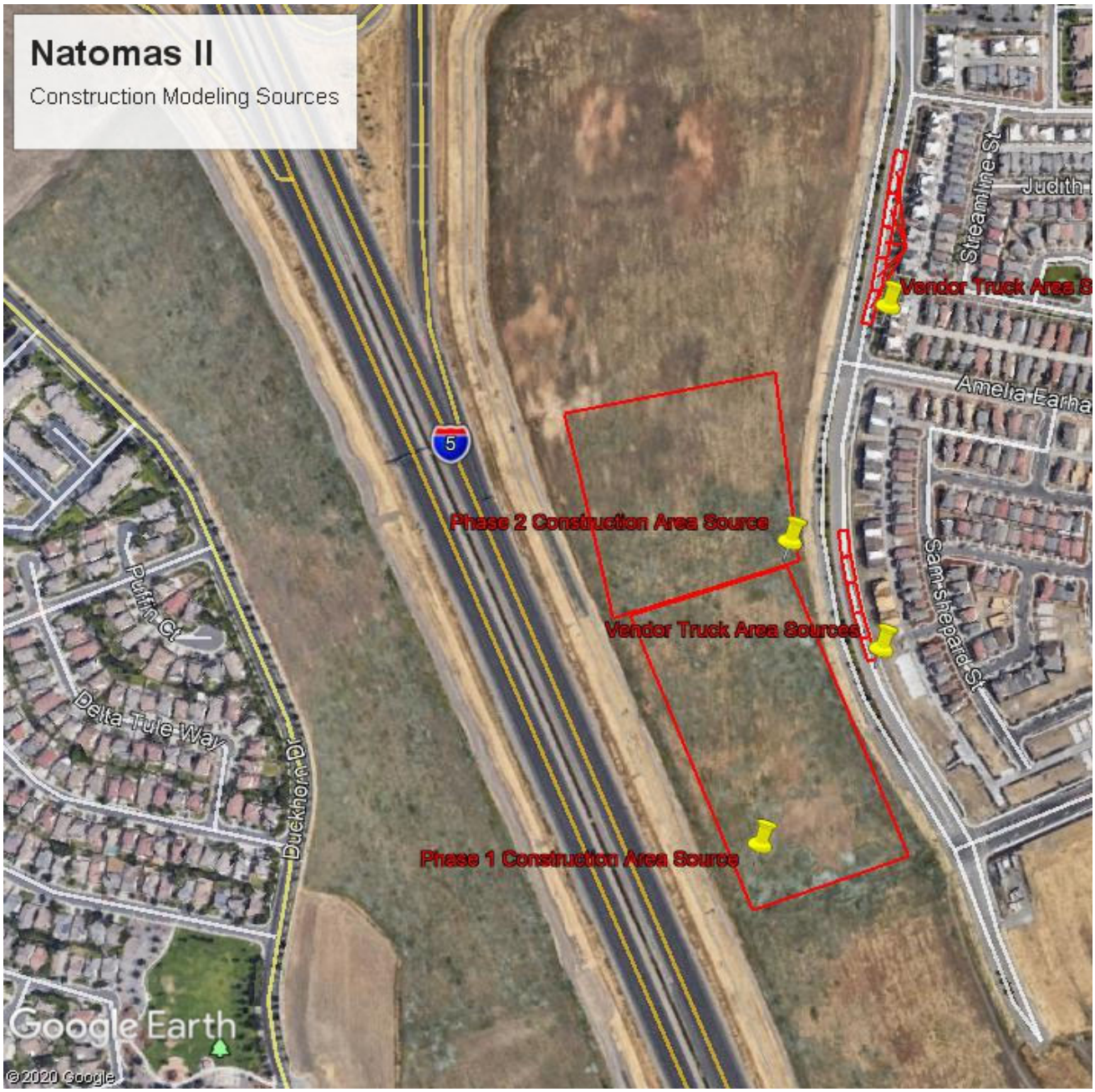
Unmitigated Construction Off-Site

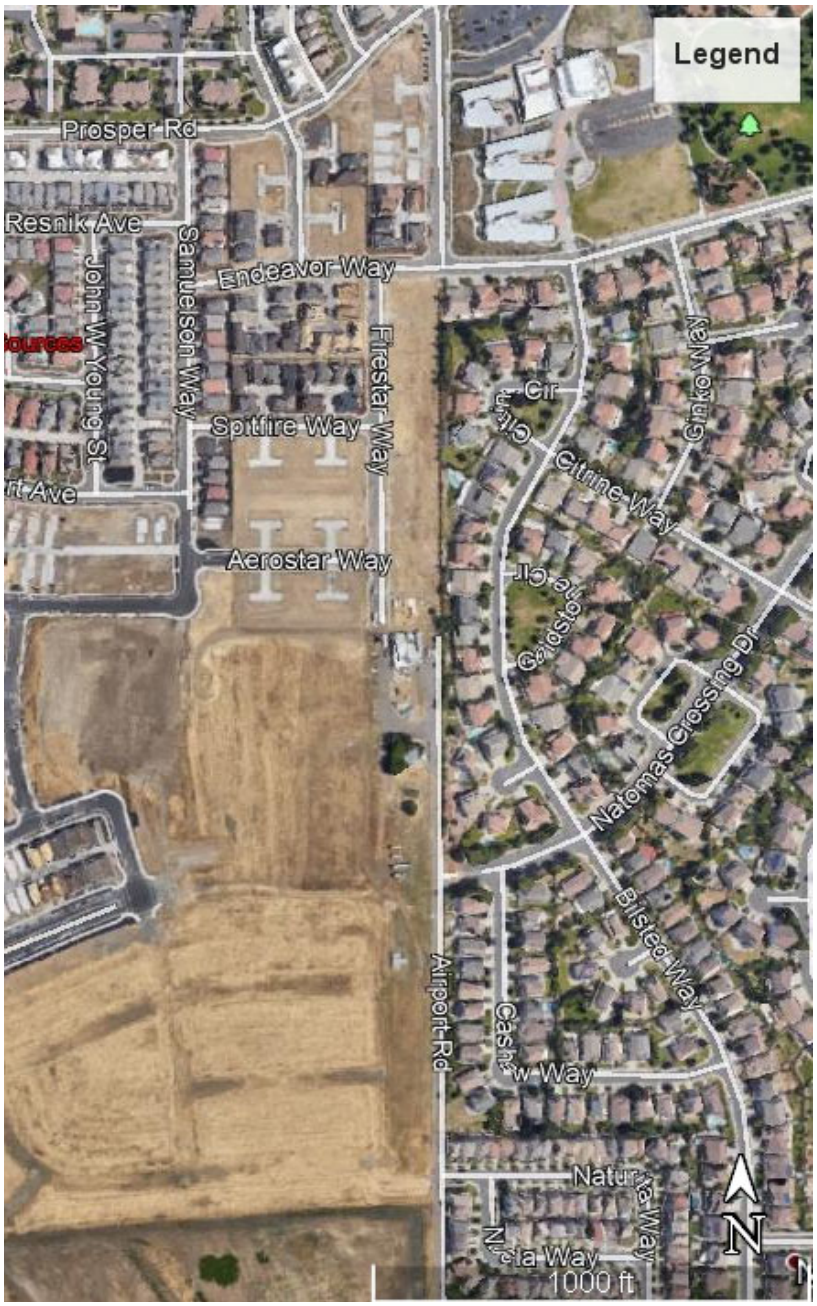
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Category	tons/yr									
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2900e-003	0.2696	0.0721	6.4000e-004	0.0154	7.4000e-004	0.0162	4.4500e-003	7.1000e-004	5.1600e-003
Worker	0.0586	0.0383	0.4281	1.1800e-003	0.1242	8.7000e-004	0.1251	0.0330	8.0000e-004	0.0338
Total	**0.0669**	**0.3078**	**0.5002**	**1.8200e-003**	**0.1396**	**1.6100e-003**	**0.1413**	**0.0375**	**1.5100e-003**	**0.0390**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Category	tons/yr									
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6600e-003	0.1220	0.0317	3.0000e-004	7.3400e-003	3.1000e-004	7.6500e-003	2.1200e-003	3.0000e-004	2.4200e-003
Worker	0.0261	0.0164	0.1875	5.4000e-004	0.0592	4.0000e-004	0.0596	0.0157	3.7000e-004	0.0161
Total	**0.0297**	**0.1384**	**0.2191**	**8.4000e-004**	**0.0665**	**7.1000e-004**	**0.0673**	**0.0179**	**6.7000e-004**	**0.0185**


Natomas II
Construction Modeling Sources
Vendor Truck Area S
Phase 2 Construction Area Source
Vendor Truck Area Sources
Phase 1 Construction Area Source
Streamline St
Judith
Amelia Earha
Sam Shepard St
Puffin Ct
Delta Tule Way
Duckhorn Dr
5
Google Earth
© 2020 Google


Legend
Prosper Rd
Resnik Ave
Samuelson Way
John W Young St
Endeavor Way
Firestar Way
Spitfire Way
Aerostar Way
Citrine Way
Natomas Crossing Dr
Bilsted Way
Airport Rd
1000 ft
N

```
AERSCREEN 16216 / AERMOD 19191                                        04/10/20
                                                                      08:21:22

TITLE: NATOMAS II APTS AREA SOURCE


-----------------------------------------------------------------------------
*****************************  AREA PARAMETERS  ***************************
-----------------------------------------------------------------------------

SOURCE EMISSION RATE:            1.0000 g/s                 7.937 lb/hr

AREA EMISSION RATE:           0.291E-04 g/(s-m2)        0.231E-03 lb/(hr-m2)
AREA HEIGHT:                       5.00 meters              16.40 feet
AREA SOURCE LONG SIDE:           264.00 meters             866.14 feet
AREA SOURCE SHORT SIDE:          130.00 meters             426.51 feet
INITIAL VERTICAL DIMENSION:        1.40 meters               4.59 feet
RURAL OR URBAN:                   URBAN
POPULATION:                      501901

FLAGPOLE RECEPTOR HEIGHT:          1.50 meters               4.92 feet

INITIAL PROBE DISTANCE =          5000. meters             16404. feet



-----------------------------------------------------------------------------
***********************  BUILDING DOWNWASH PARAMETERS  **********************
-----------------------------------------------------------------------------

               BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES



-----------------------------------------------------------------------------
**************************  FLOW SECTOR ANALYSIS  ***************************
                 25 meter receptor spacing: 1. meters - 5000. meters
-----------------------------------------------------------------------------


   MAXIMUM  IMPACT  RECEPTOR

   Zo        SURFACE   1-HR CONC  RADIAL  DIST   TEMPORAL
   SECTOR    ROUGHNESS  (ug/m3)    (deg)   (m)    PERIOD
  ----------------------------------------------------
      1*       1.000     577.5       0   125.0     WIN
* = worst case diagonal
```

```
--------------------------------------------------------------------------------
**********************  MAKEMET METEOROLOGY PARAMETERS  *********************
--------------------------------------------------------------------------------

MIN/MAX TEMPERATURE:    271.0 / 318.0 (K)

MINIMUM WIND SPEED:       0.5 m/s

ANEMOMETER HEIGHT:     10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban
DOMINANT CLIMATE TYPE:    Average Moisture
DOMINANT SEASON:          Winter

ALBEDO:                  0.35
BOWEN RATIO:             1.50
ROUGHNESS LENGTH:       1.000 (meters)

SURFACE FRICTION VELOCITY (U*) ADJUSTED


       METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT
       -------------------------------------------------------------

 YR MO DY JDY HR
 -- -- -- --- --
 10 01 04   4 01

    H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 -6.19  0.111 -9.000  0.020 -999.   85.     21.6 1.000   1.50   0.35    0.50

    HT  REF TA     HT
- - - - - - - - - - -
  10.0   318.0    2.0



--------------------------------------------------------------------------------
************************ AERSCREEN AUTOMATED DISTANCES **********************
                  OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE
--------------------------------------------------------------------------------


                      MAXIMUM                              MAXIMUM
            DIST     1-HR CONC                   DIST     1-HR CONC
             (m)      (ug/m3)                     (m)      (ug/m3)
```

1.00	486.7	2525.00	5.655
25.00	511.5	2550.00	5.579
50.00	533.5	2575.00	5.505
75.00	552.9	2600.00	5.433
100.00	565.4	2625.00	5.362
125.00	577.5	2650.00	5.293
150.00	470.6	2675.00	5.225
175.00	309.7	2700.00	5.159
200.00	227.2	2725.00	5.094
225.00	183.5	2750.00	5.031
250.00	153.6	2775.00	4.969
275.00	131.6	2800.00	4.909
300.00	114.7	2825.00	4.849
325.00	101.3	2850.00	4.791
350.00	90.53	2875.00	4.734
375.00	81.65	2900.00	4.678
400.00	74.23	2925.00	4.624
425.00	67.86	2950.00	4.570
450.00	62.40	2975.00	4.518
475.00	57.69	3000.00	4.466
500.00	53.58	3025.00	4.416
525.00	49.96	3050.00	4.366
550.00	46.76	3075.00	4.318
575.00	43.89	3100.00	4.270
600.00	41.31	3125.00	4.223
625.00	38.99	3150.00	4.178
650.00	36.89	3175.00	4.133
675.00	34.98	3199.99	4.089
700.00	33.24	3225.00	4.045
725.00	31.65	3250.00	4.003
750.00	30.18	3275.00	3.961
775.00	28.84	3300.00	3.920
800.00	27.59	3325.00	3.880
825.00	26.43	3350.00	3.840
850.00	25.35	3375.00	3.801
875.00	24.35	3400.00	3.763
900.00	23.42	3425.00	3.725
925.00	22.55	3450.00	3.688
950.00	21.72	3475.00	3.652
975.00	20.95	3500.00	3.617
1000.00	20.23	3525.00	3.582
1025.00	19.54	3550.00	3.547
1050.00	18.90	3575.00	3.513
1075.00	18.29	3600.00	3.480
1100.00	17.72	3625.00	3.447
1125.00	17.17	3650.00	3.415
1150.00	16.66	3675.00	3.383
1175.00	16.17	3700.00	3.352
1200.00	15.71	3725.00	3.321

1225.00	15.27	3750.00	3.291
1250.00	14.84	3775.00	3.261
1275.00	14.44	3800.00	3.232
1300.00	14.06	3825.00	3.203
1325.00	13.70	3849.99	3.174
1350.00	13.35	3875.00	3.146
1375.00	13.01	3900.00	3.119
1400.00	12.70	3925.00	3.092
1425.00	12.39	3950.00	3.065
1450.00	12.10	3975.00	3.039
1475.00	11.82	4000.00	3.013
1500.00	11.54	4025.00	2.987
1525.00	11.29	4050.00	2.962
1550.00	11.04	4075.00	2.937
1575.00	10.80	4100.00	2.913
1600.00	10.56	4125.00	2.888
1625.00	10.34	4150.00	2.865
1650.00	10.13	4175.00	2.841
1675.00	9.920	4200.00	2.818
1700.00	9.720	4225.00	2.795
1725.00	9.527	4250.00	2.773
1750.00	9.340	4275.00	2.751
1775.00	9.160	4300.00	2.729
1800.00	8.986	4325.00	2.707
1825.00	8.818	4350.00	2.686
1850.00	8.655	4375.00	2.665
1875.01	8.497	4400.00	2.644
1900.00	8.344	4425.00	2.624
1925.00	8.195	4450.00	2.604
1950.00	8.052	4475.00	2.584
1975.00	7.912	4500.00	2.564
2000.00	7.777	4525.00	2.545
2025.00	7.646	4550.00	2.526
2050.00	7.518	4575.00	2.507
2075.00	7.395	4600.00	2.489
2100.00	7.274	4625.00	2.479
2125.00	7.157	4650.00	2.470
2150.00	7.044	4675.00	2.461
2175.00	6.933	4700.00	2.451
2200.00	6.825	4725.00	2.442
2225.00	6.721	4750.00	2.433
2250.00	6.618	4775.00	2.424
2275.00	6.519	4800.00	2.415
2300.00	6.422	4825.00	2.406
2325.00	6.328	4850.00	2.397
2350.00	6.235	4875.00	2.389
2375.00	6.146	4900.00	2.380
2400.00	6.058	4925.00	2.371
2425.00	5.977	4950.00	2.363
2450.00	5.893	4975.00	2.354

2475.00	5.812	5000.00	2.346
2500.00	5.733		

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	581.3	581.3	581.3	581.3	N/A

DISTANCE FROM SOURCE 133.00 meters

IMPACT AT THE AMBIENT BOUNDARY	486.7	486.7	486.7	486.7	N/A

DISTANCE FROM SOURCE 1.00 meters

```
AERSCREEN 16216 / AERMOD 19191                                        04/15/20
                                                                      07:56:54

TITLE: Natomas II Phase 2


-----------------------------------------------------------------------------
****************************  AREA PARAMETERS  ***************************
-----------------------------------------------------------------------------

SOURCE EMISSION RATE:            1.0000 g/s                 7.937 lb/hr

AREA EMISSION RATE:           0.351E-04 g/(s-m2)        0.279E-03 lb/(hr-m2)
AREA HEIGHT:                      5.00 meters              16.40 feet
AREA SOURCE LONG SIDE:          178.00 meters             583.99 feet
AREA SOURCE SHORT SIDE:         160.00 meters             524.93 feet
INITIAL VERTICAL DIMENSION:       1.40 meters               4.59 feet
RURAL OR URBAN:                  URBAN
POPULATION:                     501901

FLAGPOLE RECEPTOR HEIGHT:         1.50 meters               4.92 feet

INITIAL PROBE DISTANCE =         5000. meters             16404. feet



-----------------------------------------------------------------------------
***********************  BUILDING DOWNWASH PARAMETERS  **********************
-----------------------------------------------------------------------------

               BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES



-----------------------------------------------------------------------------
*************************  FLOW SECTOR ANALYSIS  **************************
                 25 meter receptor spacing: 1. meters - 5000. meters
-----------------------------------------------------------------------------


   MAXIMUM  IMPACT  RECEPTOR

   Zo        SURFACE   1-HR CONC  RADIAL  DIST   TEMPORAL
   SECTOR    ROUGHNESS  (ug/m3)    (deg)   (m)    PERIOD
  ----------------------------------------------------
      1*       1.000     683.7      35   100.0     WIN
* = worst case diagonal
```

```
--------------------------------------------------------------------------------
**********************  MAKEMET METEOROLOGY PARAMETERS  *********************
--------------------------------------------------------------------------------

MIN/MAX TEMPERATURE:    271.0 / 318.0 (K)

MINIMUM WIND SPEED:       0.5 m/s

ANEMOMETER HEIGHT:     10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban
DOMINANT CLIMATE TYPE:    Average Moisture
DOMINANT SEASON:          Winter

ALBEDO:                  0.35
BOWEN RATIO:             1.50
ROUGHNESS LENGTH:       1.000 (meters)

SURFACE FRICTION VELOCITY (U*) ADJUSTED


       METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT
       -------------------------------------------------------------

 YR MO DY JDY HR
 -- -- -- --- --
 10 01 04   4 01

    H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 -6.19  0.111 -9.000  0.020 -999.   85.     21.6 1.000   1.50   0.35    0.50

    HT  REF TA     HT
- - - - - - - - - - -
  10.0   318.0    2.0



--------------------------------------------------------------------------------
************************ AERSCREEN AUTOMATED DISTANCES **********************
                  OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE
--------------------------------------------------------------------------------


                      MAXIMUM                              MAXIMUM
            DIST     1-HR CONC                   DIST     1-HR CONC
             (m)      (ug/m3)                     (m)      (ug/m3)
```

1.00	528.6
25.00	585.9
50.00	629.9
75.00	671.0
100.01	683.7
125.00	501.1
150.00	331.2
175.00	245.7
200.00	196.2
225.00	163.1
250.00	139.2
275.00	121.0
300.00	106.8
325.00	95.22
350.00	85.75
375.00	77.84
400.00	71.10
425.00	65.33
450.00	60.33
475.00	55.97
500.00	52.12
525.00	48.71
550.00	45.66
575.00	42.94
600.00	40.49
625.00	38.27
650.00	36.26
675.00	34.42
700.00	32.74
725.00	31.20
749.99	29.78
775.00	28.47
800.00	27.25
825.00	26.12
850.00	25.07
875.01	24.09
900.00	23.18
925.00	22.32
950.00	21.52
975.00	20.77
1000.00	20.06
1025.00	19.39
1050.00	18.77
1075.00	18.17
1100.00	17.61
1125.00	17.08
1150.00	16.57
1175.00	16.09
1200.00	15.63
2525.00	5.640
2550.00	5.564
2575.00	5.490
2600.00	5.418
2625.00	5.348
2650.00	5.279
2675.00	5.212
2700.00	5.146
2725.00	5.082
2750.00	5.030
2775.00	4.968
2800.00	4.908
2825.00	4.848
2850.00	4.790
2875.00	4.733
2900.00	4.678
2925.00	4.623
2950.00	4.569
2975.00	4.517
3000.00	4.465
3025.00	4.415
3050.00	4.366
3075.00	4.317
3100.00	4.269
3125.00	4.223
3150.00	4.177
3175.00	4.132
3200.00	4.088
3225.00	4.045
3250.00	4.002
3275.00	3.960
3300.00	3.919
3325.00	3.879
3350.00	3.839
3375.00	3.801
3400.00	3.762
3425.00	3.725
3450.00	3.688
3475.00	3.652
3500.00	3.616
3525.00	3.581
3550.00	3.547
3575.00	3.513
3600.00	3.479
3625.00	3.446
3650.00	3.414
3675.00	3.382
3700.00	3.351
3725.00	3.320

1225.00	15.20	3750.00	3.290
1250.00	14.78	3775.00	3.260
1275.00	14.38	3800.00	3.231
1300.00	14.00	3825.00	3.202
1325.00	13.64	3849.99	3.174
1350.00	13.30	3875.00	3.146
1375.00	12.97	3900.00	3.118
1400.00	12.65	3925.00	3.091
1425.00	12.35	3950.00	3.064
1450.00	12.06	3975.00	3.038
1475.00	11.78	4000.00	3.012
1500.00	11.51	4025.00	2.987
1525.00	11.25	4050.00	2.961
1550.00	11.00	4075.00	2.937
1574.99	10.76	4100.00	2.912
1600.00	10.53	4125.00	2.888
1625.00	10.31	4150.00	2.864
1650.00	10.10	4175.00	2.841
1675.01	9.891	4200.00	2.818
1700.00	9.692	4225.00	2.795
1725.00	9.500	4250.00	2.772
1750.00	9.315	4275.00	2.750
1775.00	9.135	4300.00	2.728
1800.00	8.962	4325.00	2.707
1825.00	8.794	4350.00	2.686
1850.00	8.632	4375.00	2.665
1875.00	8.475	4400.00	2.644
1900.00	8.322	4425.00	2.623
1925.00	8.175	4450.00	2.603
1950.00	8.032	4475.00	2.583
1975.00	7.893	4500.00	2.564
2000.00	7.758	4525.00	2.545
2025.00	7.627	4550.00	2.525
2050.00	7.500	4575.00	2.507
2075.00	7.377	4600.00	2.489
2100.00	7.257	4625.00	2.479
2125.00	7.140	4650.00	2.470
2150.00	7.027	4675.00	2.460
2175.00	6.917	4700.00	2.451
2200.00	6.809	4725.00	2.442
2224.99	6.705	4750.00	2.433
2250.00	6.603	4775.00	2.424
2275.00	6.504	4800.00	2.415
2300.00	6.408	4825.00	2.406
2325.00	6.313	4850.00	2.397
2350.00	6.222	4875.00	2.388
2375.00	6.132	4900.00	2.380
2400.00	6.045	4925.00	2.371
2425.00	5.960	4950.00	2.362
2450.00	5.877	4975.00	2.354

2475.00	5.796	5000.00	2.346
2500.00	5.717		

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	685.8	685.8	685.8	685.8	N/A

DISTANCE FROM SOURCE 96.00 meters

IMPACT AT THE AMBIENT BOUNDARY	528.6	528.6	528.6	528.6	N/A

DISTANCE FROM SOURCE 1.00 meters

```
AERSCREEN 16216 / AERMOD 19191                                        04/14/20
                                                                      14:15:49

TITLE: HAUL TRUCK AREA SOURCE


-----------------------------------------------------------------------------
****************************  AREA PARAMETERS  ***************************
-----------------------------------------------------------------------------

SOURCE EMISSION RATE:            1.0000 g/s                 7.937 lb/hr

AREA EMISSION RATE:           0.444E-02 g/(s-m2)        0.353E-01 lb/(hr-m2)
AREA HEIGHT:                       2.55 meters               8.37 feet
AREA SOURCE LONG SIDE:            25.00 meters              82.02 feet
AREA SOURCE SHORT SIDE:            9.00 meters              29.53 feet
INITIAL VERTICAL DIMENSION:        2.37 meters               7.78 feet
RURAL OR URBAN:                   URBAN
POPULATION:                      501901

FLAGPOLE RECEPTOR HEIGHT:          1.50 meters               4.92 feet

INITIAL PROBE DISTANCE =          5000. meters             16404. feet



-----------------------------------------------------------------------------
***********************  BUILDING DOWNWASH PARAMETERS  **********************
-----------------------------------------------------------------------------

               BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES



-----------------------------------------------------------------------------
*************************  FLOW SECTOR ANALYSIS  *************************
                 25 meter receptor spacing: 1. meters - 5000. meters
-----------------------------------------------------------------------------


   MAXIMUM  IMPACT  RECEPTOR

   Zo        SURFACE   1-HR CONC  RADIAL  DIST   TEMPORAL
   SECTOR    ROUGHNESS  (ug/m3)    (deg)   (m)    PERIOD
  ---------------------------------------------------
      1*       1.000    0.1949E+05   0     1.0     AUT
* = worst case diagonal
```

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----------------------------------------------------------------------------
**********************  MAKEMET METEOROLOGY PARAMETERS  ********************
----------------------------------------------------------------------------

MIN/MAX TEMPERATURE:    271.0 / 318.0 (K)

MINIMUM WIND SPEED:       0.5 m/s

ANEMOMETER HEIGHT:     10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban
DOMINANT CLIMATE TYPE:    Average Moisture
DOMINANT SEASON:          Autumn

ALBEDO:                  0.18
BOWEN RATIO:             2.00
ROUGHNESS LENGTH:       1.000 (meters)

SURFACE FRICTION VELOCITY (U*) ADJUSTED


       METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT
       -------------------------------------------------------------

 YR MO DY JDY HR
 -- -- -- --- --
 10 01 02   2 12

    H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  1.88  0.104  0.300  0.020  479.   77.    -50.4 1.000   2.00   0.18    0.50

    HT  REF TA     HT
- - - - - - - - - - -
  10.0   271.0    2.0



----------------------------------------------------------------------------
************************ AERSCREEN AUTOMATED DISTANCES **********************
                  OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE
----------------------------------------------------------------------------


                      MAXIMUM                              MAXIMUM
            DIST     1-HR CONC                   DIST     1-HR CONC
             (m)      (ug/m3)                     (m)      (ug/m3)
```

1.00	0.1949E+05	2525.00	6.880
25.00	6364.	2550.00	6.788
50.00	1718.	2575.00	6.698
75.00	933.7	2600.00	6.610
100.00	612.9	2625.00	6.524
125.00	444.4	2650.00	6.440
150.00	342.6	2675.00	6.357
175.00	275.4	2700.00	6.277
200.00	228.1	2725.00	6.198
225.00	193.4	2750.00	6.121
250.00	166.9	2775.00	6.046
275.00	146.1	2800.00	5.972
300.00	129.4	2825.00	5.900
325.00	115.8	2850.00	5.829
350.00	104.5	2875.00	5.759
375.00	94.92	2900.00	5.692
400.00	86.79	2925.00	5.625
425.00	79.80	2950.00	5.560
450.00	73.72	2975.00	5.496
475.00	68.41	3000.00	5.433
500.00	63.73	3025.00	5.372
525.00	59.57	3050.00	5.312
550.00	55.86	3074.99	5.253
575.00	52.53	3100.00	5.195
600.00	49.54	3125.00	5.138
625.00	46.82	3150.00	5.082
649.99	44.36	3174.99	5.028
675.00	42.11	3199.99	4.974
699.99	40.05	3225.00	4.921
725.00	38.16	3250.00	4.869
749.99	36.42	3275.00	4.819
775.00	34.82	3300.00	4.769
800.00	33.33	3325.00	4.720
825.00	31.94	3350.00	4.672
850.00	30.66	3375.00	4.624
875.00	29.46	3400.00	4.578
900.00	28.34	3425.00	4.532
925.00	27.29	3450.00	4.487
950.00	26.31	3475.00	4.443
975.00	25.39	3500.00	4.400
1000.00	24.52	3525.00	4.357
1025.00	23.70	3550.00	4.315
1050.00	22.93	3575.00	4.274
1075.00	22.20	3600.00	4.233
1100.00	21.51	3625.00	4.193
1125.00	20.85	3650.00	4.154
1150.00	20.23	3675.00	4.115
1175.00	19.64	3700.00	4.077
1200.00	19.08	3725.00	4.040

1225.00	18.55	3750.00	4.003
1250.00	18.04	3775.00	3.967
1275.00	17.56	3800.00	3.931
1300.00	17.10	3825.00	3.896
1325.00	16.66	3850.00	3.862
1350.00	16.23	3875.00	3.828
1375.00	15.83	3900.00	3.794
1400.00	15.44	3925.00	3.761
1425.00	15.07	3950.00	3.728
1450.00	14.72	3975.00	3.696
1475.00	14.38	4000.00	3.665
1500.00	14.05	4025.00	3.634
1525.00	13.73	4050.00	3.603
1550.00	13.43	4075.00	3.573
1575.00	13.14	4100.00	3.543
1600.00	12.86	4125.00	3.514
1625.00	12.59	4150.00	3.485
1650.00	12.33	4175.00	3.456
1675.00	12.08	4200.00	3.428
1700.00	11.83	4225.00	3.400
1725.00	11.60	4250.00	3.373
1750.00	11.37	4275.00	3.346
1775.00	11.15	4300.00	3.319
1800.00	10.94	4325.00	3.293
1824.99	10.74	4350.00	3.267
1850.00	10.54	4375.00	3.242
1875.00	10.34	4400.00	3.217
1900.00	10.16	4425.00	3.192
1924.99	9.978	4449.99	3.167
1950.00	9.803	4475.00	3.143
1975.00	9.634	4500.00	3.119
2000.00	9.469	4525.00	3.096
2025.00	9.309	4550.00	3.072
2050.00	9.154	4575.00	3.049
2075.00	9.003	4600.00	3.032
2100.00	8.857	4625.00	3.020
2125.00	8.714	4650.00	3.009
2150.00	8.575	4675.00	2.997
2175.00	8.441	4700.00	2.986
2200.00	8.310	4725.00	2.975
2224.99	8.182	4750.00	2.964
2250.00	8.058	4775.00	2.953
2275.00	7.936	4800.00	2.942
2300.00	7.819	4825.00	2.931
2325.00	7.704	4850.00	2.921
2350.00	7.591	4875.00	2.910
2375.00	7.482	4900.00	2.900
2400.00	7.376	4925.00	2.889
2425.00	7.272	4950.00	2.879
2450.00	7.170	4975.00	2.869

2475.00	7.071	5000.00	2.859
2500.00	6.975		

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	0.2356E+05	0.2356E+05	0.2356E+05	0.2356E+05	N/A

DISTANCE FROM SOURCE 13.00 meters

IMPACT AT THE AMBIENT BOUNDARY	0.1949E+05	0.1949E+05	0.1949E+05	0.1949E+05	N/A

DISTANCE FROM SOURCE 1.00 meters

Attachment 2

Mobile Source Air Toxics Analysis

Draft

NATOMAS II APARTMENTS

Mobile Source Air Toxics Analysis Screening Analysis

Prepared for
City of Sacramento

May 2020

Draft

NATOMAS II APARTMENTS

Mobile Source Air Toxics Analysis Screening Analysis

Prepared for
City of Sacramento

May 2020

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
AERMOD	American Meteorological Society/Environmental Protection Agency regulatory air dispersion model
BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EMFAC	CARB's on-road emission factor database program
HVAC	heating, ventilation, and air conditioning
I-5	Interstate 5
I-80	Interstate 80
MERV	Minimum Efficiency Reporting Value
MSAT	Mobile Sources Air Toxics
µm	micrometers
OEHHA	California Office of Environmental Health Hazard Assessment
$PM_{2.5}$	Fine particulate matter less than 2.5 micrometers in aerodynamic diameter
SMAQMD	Sacramento Air Quality Management District
TAC	toxic air contaminant
TOG	Total organic gases
$\mu g/m^3$	micrograms per cubic meter
VOCs	gaseous pollutants

CHAPTER 1
Executive Summary

The Sacramento Air Quality Management District (SMAQMD) provides a health risk mapping tool, The Mobile Sources Air Toxics (MSAT) Protocol, that assists in the evaluation of health risk from mobile sources on highways that traverse Sacramento County. MSAT and California Air Resources Board (CARB) guidance[1] are utilized in this analysis to estimate air pollutant concentrations from $PM_{2.5}$ and cancer risk from both diesel particulate matter (DPM) and total organic gases (TOG) at the new sensitive receptors (i.e. residents) to be sited by the project. The purpose of this analysis is to identify recommended exposure reduction measures to be incorporated into the project design to reduce pollutant concentrations and cancer risk for the new residents. The results of the analysis show that risk levels from Interstate 5 (I-5) and Interstate 80 (I-80) on the new residents would range from approximately 74 in one million to 47.2 in one million, and $PM_{2.5}$ concentrations would range from approximately 3.08 $\mu g/m^3$ and 1.52 $\mu g/m^3$, depending on the distance from I-5 and the distance from I-80 to the onsite residences.

1.1 Introduction

This technical memorandum (memo) evaluates potential exposure of new residents of the proposed Natomas II Apartments (proposed project) to air toxic pollutants from mobile sources on I-5 and I-80. I-5 is located approximately 150 feet west of the proposed project's western boundary; while I-80 is located approximately 3,600 feet south of the proposed project's southern boundary. The purpose of this memo is to demonstrate consistency with the City of Sacramento's (City) 2035 General Plan policies, and includes coordination with SMAQMD in evaluating exposure of sensitive receptors to toxic air contaminants (TACs), and to identify appropriate project conditions to protect public health and safety.

TACs from mobile sources are the main pollutants of concern for this analysis. CARB oversees regulation of pollutants from mobile sources. One of CARB's public health priorities is reducing DPM, primarily emitted by trucks, which is the primary TAC responsible for most of the cancer and non-cancer health risks associated with airborne exposures. Gasoline-fueled passenger vehicles also emit TACs as total organic gases (TOG), but they have a fraction of the carcinogenicity as that of DPM. CARB has made specific recommendations to land use agencies to consider proximity to existing sources of TACs when approving new sensitive land uses. In addition to these TACs, $PM_{2.5}$ is a pollutant of concern due to its harmful health impacts, and motor vehicles emit large volumes of $PM_{2.5}$.

[1] California Air Resources Board (CARB). 2017. *Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways.* April. Available athttps://ww3.arb.ca.gov/ch/rd_technical_advisory_final.pdf. Accessed March 2020.

In response to both the City's General Plan policies and CARB recommendations for siting sensitive receptors near sources of TACs such as freeways, SMAQMD has developed a methodology to assist local land use jurisdictions in assessing the potential cancer risk of siting sensitive land uses adjacent to major roadways. This is set forth in the Mobile Source Air Toxics Protocol (MSAT).[2] The MSAT includes an internet-based mapping tool with modeled estimates of cancer risk and $PM_{2.5}$ levels from motor vehicles and railways in the Sacramento area[3].

The California Supreme Court case *California Building Industry Association v. Bay Area Air Quality Management District* found that the California Environmental Quality Act (CEQA) review should focus on a project's impacts on the environment, and not the environment's impact on a project. Therefore, this analysis will not be utilized to determine impacts under CEQA. Instead, the purpose of the analysis and related information presented in this technical memo is to demonstrate consistency with the City's General Plan's policies and coordinate with SMAQMD in evaluating exposure of sensitive receptors to TACs, and to impose appropriate conditions on the proposed project to protect the health and safety of future residents.

1.2 Project Understanding

1.2.1 Project Location

The proposed project is located in Sacramento, California, approximately 80 miles east of San Francisco and 85 miles west of Lake Tahoe. The project site is located along East Commerce Way between Arena Boulevard and Natomas Crossing Drive, as shown in **Figure 1**. The project site is bound by Interstate 5 (I-5) to the west and East Commerce Way to the East. The areas adjacent to the northern and southern boundaries of the project site area currently vacant.

1.2.2 Project Description

The proposed project would be developed in two phases. Phase 1 would include development of four, 4-story apartment buildings with a total of 270 apartments, while Phase 2 would include development of three, 4-story buildings with a total of 202 apartments. Overall, the proposed Project would include a total of 472 multifamily units distributed throughout seven residential buildings. The apartments would consist of a mix of studio, one-bedroom, and two-bedroom units of varying sizes. Both phases of the proposed project would include a 12,000 square foot clubhouse with luxury indoor and outdoor amenities including a game room, theatre, pool area with sun deck, dog park, yoga studio, bocce ball course, and outdoor barbecue and dining areas. A total of 857 parking spaces would be available on-site. **Figure 2**, *Site Plan*, shows the locations of proposed residential buildings, recreational areas, and parking areas.

[2] Sacramento Metropolitan Air Quality Management District (SMAQMD). 2019. *Mobile Source Air Toxics Protocol, Guidance Document*. April. Available: http://www.airquality.org/LandUseTransportation/Documents/MSAT%20Protocol%20Guidance%20V1_2R.pdf. Accessed March 2020.

[3] Sacramento Metropolitan Air Quality Management District (SMAQMD). 2019. *Mobile Source Air Toxics Protocol Tool.* Available at http://sacramentorisk.azurewebsites.net/. Accessed March 2020.

SOURCE: Esri, 2012; USDA, 2016; ESA, 2020

Natomas II Apartments

Figure 1
Project Vicinity Map

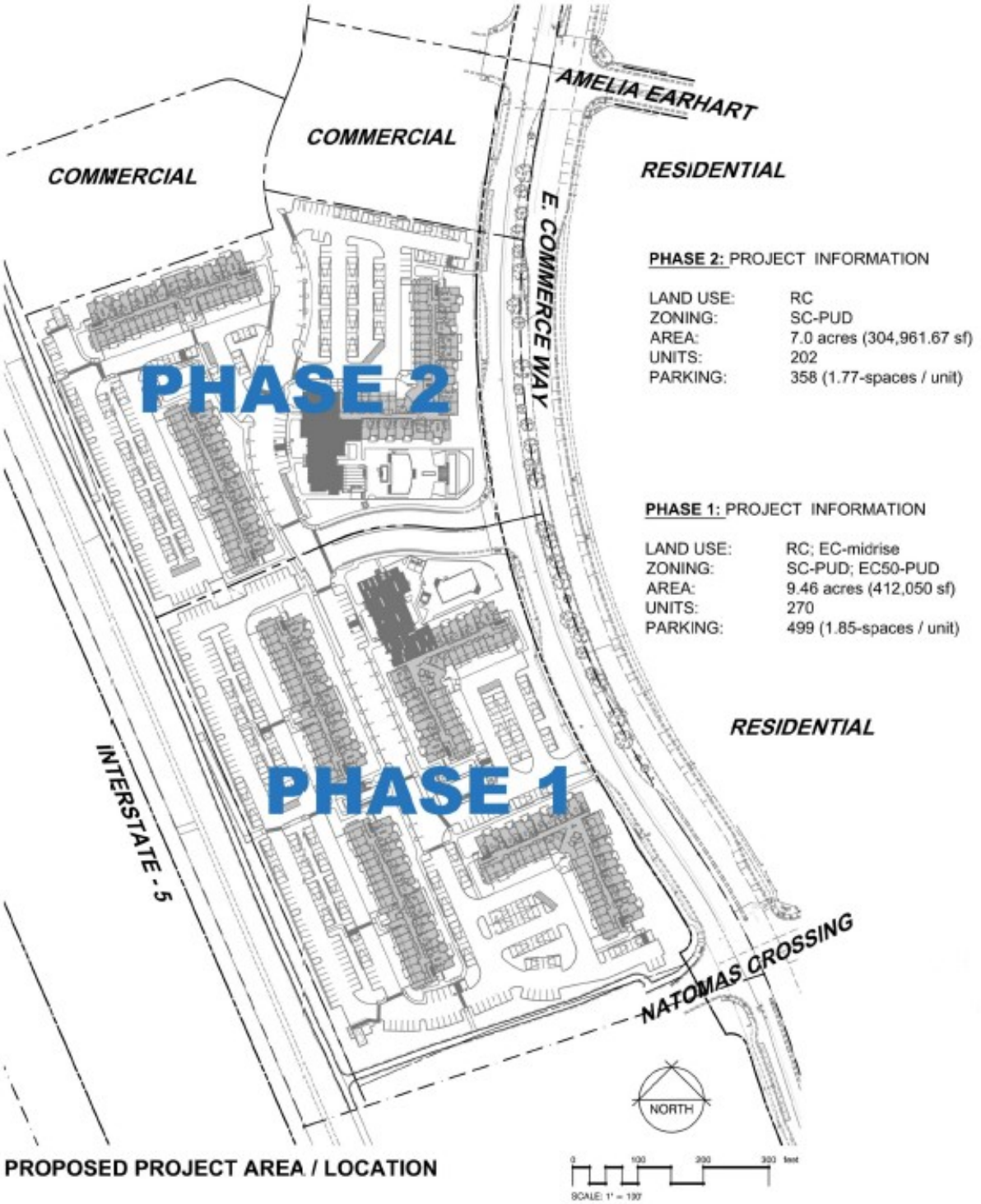

Figure 2
Site Plan

CHAPTER 2
Receptor Identification

2.1 Sensitive Receptors

For the purposes of this analysis, sensitive receptors (residences where sensitive individuals such as children, the elderly, and those that are ill) are located at the proposed apartment buildings. Additionally, there could be sensitive individuals present at the clubhouse; therefore, the clubhouse is conservatively included in the analysis as a sensitive receptor. It should be noted that sensitive receptors would not experience long-term exposure at the clubhouse and so this is a conservative approach.

Table 1 shows the distances of the sensitive receptors from both I-5 and I-80.

TABLE 1
DISTANCE FROM I-5 TO ONSITE SENSITIVE RECEPTOR LOCATIONS

Receptor	Approximate Distance to I-5 (feet)	Approximate Distance to I-80 (feet)
1	165	3,700
2	275	3,805
3	275	4,050
4	275	4,430
5	220	4,750
6	425	3,820
7	425	3,990
8	575	4,500

SOURCE: ESA, 2020.

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CHAPTER 3
MSAT Protocol and Methodology

This evaluation of pollutant exposure to the proposed project is based on SMAQMD's MSAT protocol, as well as CARB's *Strategies to Reduce Air Pollution Exposure Near High Volume Roadways: Technical Advisory*.[2] CARB's technical advisory identifies effective strategies that planners and other land use decision-makers can implement locally and in the near-term to reduce exposure to near-roadway pollution as more infill development is planned, while also protecting public health.

The analysis of potential cancer risk and $PM_{2.5}$ concentrations was based on SMAQMD's MSAT internet-based risk mapping tool and the MSAT Protocol guidance and methodology documents. Air dispersion modeling was not conducted as part of this analysis, as the required risk data were obtained from the tool.

3.1 The Mapping Tool

The Mapping Tool is internet web-based program that displays pollutant levels in areas of Sacramento near freeways, railways, and major roadways. It was developed using the U.S. Environmental Protection Agency-approved American Meteorological Society/Environmental Protection Agency (AERMOD) dispersion model and guidance issued by the California Office of Environmental Health Hazard Assessment (OEHHA Guidance) for estimating health risk from TAC exposure.

For this analysis, pollutant risk and concentration data are the result of pollutants from vehicles on I-5 and I-80. The annual average daily traffic on I-5 near the proposed project is approximately 160,700 vehicles per day, while the annual average daily traffic on I-80 near the proposed project is approximately 143,900 vehicles per day[4]. Eight receptor points were examined using the Mapping Tool, and the images were saved as screen captures displaying the receptor location on an aerial base map, with risk and $PM_{2.5}$ levels displayed in the adjacent table. **Figures 3** through **10** show the screen captures from the Mapping Tool.

Risk values and $PM_{2.5}$ concentrations from five receptors were tabulated to show modeled levels at the southwestern corner of the property boundary (nearest to both I-5 and I-80) and at various apartment locations within the property.

[4] California Department of Transportation. 2017. *Traffic Census Program, Traffic Volumes: Annual Average Daily Traffic for 2017*. Available at https://dot.ca.gov/programs/traffic-operations/census. Accessed March 2020.

3.2 Exposure Reduction Measures

CARB and SMAQMD recommend that exposure reduction measures be considered for a proposed land use project where individuals will be exposed to pollution from a freeway. CARB has developed a technical advisory that identifies effective strategies that can be implemented to reduce exposure to near-roadway pollution[5]. These exposure reduction strategies are also presented in SMAQMD's MSAT Protocol guidance and are discussed below.

These methods of pollution reduction are recommended because of their effectiveness and because they are well supported by scientific findings from multiple studies. **Table 2** presents the various measures, which are discussed below.

Four exposure reduction strategies are:

- Solid barriers
- Vegetation barriers
- Indoor air treatment: Heating, Ventilation and Air Conditioning (HVAC) filters
- Land Use Design

3.2.1 Solid Barriers

Measurement and modeling studies consistently find that solid barriers reduce near-road downwind concentrations by increasing vertical dispersion of pollutants emitted by vehicles. The magnitude of the reduction and its spatial extent depend on the height of the barrier, the width of the road, and micrometeorology. Studies have consistently found that pollution concentrations downwind of the barrier range from a 10 percent to 50 percent reduction compared to concentrations measured on or directly adjacent to high-volume roadways.

3.2.2 Vegetation Barriers

Vegetation barriers also have the potential to alter pollutant transport and dispersion. In some studies, specific locations and conditions translated to air quality benefits (e.g., pollution concentration reductions of up to 20 percent on the leeward side of the tree line).

Planting of additional trees is recommended by SMAQMD, because of their multiple health co-benefits. Addition of tree canopy can result in lower air temperatures, thereby reducing ozone formation, reduced urban heat island effect, greater carbon sequestration, better self-reported health among adults, teens, and children, and increased social cohesion (trust). Addition of trees to the proposed project would help promote overall tree canopy in the City of Sacramento, which is an important goal for climate change mitigation and adaptation.

[5] California Air Resources Board (CARB). 2017. *Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways.* April. Available at https://ww3.arb.ca.gov/ch/rd_technical_advisory_final.pdf. Accessed March 2020.

3.2.3 Indoor Air Treatment: HVAC Filters

Studies show that particle filtration systems and devices placed within the HVAC system of buildings, specifically high-efficiency filtration with mechanical ventilation or portable high efficiency air cleaners, can be highly effective for reducing indoor pollution concentrations. High efficiency filters in ventilation systems can remove from 50-99 percent of particles in the air. However, research shows that filtration technologies for gaseous pollutants (VOCs) are variable in their effectiveness; some remove certain VOCs well, but not others. SMAQMD recommends, and Title 24 requires[6], higher-efficiency HVAC filters in all new homes, with a Minimum Efficiency Reporting Value (MERV) of at least 13.

3.2.4 Land Use Design

Land use design is another effective strategy to reduce pollutant exposure to sensitive receptors. It is not one of the design measures given an effectiveness in studies, as it depends on the distance of the receptor from the roadway, which varies with each design. Land use design exposure reduction measures have already been incorporated into the proposed project design. Risk and $PM_{2.5}$ levels decrease with distance from the source, so designing a property that does not place residences immediately adjacent to the roadway is a design strategy to reduce exposure to pollutants.

The estimated effectiveness of reduction measures recommended in the MSAT and CARB technical advisory was applied to the risk and $PM_{2.5}$ values to obtain a final risk and pollutant level for the eight locations on the project site.

The project site is located within 165 feet of I-5 and 3,700 feet of I-80. The apartment building nearest to a major roadway would be located on the northwestern corner of the project site, approximately 220 feet from the I-5 freeway. Due to the proximity of sensitive receptors to I-5 the proposed project would include parking areas serving as a distance buffer between the residents and I-5.

TABLE 2
POLLUTANT EXPOSURE REDUCTION MEASURES

Reduction Measure	Effectiveness (%)	Criterion for Selection
Solid Barrier	10-50	Not selected
Vegetation Barrier	20	Required by Natomas Crossing EIR Mitigation Measure 4.4-5(b)
Indoor Air HVAC Filters	50-99	Required by Title 24
Land Use Design	Variable	Proposed Project Design

SOURCE: California Air Resources Board (CARB), 2017. *Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High Volume Roadways*, April 2017. Available at https://ww2.arb.ca.gov/sites/default/files/2017-10/rd_technical_advisory_final.pdf. Accessed on May 7, 2020.

6 CalGreen - 2019 California Green Building Standards Code, California Code of Regulations, Title 24, Part 11, available: https://codes.iccsafe.org/content/CAGBSC2019.

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CHAPTER 4
Results

4.1 MSAT Analysis Results

Table 3 below and the figures that follow it, **Figures 3 through 10**, present the Mapping Tool's modeled cancer risk (from DPM and TOG combined) and $PM_{2.5}$ concentrations at receptors within the project site. The results illustrate how the risk and $PM_{2.5}$ concentrations decrease with distance from pollution sources (including I-5 and I-80). This demonstrates the benefit of the proposed design, with a parking buffer between I-5 and the apartment locations. The closest receptor would be approximately 165 feet from the easternmost lane of the I-5 mainline.

TABLE 3
CANCER RISK AND $PM_{2.5}$ CONCENTRATIONS AT NATOMAS APARTMENTS FROM TACS ON I-5 & I-80

					After 20% Reduction from Vegetation Barrier[1]		After 50% Reduction from MERV13 Filter[2]	
Receptor Number	Distance from I-5 Freeway Mainline (feet)	Distance from I-80 Freeway Mainline (feet)	DPM + TOG Cancer Risk (per million)	$PM_{2.5}$ Concentration (ug/m3)	Reduced DPM + TOG Cancer Risk (per million)	Reduced $PM_{2.5}$ Concentration (ug/m^3)	Reduced DPM + TOG Cancer Risk (per million)	Reduced $PM_{2.5}$ Concentration (ug/m^3)
1	165	3,700	185	7.7	148	6.2	74	3.1
2	275	3,850	147	5.2	117.6	4.2	58.8	2.1
3	275	4,065	149	5.4	119.2	4.3	59.6	2.1
4	275	4,430	152	5.5	121.6	4.4	60.8	2.2
5	220	4,750	167	6.4	133.6	5.1	66.8	2.6
6	425	3,820	135	4.6	108	3.7	54	1.8
7	425	3,990	132	4.4	105.6	3.5	52.8	1.8
8	575	4,500	118	3.8	94.4	3.0	47.2	1.5

NOTES:

1 Estimated at 20% reduction with implementation of vegetation barrier.

2 Estimated at 50% to 99% reduction with MERV13 filter. The CARB Technical Advisory and MSAT provide a range of 50% to 99%, so the conservative value was used for this analysis.

SOURCES:
ESA, 2020.
Sacramento Metropolitan Air Quality Management District (SMAQMD). 2019. *Mobile Source Air Toxics Protocol Tool.* Available: http://sacramentorisk.azurewebsites.net/. Accessed March 2020.

While the SMAQMD does not have a specific recommended threshold of significance for cumulative risk impacts, other air districts have developed such thresholds. The Bay Area Air

Quality Management District (BAAQMD) suggests a cumulative cancer risk threshold of 100 cancers in a million from all local sources, and a cumulative $PM_{2.5}$ threshold of 0.8 µg/m.[7] The BAAQMD threshold was identified as reasonable and appropriate and used for this analysis.

Figure 3
Risk at Receptor Location 1

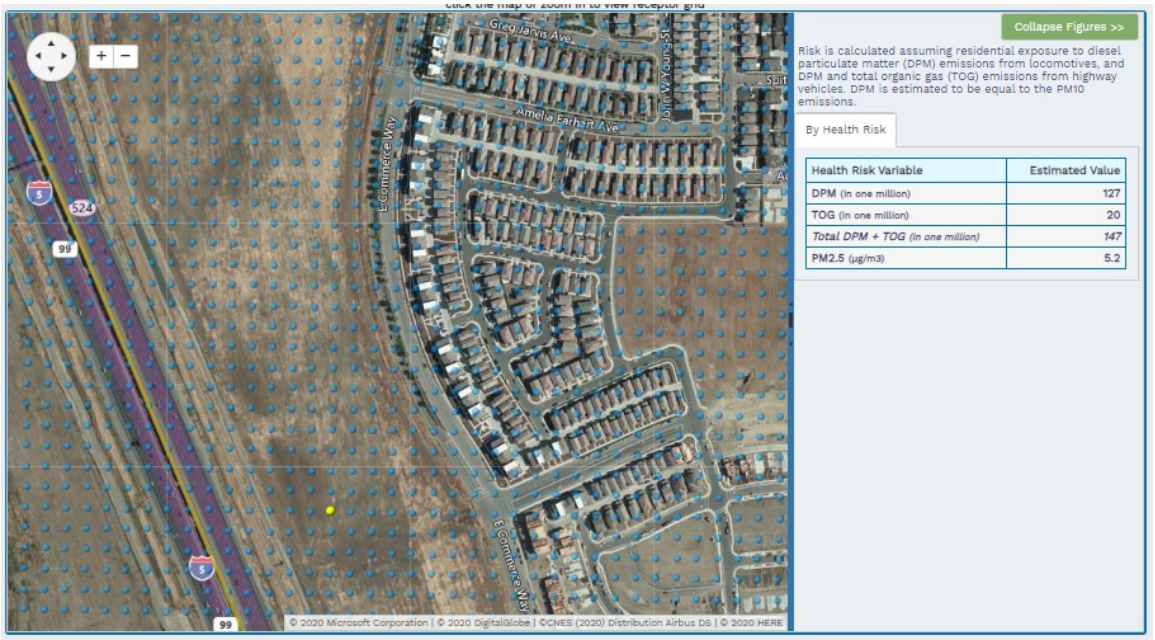

Figure 4
Risk at Receptor Location 2

7 Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines, Table 2-1*. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed March 2020.

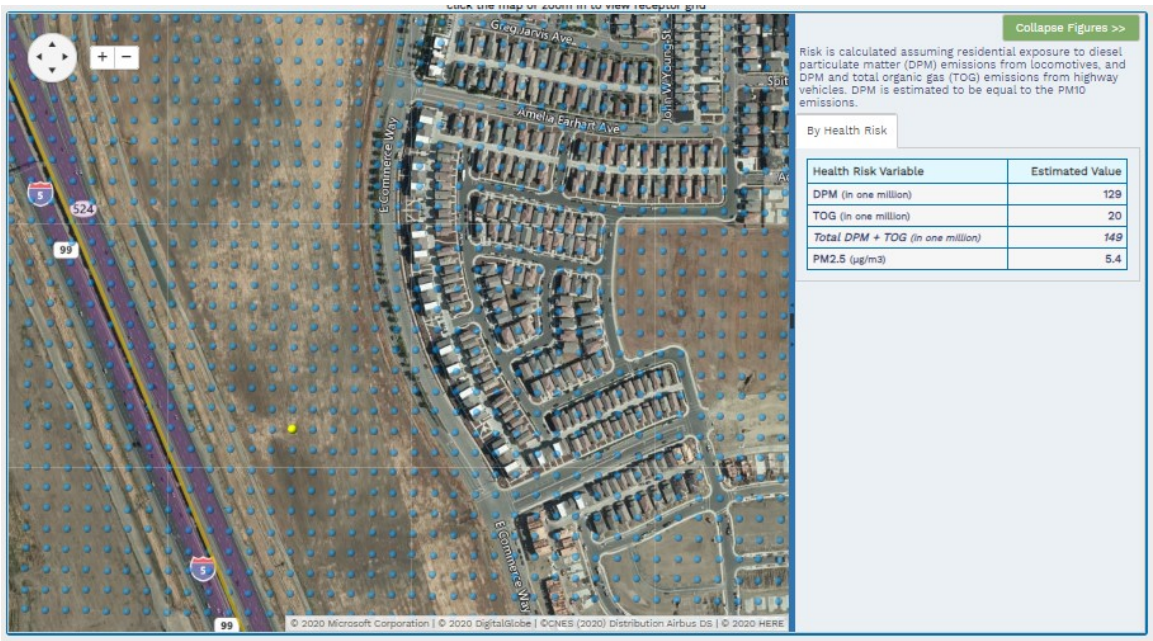

Figure 5
Risk at Receptor Location 3

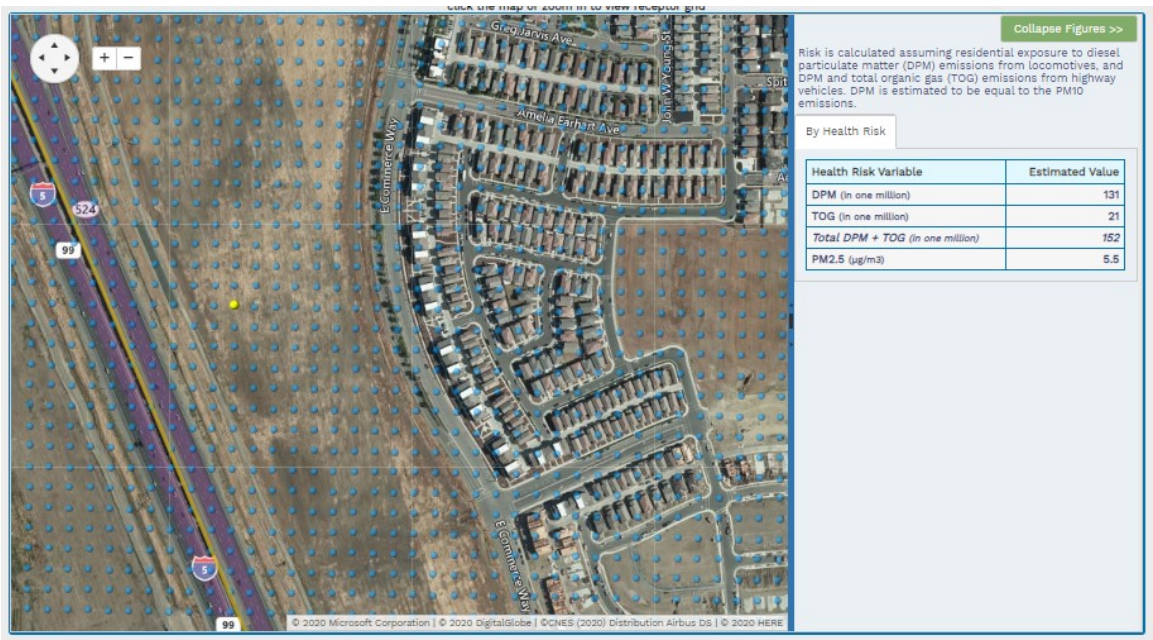

Figure 6
Risk at Receptor Location 4

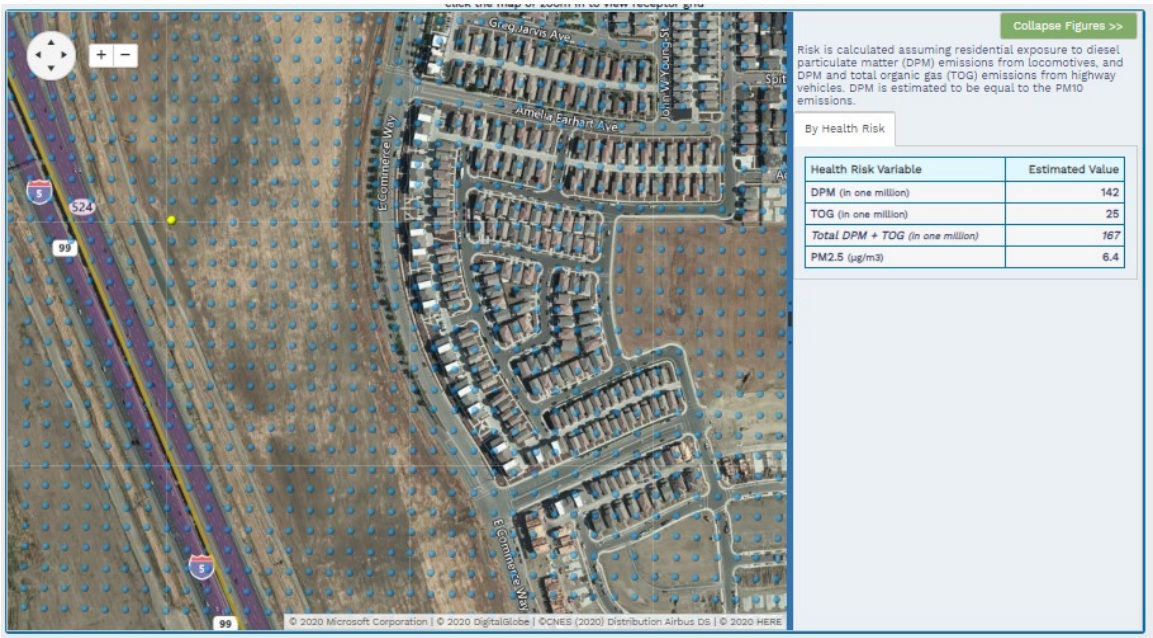

Figure 7
Risk at Receptor Location 5

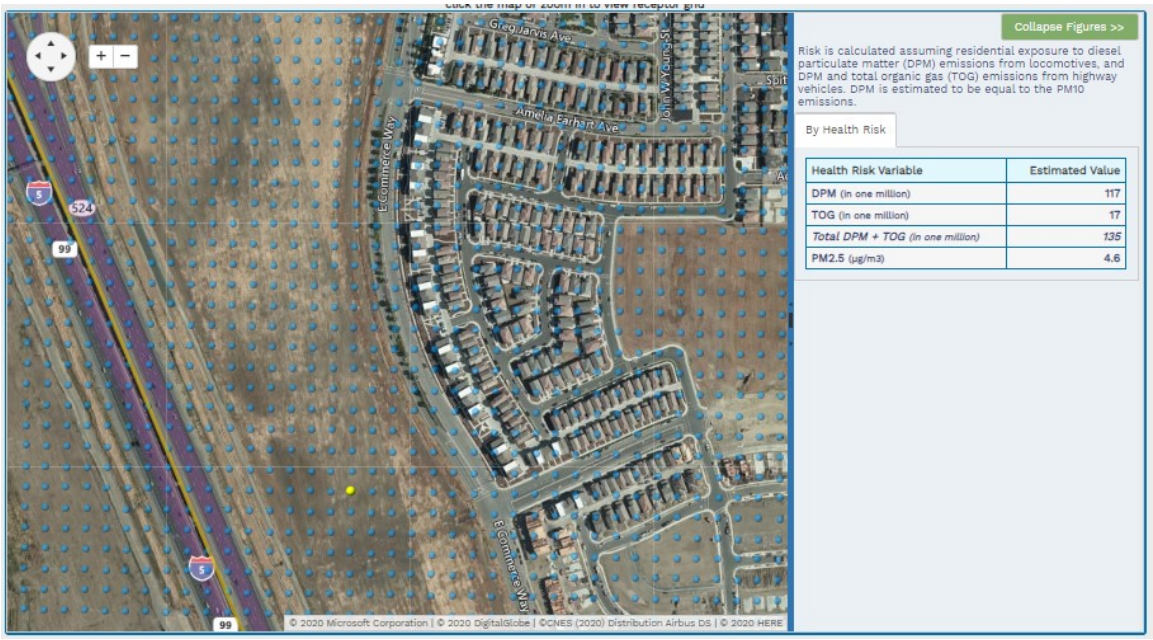

Figure 8
Risk at Receptor Location 6

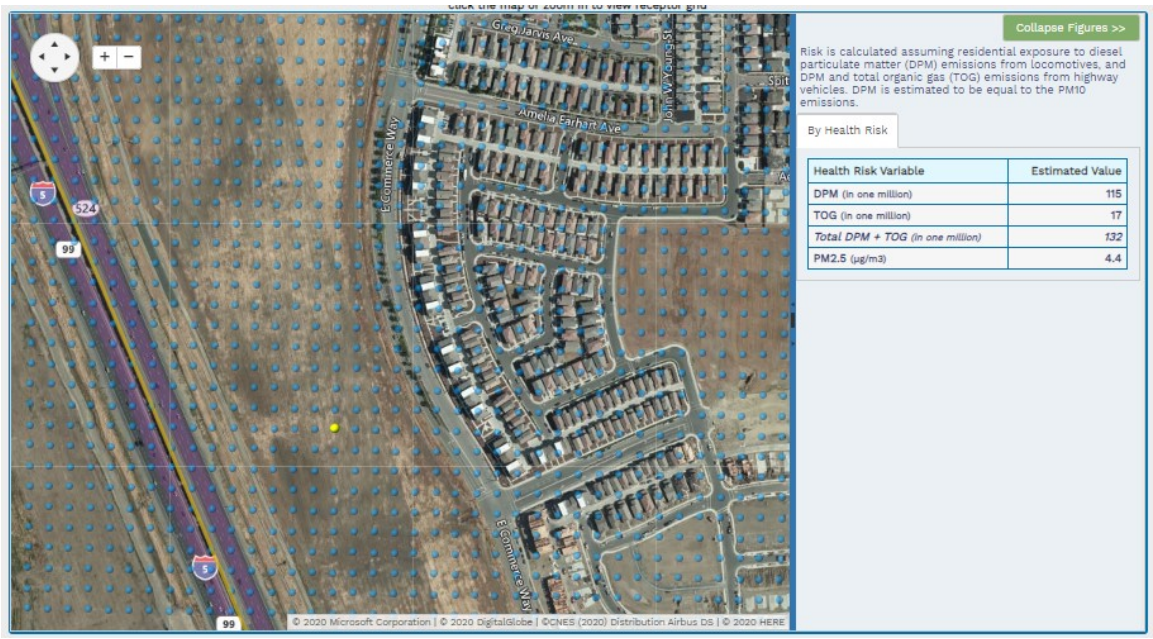

Figure 9
Risk at Receptor Location 7

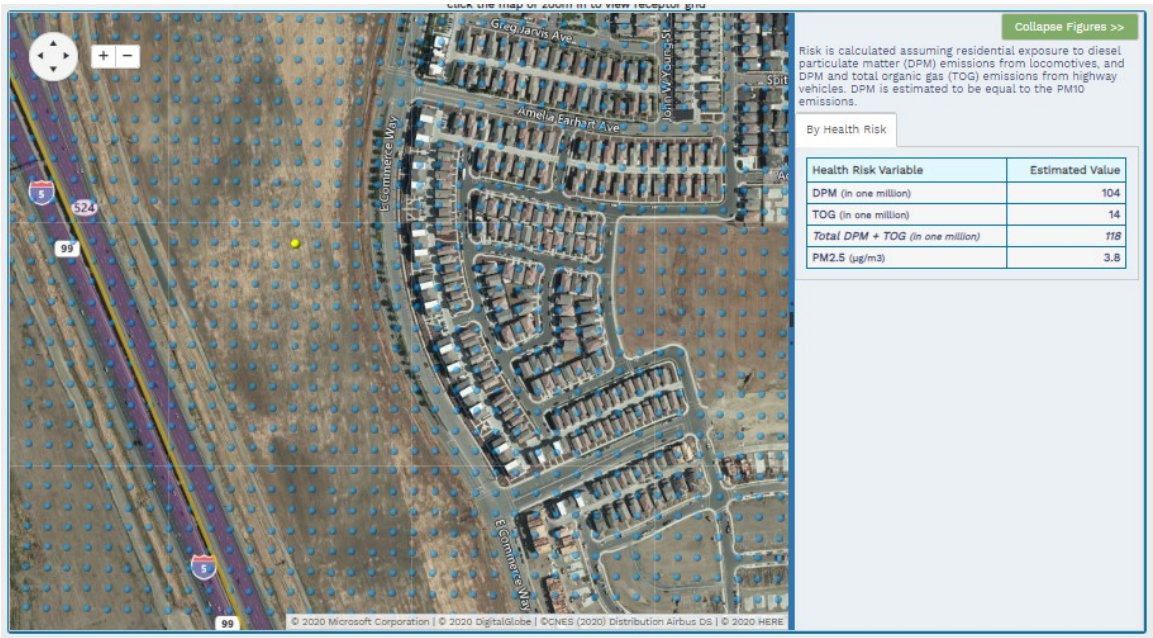

Figure 10
Risk at Receptor Location 8

4.2 Conclusion

Table 4 presents the results of the analysis, with reduction from the implementation of vegetation barriers and use of MERV13 filters, compared to the BAAQMD cumulative risk threshold of 100 in one million. The cancer risk at each receptor analyzed would be below the cumulative risk threshold. As shown, cancer risk to sensitive receptors on the project site would be below the cumulative risk threshold.

TABLE 4
CANCER RISK AT NATOMAS APARTMENTS COMPARED TO CUMULATIVE SIGNIFICANCE THRESHOLDS

Receptor Number	Reduced DPM + TOG Cancer Risk (per million) from I-5 and I-80[1]	Cumulative Significance Threshold (per million)	Above Cumulative Significance Threshold?
1	74	100	No
2	58.8	100	No
3	59.6	100	No
4	60.8	100	No
5	66.8	100	No
6	54	100	No
7	52.8	100	No
8	47.2	100	No

NOTES

[1] Risk reduced by use of vegetation barrier and MERV13 filters.

SOURCE: Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines, Table 2-1*. May. Available at https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 2020.

CHAPTER 5
References

Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines, Table 2-1*. May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 2020.

BAAQMD. [n.d.]. *Permitted Stationary Sources Risk and Hazards mapping tool*. Available: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65. Accessed March 2020.

California Air Resources Board (CARB). 1998. *Initial Statement of Reasons for Rulemaking, Staff Report, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminants.* June 1998. Available: https://ww3.arb.ca.gov/toxics/dieseltac/staffrpt.pdf. Accessed April 2020.

California Air Resources Board (CARB). 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April. Available: https://ww3.arb.ca.gov/ch/handbook.pdf.

California Air Resources Board (CARB). 2017. *Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways.* April. Available: https://ww3.arb.ca.gov/ch/rd_technical_advisory_final.pdf. Accessed March 2020.

California Air Resources Board (CARB). [n.d.]. *CARB Identified Toxic Air Contaminants.* Available: https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants. Accessed April 2020.

California Air Resources Board (CARB). [n.d.]. *Overview: Diesel Exhaust and Health.* Available: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. Accessed April 2020.

California Department of Transportation. 2017. *Traffic Census Program, Traffic Volumes: Annual Average Daily Traffic for 2017*. Available: https://dot.ca.gov/programs/traffic-operations/census. Accessed March 2020.

City of Sacramento. 2015. *2035 General Plan*. Adopted March 3, 2015. Available: https://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan. Accessed March 2020.

International Code Council. 2019. 2019 California Green Building Standards Code, California Code of Regulations, Title 24, Part 11. Available: https://codes.iccsafe.org/content/CAGBSC2019.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2019. *Mobile Source Air Toxics Protocol, Guidance Document*. April. Available: http://www.airquality.org/LandUseTransportation/Documents/MSAT%20Protocol%20Guidance%20V1_2R.pdf. Accessed March 2020.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2019. *Mobile Source Air Toxics Protocol Tool.* Available: http://sacramentorisk.azurewebsites.net/. Accessed March 2020.

Attachment 3
Transportation Analysis

KD Anderson & Associates, Inc.
Transportation Engineers

June 17, 2019

David J. Bugatto, President and CEO
Alleghany Properties LLC
300 University Avenue, Suite 210
Sacramento, CA 95825

RE: NATOMAS CROSSING QUAD C & QUAD D PHASING OPERATIONAL ANALYSIS

Dear Mr. Bugatto:

This letter transmits the result of an evaluation of the short term traffic impacts associated with development of the Natomas Crossing Quad C and Quad D project areas. The analysis is intended to determine what portions of Quad C and Quad D may proceed without extending East Commerce Way south to San Juan Road. The analysis considers the original approved development plans for Quad C and Quad D as presented in the 2009 Natomas Crossing EIR as well as conceptual alternative land use plans provided by your office. The materials which follow document our study assumptions, present our analysis methodology and summarize our conclusions.

Findings. An overview of key findings is provided here:

- **Quad C Alternative Land Use Plan**. Buildout of Quad C with alternative land uses is projected to result in satisfactory LOS D operations at the East Commerce Way / Arena Blvd intersection without an extension of East Commerce Way south to San Juan Road. No additional roadway improvements have been identified to support this development.
- **Quad D Alternative Land Use Plan**. Satisfactory LOS D intersection operations can also be maintained with the addition of alternative Quad D development traffic (both Quad C and D alternative development) without an extension of East Commerce Way south to San Juan Road. However, the additional Quad D traffic will exceed the available vehicle storage lengths at two left turn approaches to the East Commerce Way / Arena Blvd intersection (northbound and westbound left turn lanes). Lengthening of the existing left turn pockets would be needed to accommodate projected queue lengths. This is projected to be needed with initial development of Quad D assuming full development of Quad C alternative land uses. With mitigation of these vehicle queue impacts, both Quad C and Quad D alternative land use plans could be fully developed without an extension of East Commerce Way south to San Juan Road.
- **Approved Quad C Plan**. With buildout of the approved Quad C plan, satisfactory LOS D can be maintained at the East Commerce Way / Arena Blvd intersection without an extension of East Commerce Way south to San Juan Road. However, buildout of this

plan will similarly exceed the available vehicle storage lengths at two left turn approaches to the East Commerce Way / Arena Blvd intersection. This is estimated to occur with development of 90%-95% of the approved Quad C plan. With mitigation of these vehicle queue impacts, the approved Quad C land use plan could be fully developed without an extension of East Commerce Way south to San Juan Road.

Summary

Trip Generation. The trip generation estimates for Quad C under the approved and alternative condition are similar, but the new alternative generates slightly more trips in the a.m. peak hour (i.e., 695 (315 in / 380 out) versus 514 (409 in / 105 out) net new a.m. external trips), but fewer trips in the p.m. peak hour (i.e., 1,206 versus 1,297 net new external p.m. trips).

The alternative plan for Quad D generates 70% fewer trips than does the approved plan, which features a major medical center (i.e., 587 versus 2,008 external a.m. trips and 603 versus 1,979 external p.m. trips).

Background Development. This analysis assumes that other development in the area will proceed:

- Quad B Phase 1 – 537,000 sf of office space and employee daycare facility
- 5 years of development on the Arena Site - 1,800 employees (equates to approximately 550,000 sf of general office)
- 348 adjoining single family residences on the east side of East Commerce Way

Level of Service at Arena Blvd / E. Commerce Way Intersection. While the assessment also considers the operating conditions at site access intersections on E. Commerce Way, the projected Levels of Service (LOS) at the key Arena Blvd / E. Commerce Way intersection are noted in Table 1. The City of Sacramento General Plan establishes LOS D as the acceptable operating standard for this intersection. As shown in Table 1, with the background projects alone, the intersection is projected to operate at LOS D in the a.m. peak hour and LOS C/D in the p.m. peak hour with no extension of East Commerce Way south to San Juan Road. The addition of approved Quad C traffic will still result in LOS D during both peak hours, but average intersection delays would be expected to increase substantially in the p.m. peak hour. Development of the approved Quad D uses in addition to approved Quad C is projected to result in unsatisfactory LOS F delays.

The alternative Quad C plan will similarly result in LOS D operations, with slightly decreased p.m. peak hour delays when compared to the approved plan. Both Alternative C and D development will also result in LOS D intersection operations, but p.m. peak hour delays will approach LOS E thresholds (i.e., average delay projected at 52 seconds, LOS E threshold = 55 seconds).

TABLE 1 ARENA BLVD / EAST COMMERCE WAY LEVEL OF SERVICE				
Condition	**AM Peak Hour**		**PM Peak Hour**	
	Average Delay (sec/veh)	**LOS**	**Average Delay (sec/veh)**	**LOS**
Existing plus Background Project	39.8	D	35.0	D
• Plus Approved Quad C	43.5	D	49.5	D
• Plus Alternative Quad C	44.7	D	48.3	D
• Plus Alternative Quad C and Quad D	49.2	D	52.0	D

Vehicle Queues. Vehicle queues at the East Commerce Way / Arena Blvd intersection have also been analyzed to determine impacts of the development alternatives with no extension of East Commerce Way south to San Juan Road. Vehicle queues associated with the alternative development plan for Quad C are projected to be accommodated within existing turn lane storage lengths. With development of both the alternative Quad C and Quad D uses, the northbound East Commerce Way and westbound Arena Blvd left turn volume demand exceeds available left turn pocket storage lengths. This also starts to occur with build out of the approved Quad C development plan (approximately 90%-95% buildout of the approved plan). This condition on East Commerce Way can likely be mitigated with restriping of the northbound approach. Approximately 100' of additional storage for each left turn lane is needed to accommodate projected northbound left turn lane queues. Lengthening of the existing westbound left turn lane pocket on Arena Blvd would require modifications to the existing center median. Lengthening of the existing 220' long dual left turn pocket by approximately 75' would be needed to accommodate projected queues associated with alternative Quads C and D development and no extension of East Commerce Way south to San Juan Road. This additional left turn storage would not be needed if East Commerce Way was extended south to San Juan Road.

Background Development / Traffic Volumes

Traffic Volumes. The analysis makes use of the "existing" traffic volumes presented in DKS's April 24, 2018 analysis of Quad B. These volumes are shown in the attached Figure 3 from their report.

Background Development. The following projects are assumed to be completed concurrently with any Quads C or D development, and the trip generation for each area has been identified:

Natomas Crossing Quad B: Phase 1, including 537,000 sf of office space. Based on the trip generation rates used in the DKS study, this initial phase generates 623 a.m. and 618 p.m. peak hour trips.

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Re-Use of ARCO Arena Site. We understand that the City envisions eventual construction of employment centers in this area totaling 6,070 employees by the Year 2035[1]. Assuming it builds out uniformly, this is equivalent to 360 new employees annually. We have assumed 5 years of employment (i.e., 1,800 employees) for this analysis. This employee count equates to approximately 550,000 sf of general office space. This employment would generate 396 a.m. and 510 p.m. trips based on the trip generation equations for Code 710 (office building) in the 10th Edition of the Trip Generation Manual.

Adjoining SFR. Single family residential developments are proceeding across E. Commerce Way from Quads C and D. These are either planned and approved or under construction. A total of 348 dwellings are anticipated, which would result in 258 a.m. and 345 p.m. trips based on the average rates in trip generation manual.

Total Background Trip Generation. Table 2 notes the peak hour trip generation estimate associated with these projects.

Background Trip Distribution. The directional distribution of the background trips is based on available data. For Quad B the assumptions made in the DKS study were re-used (Figure 4 from the DKS report). Because existing land uses on the south end of E. Commerce Blvd are residential, the current peak hour traffic patterns on the south leg of the Arena Blvd / East Commerce Way intersection were assumed for the new single family residential. That traffic is split 70% a.m./60% p.m. west towards I-5, 20%/20% north on E. Commerce and 10%/20% east on Arena Blvd. The assumptions made for Quad B were reviewed as a source for short term distribution for reuse of the Arena site. Those assumptions were generally applied on an east/west basis but the allocation to individual streets was altered based on the relative location of the Arena site farther to the north and east. Of the peak hour traffic associated with the Arena site, 42% a.m./39% p.m. of the trips are assumed to use Arena Blvd west of E. Commerce and 20%/21.5% is assumed to use Arena Blvd to the east.

Background Trip Assignment. Figure 1 presents the sum of existing traffic and the peak hour trips associated with the background projects. The assignment mimics the paths assumed by DKS for Quad B, assumes that a small share of the single family residential trips will head east through the adjoining residential area to Truxel Road (5%) and accounts for alternative access to/ from the Arena site via other connections to Del Paso Road, Truxel Road and E. Commerce Way.

[1] North Natomas Finance Plan Transportation Analysis, September 27, 2017

TABLE 2 TRIP GENERATION FORECASTS FOR BACKGROUND DEVELOPMENT PROJECTS								
Source	**Description**	**Quantity**	**AM Peak Hour**			**PM Peak Hour**		
			In	**Out**	**Total**	**In**	**Out**	**Total**
710	Quad B Phase 1	537 ksf	536	87	623	99	519	618
210	SFR	348 du	64	194	258	217	128	345
710	Re-Use of Arco Arena Site	1,800 employees	320	66	395	102	408	510
Total			920	347	1,276	418	1055	1,473

Quads C and D Land Use and Trip Generation

Project Alternative. This analysis considers the approved development plan for Quads C and D as presented in the 2009 Natomas Crossing EIR, as well as new alternative uses offered by the project proponent. Under the alternative plan the north half of Quad C remains a retail commercial area, and the southern half is devoted to apartments. In Quad D the approved plan was a medical center, and the alternative plan consists of senior apartments and office space. Conceptual alternative plans for Quads C and D are attached.

Land Use. Specific assumptions for development within Quads C and D have been provided for the alternative plan. Convenience oriented uses are located near the Arena Blvd / E. Commerce Blvd intersection, and these locations are noted as sub area A in Table 3. The balance of Quad C extends south to Natomas Crossing Drive and contains additional retail, a fitness center, hotel and apartments. Quad D includes senior apartments and general office space.

The 2009 DEIR assumed 200 ksf of office space and 393 ksf of retail space in Quad C. Quad D was assumed as a 600 ksf hospital and 600 ksf of medical office building.

Trip Generation. The trip generation estimates made in the 2009 DEIR were reused for the approved uses. Trip generation rates in the 10th Edition of the Trip Generation Manual were applied to the new alternative plans, and the results are noted in Table 3. In this case average rates were applied for most uses except for the general retail space where equations were used.

This assessment recognizes potential interaction between uses within Quad C sub area A, but does not attempt to match trip ends for other uses in Quads C and D under the alternative plan. We have assumed that some of the customers of these convenience-oriented uses will visit more than one business when in the area, and 10% of the trips generated in sub area have been assumed to be “internal” trips that will not use the adjacent street system.

As indicated in Table 3, a total of 998 a.m. and 1,706 p.m. peak hour external trips will result from build out of Quad C under the alternative plan. Of that total, pass-by trips comprise 313 a.m. and 500 p.m. peak hour trips. Quad D will generate 587 a.m. and 603 p.m. peak hour trips.

Together Quads C and D generate 1,585 external trips in the a.m. peak hour and 2,309 trips in the p.m. peak hour. These total trip generation quantities are as presented in the Table 4 trip generation comparison.

TABLE 3
TRIP GENERATION FORECASTS FOR ALTERNATIVE QUADS C AND D PROJECTS

Quad	Description	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
C	Quad C: portion along E. Commerce from Arena Blvd to Amelia Earhart Way							
	A-1 Fast Food Restaurant (code 934)	2.2 ksf	45	43	88	37	35	71
	A-2 Fast Food Restaurant (code 934)	4.5 ksf	92	89	181	76	71	147
	A-3 Gas Sales w/ C-store (code 945)	16 positions	102	98	200	114	110	224
	A-4 Auto Parts Sales (code 843)	6.2 ksf	10	8	18	16	17	33
	A-5 High Turnover Sit Down Restaurant (code 932)	10.2 ksf	55	46	101	62	38	100
	A Subtotal		304	284	588	305	271	575
	Less Internal (10%)		30	28	58	31	27	58
	External trips		**274**	**256**	**530**	**274**	**244**	**517**
	Pass-by trips		134	134	268	130	130	260
	New External Trips		140	122	262	144	114	258
C	Quad C: balance to Natomas Crossing Drive							
	Retail (code 820)	142 ksf	82	51	133	338	366	704
	Fitness Center (code 492)	40 ksf	26	26	52	79	59	138
	Hotel (code 310)	150 rooms	42	29	71	44	42	86
	Apartments (code 221)	320 du	29	86	115	86	55	141
	Apartments (code 221)	270 du	24	73	97	73	46	119
	External Trips		**203**	**265**	**468**	**620**	**568**	**1,188**
	Pass-by Trips		28	17	45	120	120	240
	New External Trips		175	248	423	500	448	948
C	Total External Trips Quad C		477	531	998	894	812	1,706
	Total Pass-by		162	151	313	250	250	500
	Total New external		315	380	695	644	562	1,206
D	Quad D: Natomas Crossing Drive to San Juan Avenue							
	Senior Apartments (code 252)	325 du	23	42	65	46	39	85
	Office (code 710)	450 kdf	449	73	522	83	435	518
	New External Trips		472	115	587	129	474	603

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Original Approved Project Trip Generation. As a comparison, the Natomas Crossing EIR indicated that approved Quads C and D would generate 2,612 external a.m. and 3,692 external p.m. trips, as noted in Table 4. Of those totals, 90 a.m. and 416 p.m. trips were pass-by.

The alternative land use plan reduces overall external trip generation by 1,027 trips in the a.m. peak hour and by 1,383 trips in the p.m. peak hour. This equates to a 39% and 37% reduction in trips in the a.m. and p.m. peak hours, respectively.

TABLE 4
COMPARISON OF TRIP GENERATION FORECASTS
FOR ALTERNATIVE AND ORIGINAL APPROVED QUAD C/D PROJECTS

Quad	Description	AM Peak Hour Total	PM Peak Hour Total
	Proposed Project		
C	Total External Trips Quad C	998	1,706
	Total Pass-by	313	500
	Total New External	695	1,206
D	New External Trips Quad D	587	603
C+D	Total External Trips	1,585	2,309
	Total Pass-by Trips	313	500
	Total New External	**1,272**	**1,809**
	2009 Natomas Crossing EIR		
C	Total External Trips	604	1,713
	Total Pass-by	90	416
	Total New External	514	1,297
D	Total New External Trips	2,008	1,979
C+D	Total External Trips	2,612	3,692
	Total Pass-by Trips	90	416
	Total New External Trips	**2,522**	**3,276**

Trip Distribution. We have assumed the short term trip distribution assumptions made in the original Natomas Crossing DEIR remain reasonable expectations (figure 4.2-8), with the following changes:

- The Natomas Crossing Drive Extension over I-5 is not available
- E. Commerce Way is not extended to San Juan Road
- A share of the area's trips destined for Truxel Road to the east will use Natomas Crossing Drive and other connecting streets (i.e., 5% of total traffic)

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Trip Assignment. The assignment of Quads C and D trips under the proposed and approved plans is presented in the appended figures which follow. As noted, right turn inbound access from Arena Blvd is available to Quad C.

1. Approved Plan - Quad C alone – Figure 2
2. Proposed Plan - Quad C alone – Figure 3
3. Proposed Plan - Quad D alone – Figure 4

Project Impacts

Methodology. The assessment of traffic operating conditions makes use of SimTraffic simulation for a system that includes the Arena Blvd / E. Commerce Way intersection and the four site access intersections on E. Commerce Way. To ensure consistency with the DKS analysis results the traffic volumes associated with that report's "Existing Plus Quad B Build out" condition were input, and the simulation was adjusted to mimic the Level of Service and delay results. The adjusted simulation network was then used to test Quad C / D development.

Traffic Volumes. Project traffic was added to the baseline condition, and the results are presented in the figures noted below:

Figure 5	Existing plus Background Projects Plus Approved Quad C
Figure 6	Existing plus Background Projects Plus Alternative Quad C
Figure 7	Existing plus Background Projects Plus Alternative Quad C and D

Intersection Geometry. The existing geometry at Arena Blvd / E. Commerce Way and the anticipated improvements at the other E. Commerce Way intersections are noted in Figure 8.

Level of Service Results. Table 5 presents the results of LOS analysis for the study locations. As indicated, conditions at the Arena Blvd / East Commerce Way intersection are projected to remain within the City's LOS D operating standard. As shown in Table 5, with the background projects alone, the intersection will operate at LOS D in the a.m. peak hour and LOS C/D in the p.m. peak hour (LOS C/D threshold is 35 seconds) with no extension of East Commerce Way south to San Juan Road. The addition of approved Quad C traffic will still result in LOS D during both peak hours, but average intersection delays would be expected to increase substantially in the p.m. peak hour. Development of the approved Quad D uses in addition to approved Quad C is projected to result in unsatisfactory LOS F delays.

The alternative Quad C plan will similarly result in LOS D operations, with slightly decreased p.m. peak hour delays when compared to the approved plan. Both Alternative C and D development will also result in LOS D intersection operations, but p.m. peak hour delays will approach LOS E thresholds (i.e., average delay projected at 52 seconds, LOS E threshold = 55 seconds). This scenario similarly assumes no extension of East Commerce Way south to San Juan Road.

Because East Commerce Way will be a six-lane facility along the project frontage, the Levels of Service at intersections south of Arena Blvd will be very good under each scenario.

Vehicle Queues. Vehicle queues at the East Commerce Way / Arena Blvd intersection have also been analyzed to determine impacts of the development alternatives with no extension of East Commerce Way south to San Juan Road. Queue projections at key left turn lane approaches are summarized in Table 6. Vehicle queues associated with the alternative development plan for Quad C are projected to be accommodated within existing turn lane storage lengths. With development of both the alternative Quad C and Quad D uses, the northbound East Commerce Way and westbound Arena Blvd left turn volume demand exceeds available left turn pocket storage lengths. This also starts to occur with build out of the approved Quad C development plan (approximately 90%-95% buildout of the approved plan). This condition on East Commerce Way can likely be mitigated with restriping of the northbound approach. Approximately 100' of additional storage for each left turn lane is needed to accommodate projected northbound left turn lane queues. Lengthening of the existing westbound left turn lane pocket on Arena Blvd would require modifications to the existing center median. Lengthening of the existing 220' long dual left turn pocket by approximately 75' would be needed to accommodate projected queues associated with alternative Quads C and D development and no extension of East Commerce Way south to San Juan Road. This additional left turn storage would not be needed if East Commerce Way was extended south to San Juan Road.

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TABLE 5
INTERSECTION LEVELS OF SERVICE

Location	Control	Existing Plus Background Projects Plus							
		No Development		Approved Quad C		Alternative Quad C		Alternative Quad C and Quad D	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (Sec/veh)	LOS
AM Peak Hour									
Arena Blvd / E. Commerce Way	Signal	39.8	D	43.5	D	44.7	D	49.2	D
E. Commerce Way / Amelia Earhart	Signal	12.2	B	16.9	B	25.7	C	19.8	B
E. Commerce Way / New Access	Signal	-	-	4.8	A	8.8	A	6.8	A
E. Commerce Way / Natomas Crossing Drive	Signal	12.3	B	11.0	B	11.6	B	7.5	A
PM Peak Hour									
Arena Blvd / E. Commerce Way	Signal	35.0	C/D	49.5	D	48.3	D	52.0	D
E. Commerce Way / Amelia Earhart	Signal	16.7	B	30.8	C	30.3	C	28.8	C
E. Commerce Way / New Access	Signal	-	-	11.9	B	5.8	A	4.5	A
E. Commerce Way / Natomas Crossing Drive	Signal	13.6	B	18.7	B	19.6	B	10.3	B

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TABLE 6
PEAK PERIOD QUEUES

Location	Storage per Lane	Existing Plus Background Projects Plus					
		Approved Quad C		Alternative Quad C		Alternative Quad C and Quad D	
		Volume (vph)	95th % Queue	Volume (vph)	95th % Queue	Volume (vph)	95th % Queue
AM Peak Hour							
Arena Blvd / E. Commerce Way							
Northbound left turn lanes (dual)	300’	289	200’	460	305’	515	320’
Westbound left turn lanes (dual)	220’	195	150’	185	175’	370	245’
PM Peak Hour							
Arena Blvd / E. Commerce Way							
Northbound left turn lanes (dual)	300’	535	350’	465	300’	668	390’
Westbound left turn lanes (dual)	220’	305	225’	358	220’	405	270’

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Conclusion

The results of this analysis indicate that within a near term planning period, alternative land use plans for Quad C and Quad D could be fully developed without the need for an extension of East Commerce Way south to San Juan Road. The approved plan for Quad C can similarly be fully developed without the need for the extension. Development of both the approved plans for Quad C and D is projected to exceed City intersection operating standards and cannot be supported without the extension of East Commerce Way south to San Juan Road.

No roadway improvement needs have been identified to support buildout of the alternative Quad C plan. Buildout of both the alternative Quad C and Quad D plans or the approved Quad C plan will require some improvements at the East Commerce Way / Arena Blvd intersection to mitigate projected left turn queue lengths. However, satisfactory LOS D operations can be maintained at the East Commerce Way / Arena Blvd intersection under each of these development scenarios.

Please feel free to contact me or Project Engineer Mike Becker if you have questions.

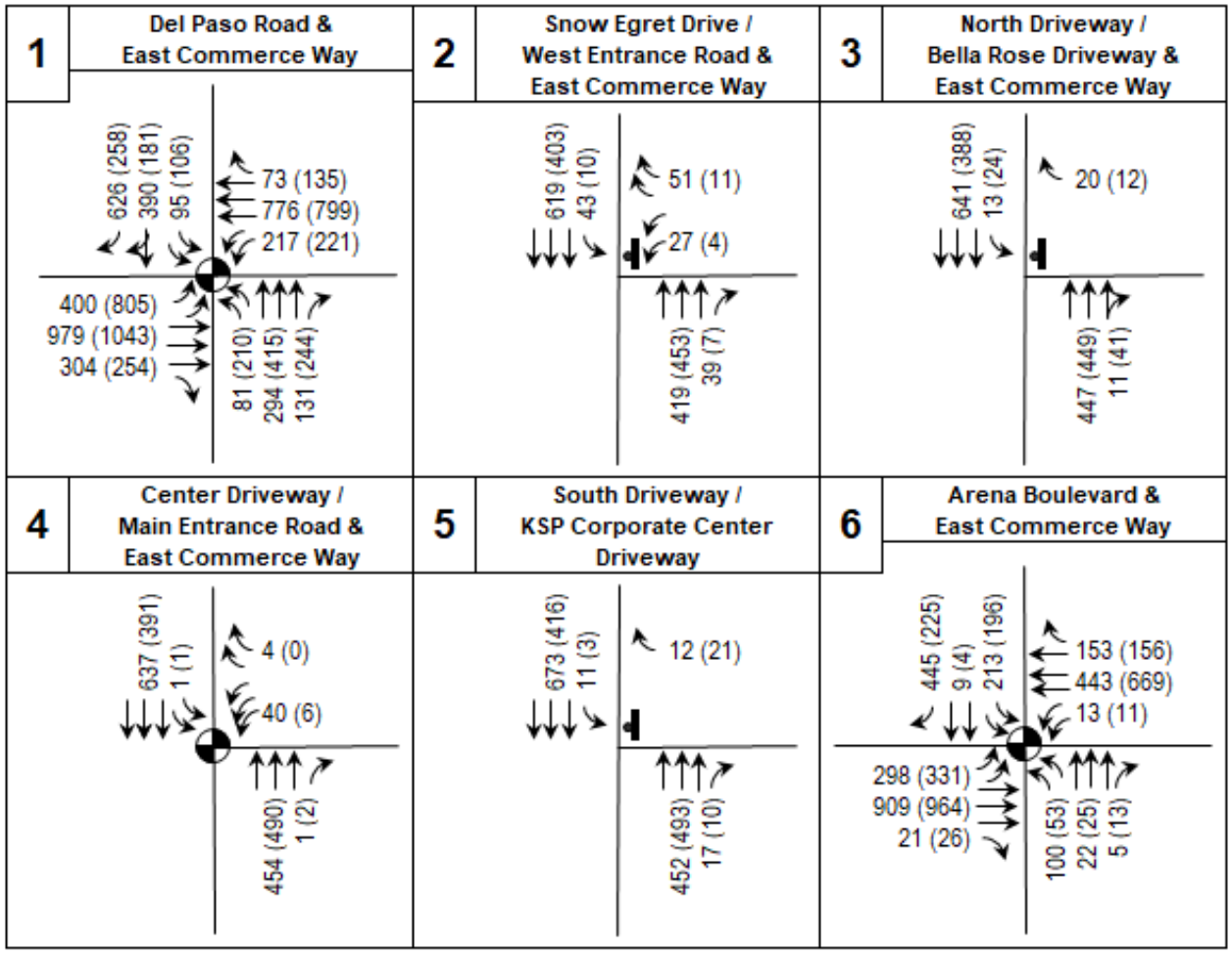
Sincerely,

KD Anderson & Associates, Inc.

Kenneth D. Anderson, P.E.
President

Attachments

KDA



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

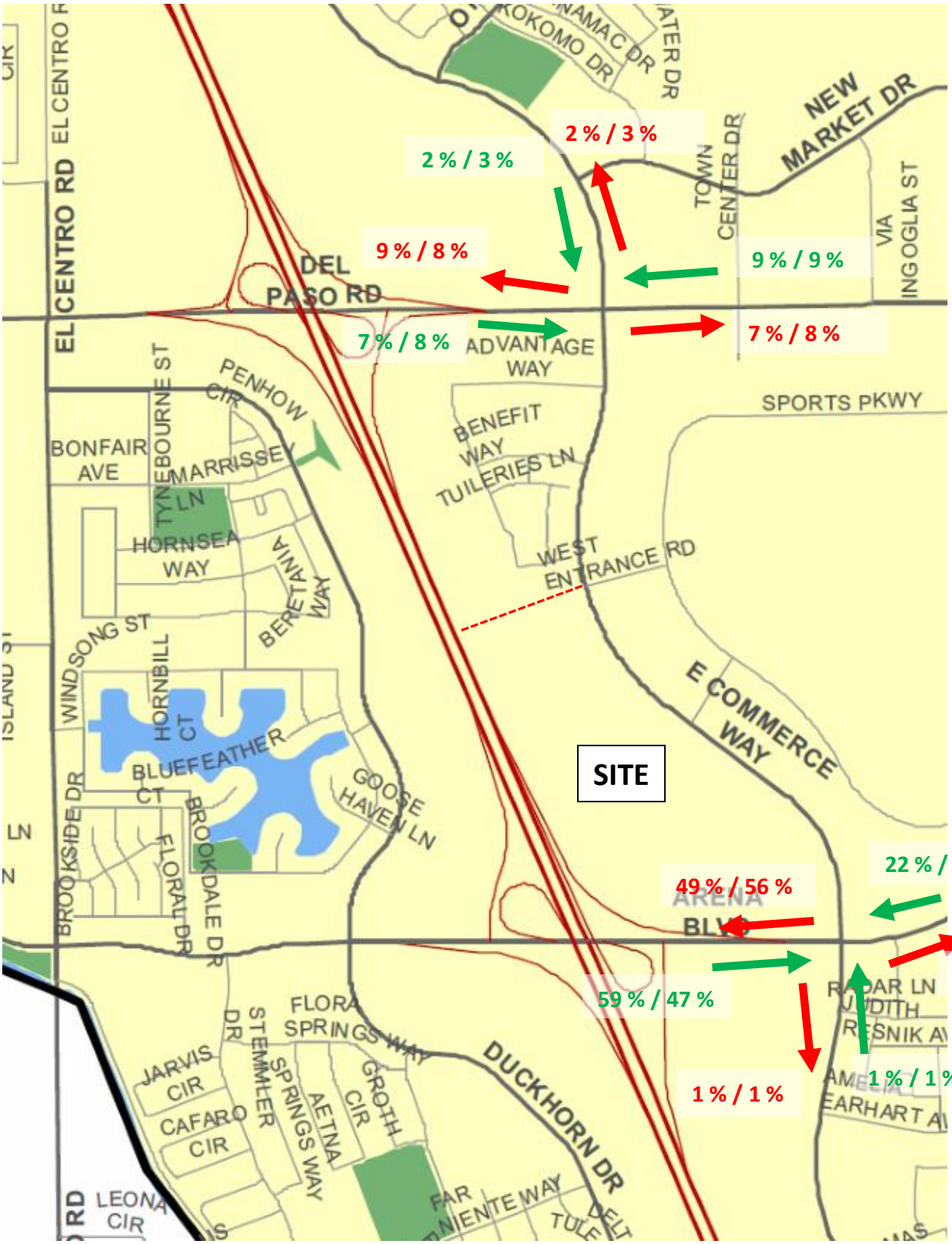
= Stop sign control

= Roundabout

E St. & N St. = East West street / North South street

DKS

Figure 3
Existing Peak Hour Traffic Volumes and Geometry



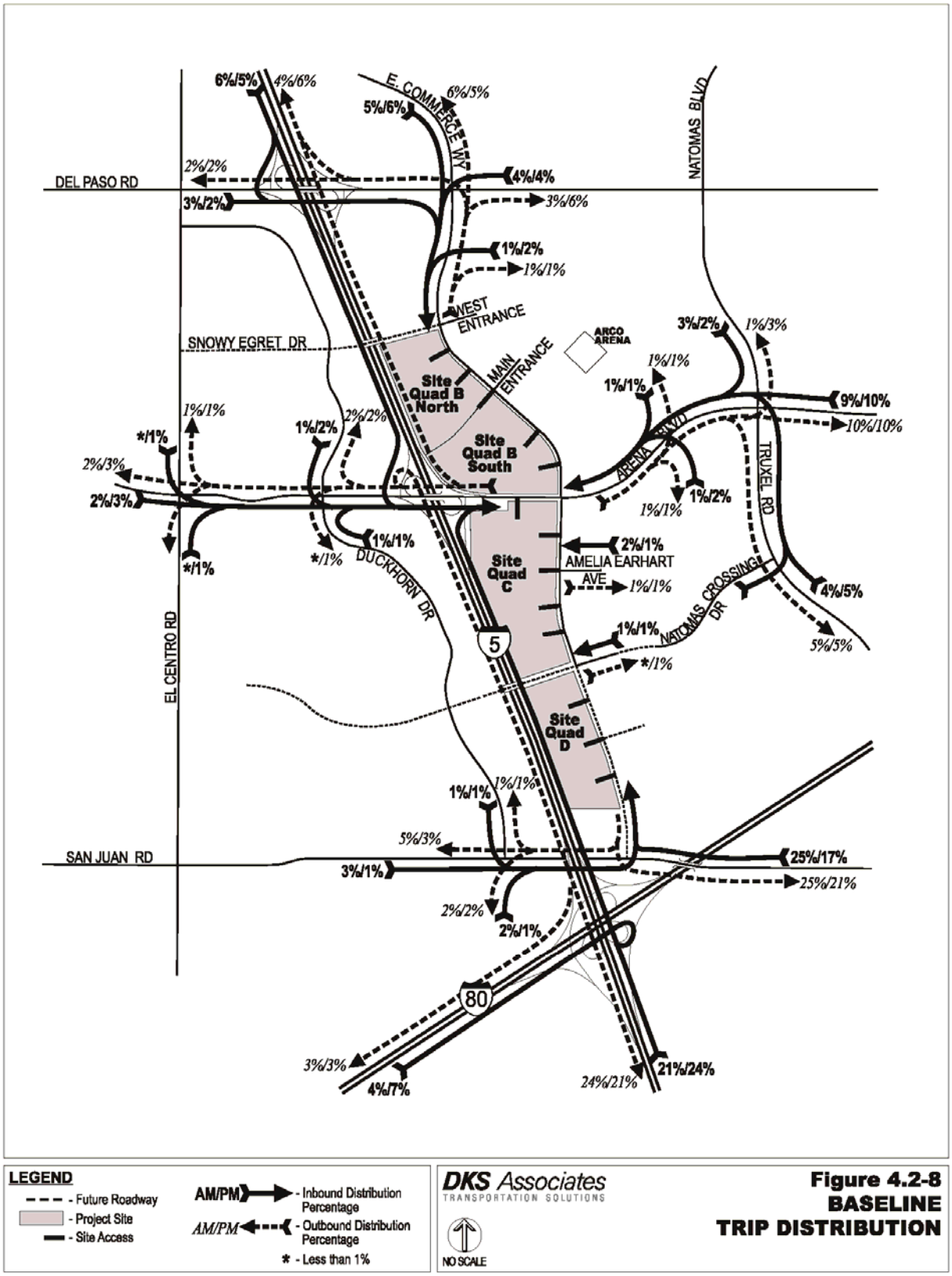
DKS

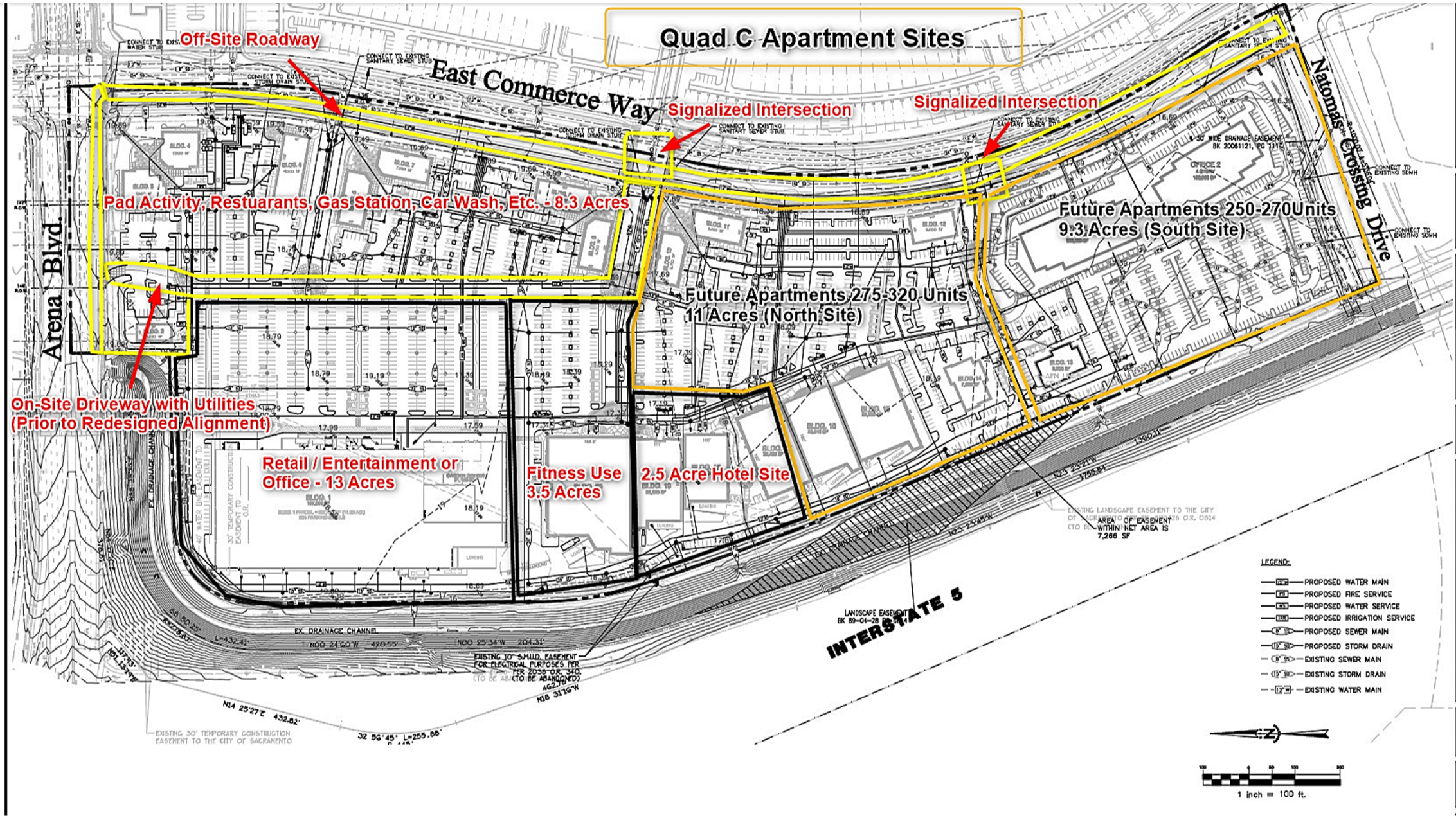
Entering Traffic - AM % / PM %

Exiting Traffic - AM % / PM %

Figure 4
Trip Distribution

Figure 4.2-8
Baseline Trip Distribution





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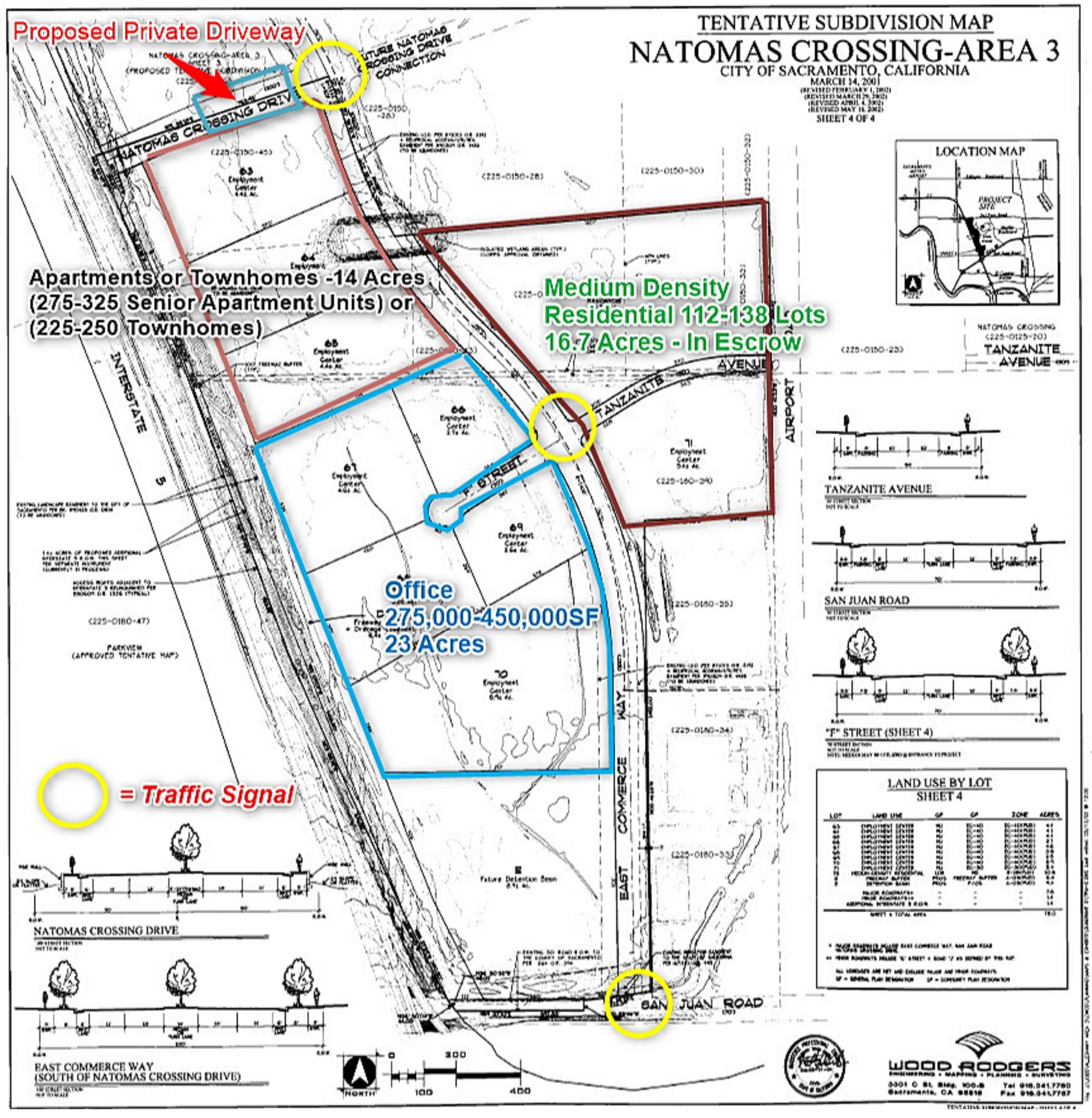
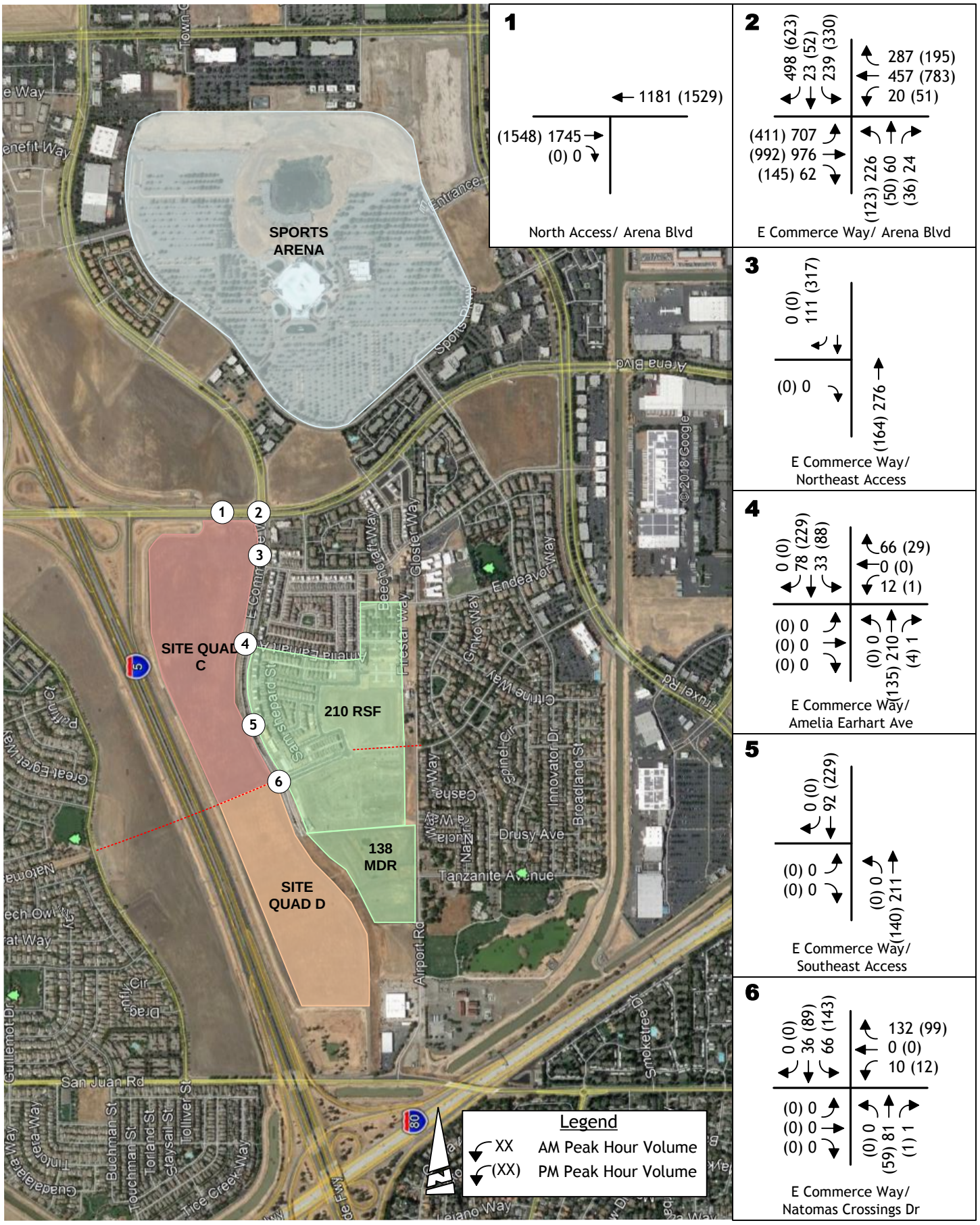
PROJECT NO. 013-001
DRAWN BY: C. VARGAS
CHECKED BY: J. VANDERPOST
DESIGNED BY: R. SHEHAN

PRELIMINARY UTILITY PLAN
NATOMAS CROSSING
'QUADRANT C'
EAST COMMERCE WAY
SACRAMENTO, CA

SHEET TITLE
UT

SHEET NO.
2 OF 2


Proposed Private Driveway
TENTATIVE SUBDIVISION MAP
NATOMAS CROSSING-AREA 3
CITY OF SACRAMENTO, CALIFORNIA
MARCH 14, 2001
SHEET 4 OF 4
LOCATION MAP
Apartments or Townhomes -14 Acres
(275-325 Senior Apartment Units) or
(225-250 Townhomes)
Medium Density
Residential 112-138 Lots
16.7 Acres - In Escrow
Office
275,000-450,000SF
23 Acres
= Traffic Signal
INTERSTATE 5
TANZANITE AVENUE
AIRPORT WAY
EAST COMMERCE WAY
SAN JUAN ROAD
F STREET
NATOMAS CROSSING DRIVE
TANZANITE AVENUE
SAN JUAN ROAD
"F" STREET (SHEET 4)
LAND USE BY LOT
SHEET 4
NATOMAS CROSSING DRIVE
EAST COMMERCE WAY
(SOUTH OF NATOMAS CROSSING DRIVE)
NORTH
WOOD RODGERS



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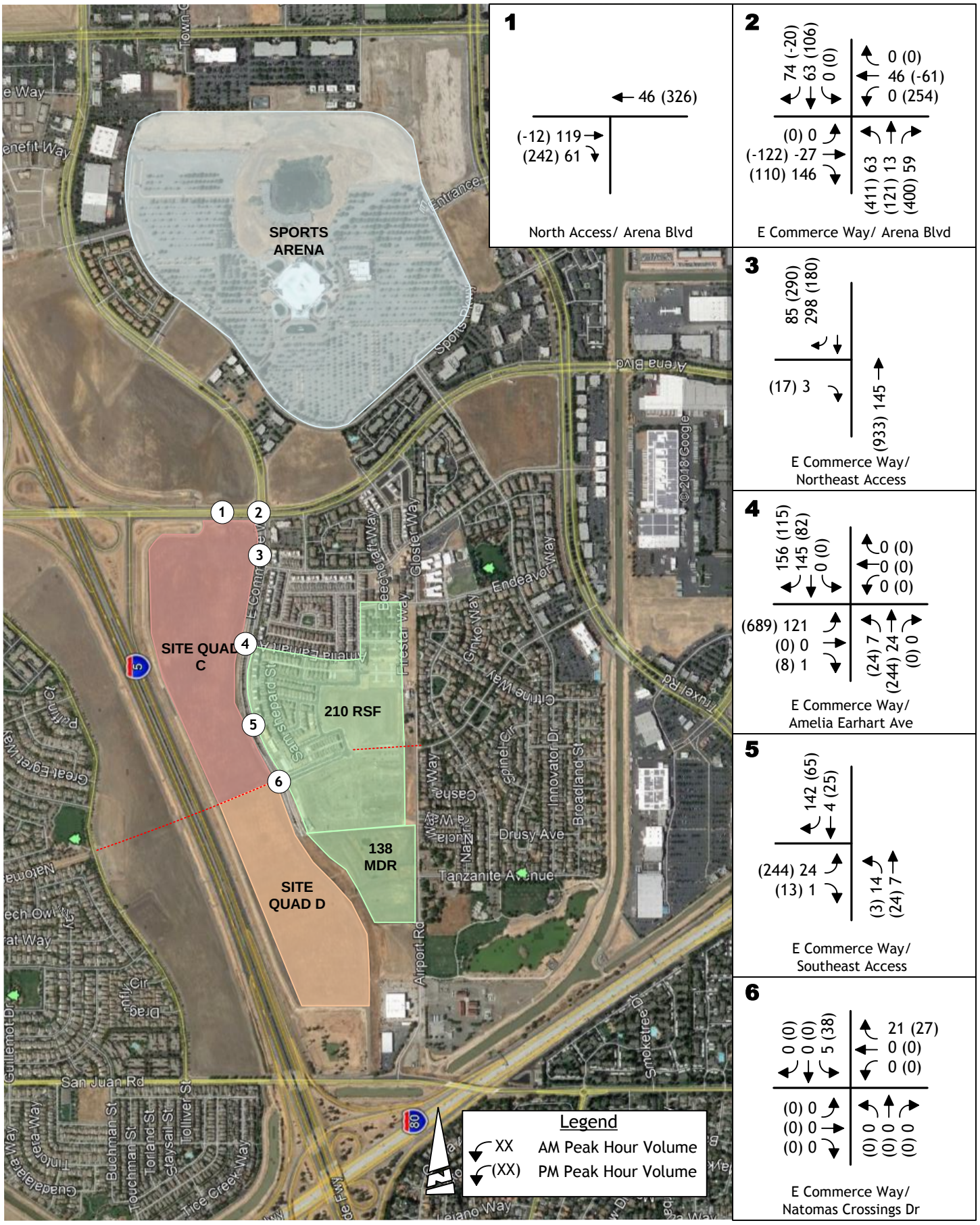
Transportation Engineers

EXISTING PLUS BACKGROUND VOLUMES

0452-03 RA 6/3/2019

figure 1



PROJECT ONLY VOLUMES
QUAD C APPROVED

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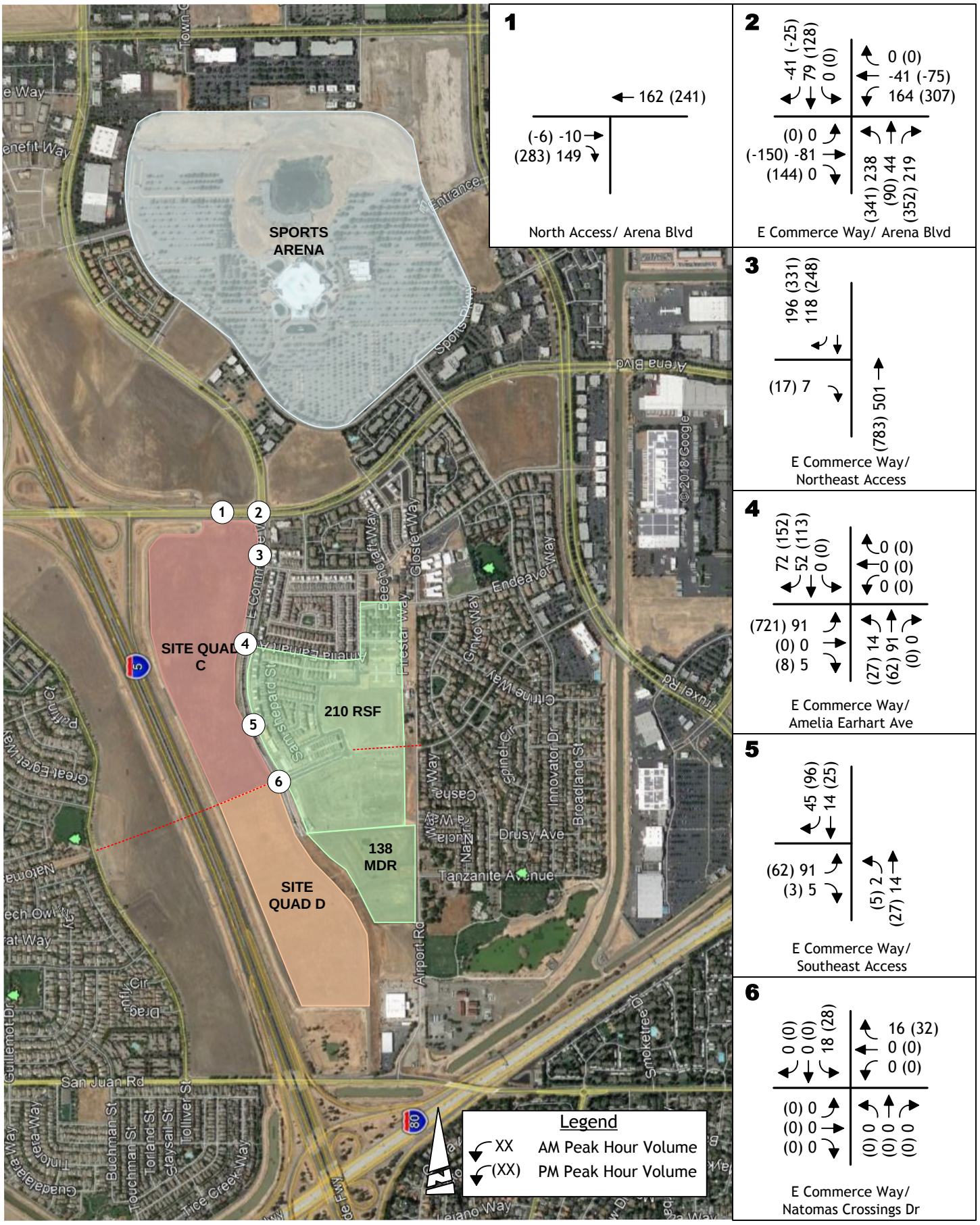
0452-03 RA 6/3/2019

figure 2



PROJECT ONLY VOLUMES
ALTERNATIVE QUAD C

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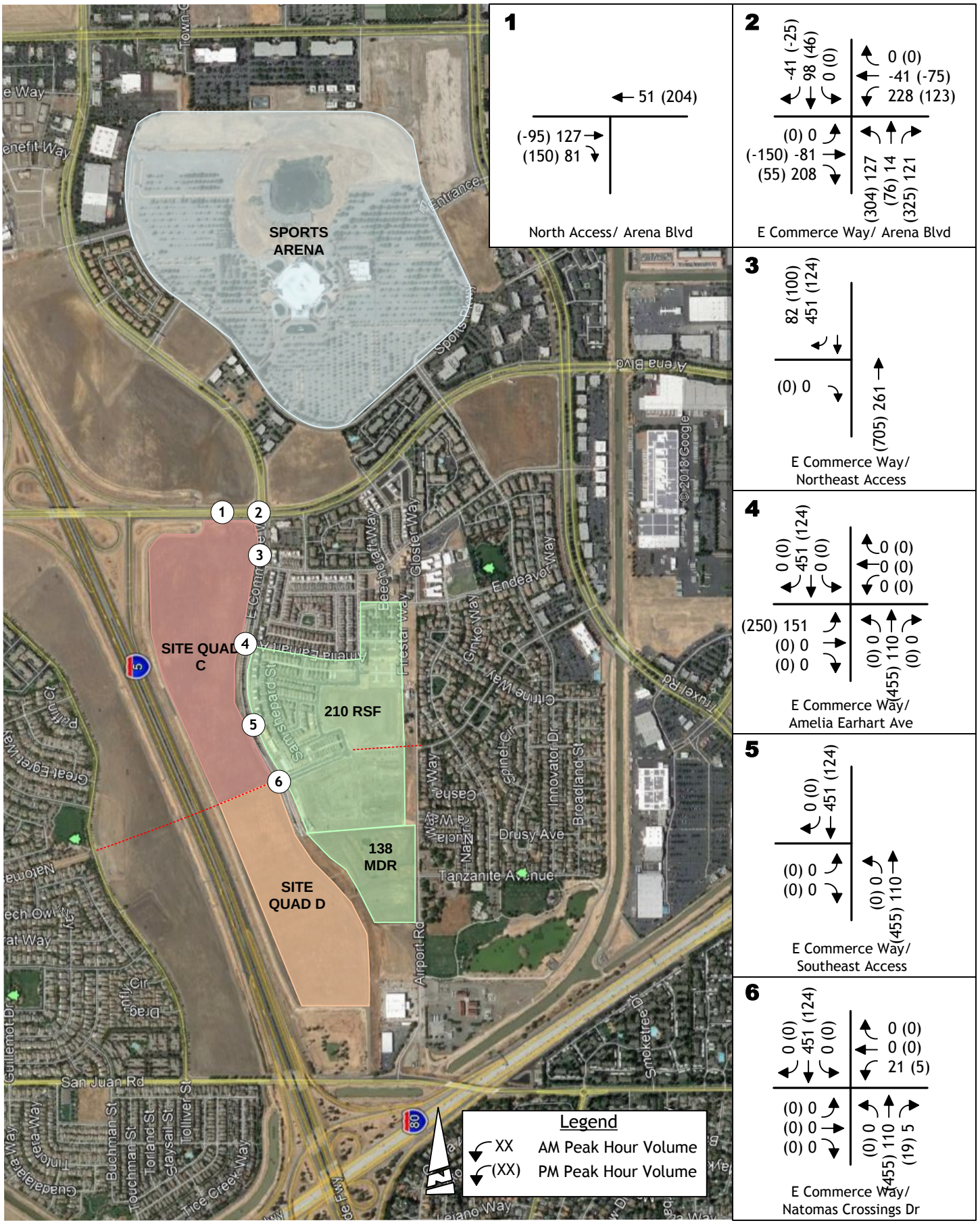
figure 3



PROJECT ONLY VOLUMES
ALTERNATIVE QUAD D

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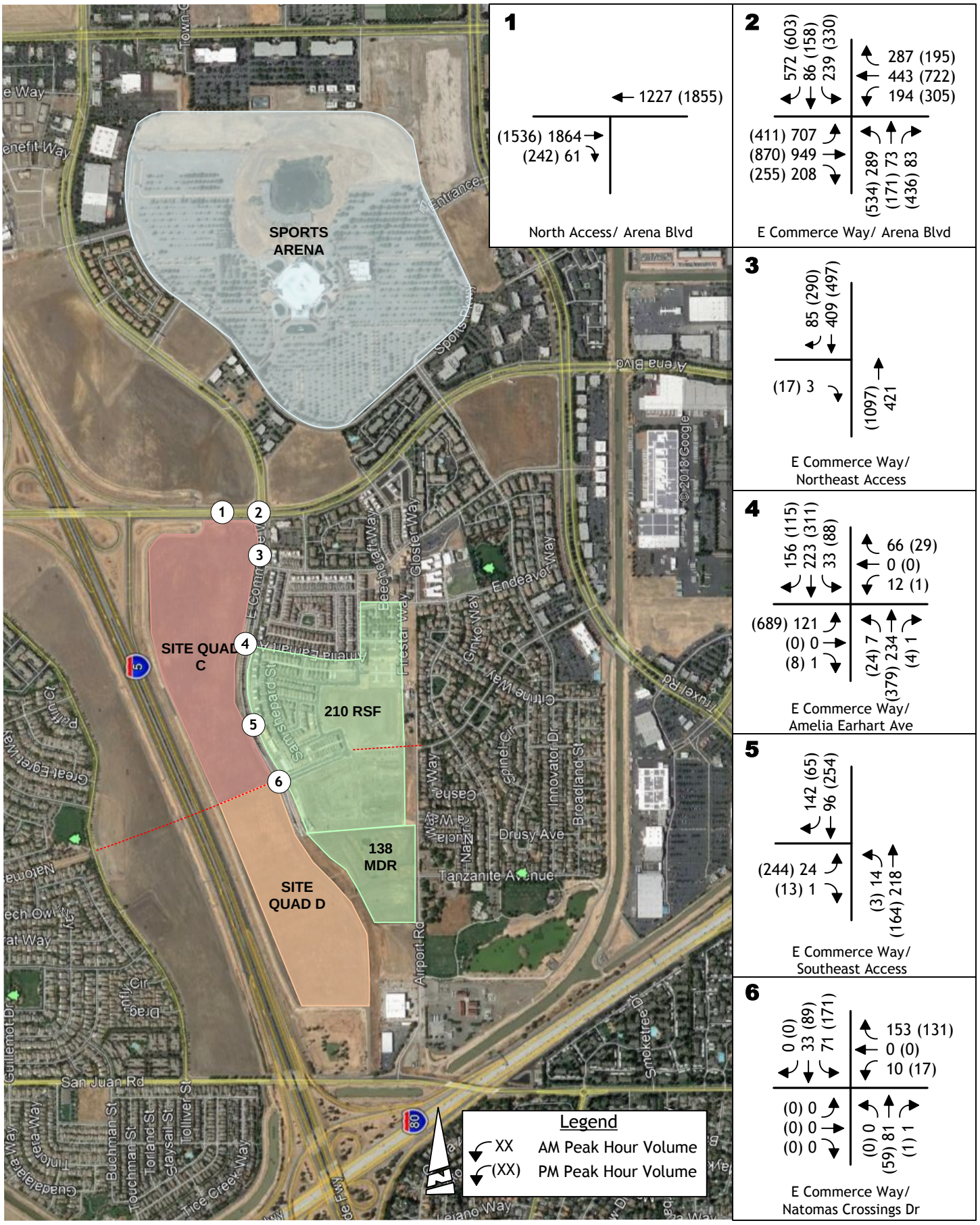
figure 4



EXISTING PLUS BACKGROUND PROJECT VOLUMES
QUAD C APPROVED

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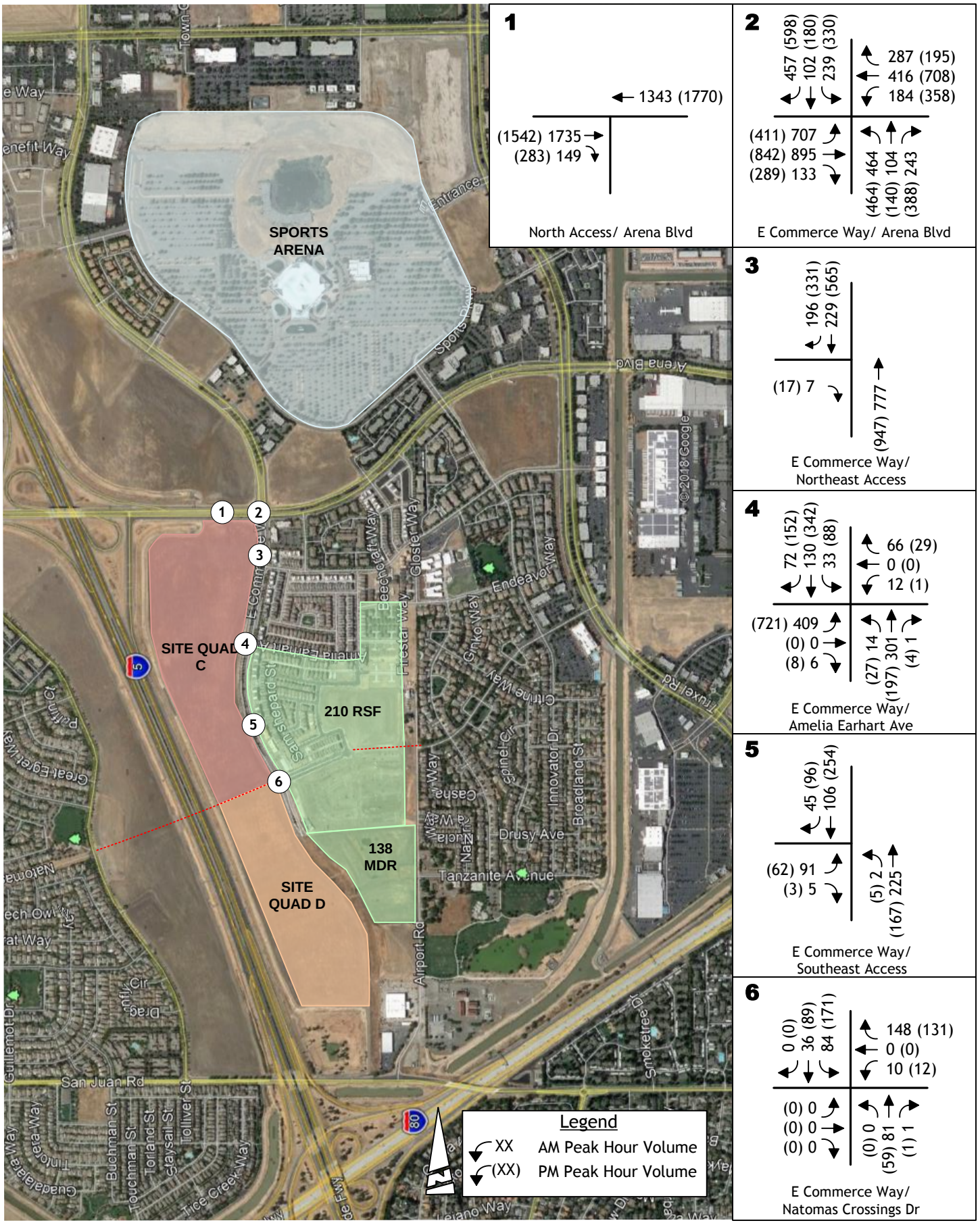
0452-03 RA 6/3/2019

figure 5



EXISTING PLUS BACKGROUND PROJECT VOLUMES
ALTERNATIVE QUAD C

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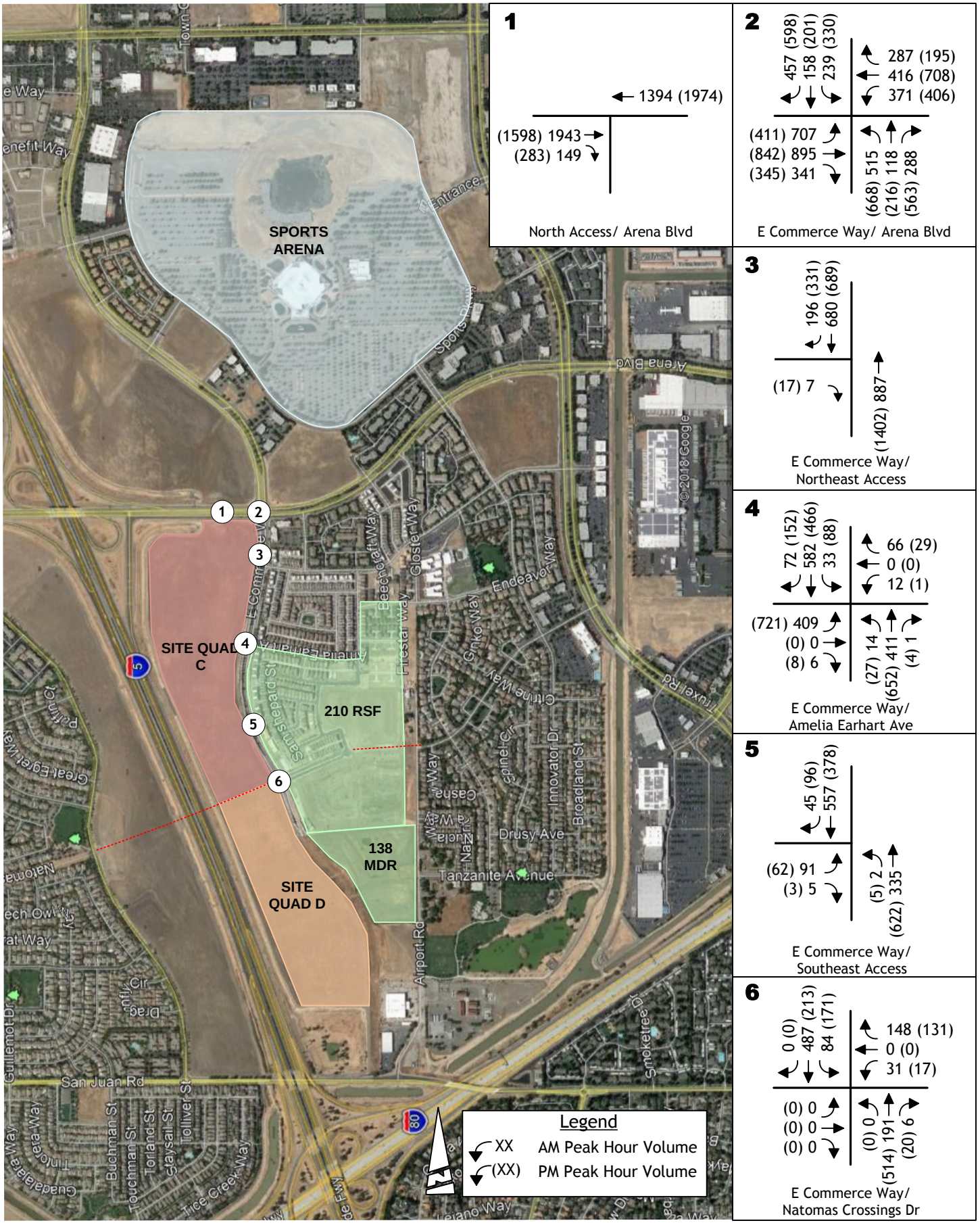
0452-03 RA 6/3/2019

figure 6

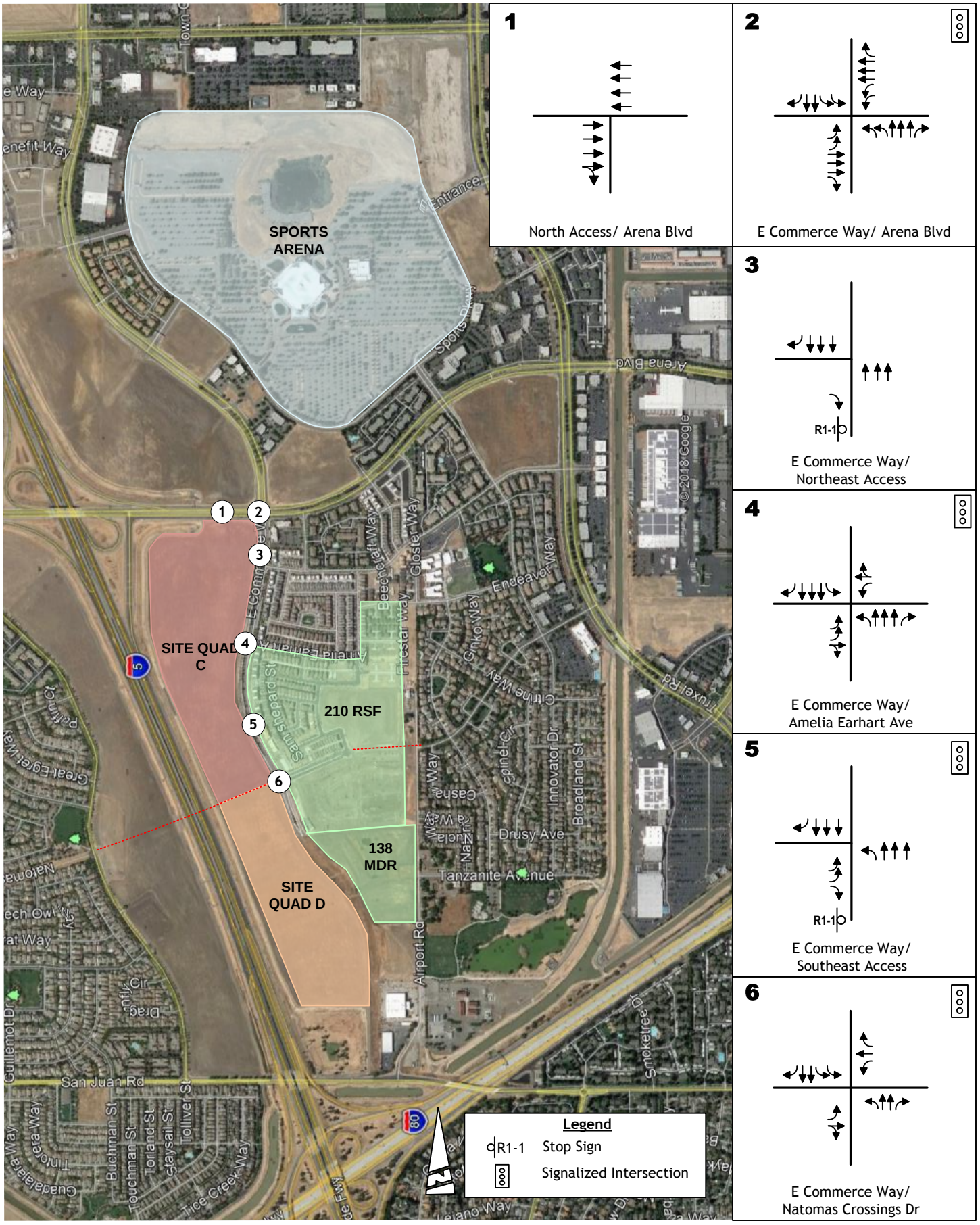


EXISTING PLUS BACKGROUND PROJECT VOLUMES
ALTERNATIVE QUAD C AND D

KD Anderson & Associates, Inc.
Transportation Engineers

0452-03 RA 6/3/2019

figure 7



KD Anderson & Associates, Inc.
Transportation Engineers

PROJECT INTERSECTION GEOMETRIES

0452-03 RA 6/3/2019

figure 8

APPENDIX

KDA

Table 1
Delay and Level of Service Results

Intersection	Synchro Results								SimTraffic Results					
	Existing				Existing Plus Project				Existing Plus Project					
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		A.M. Peak Hour With Improved Double Left		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1 Del Paso Road and East Commerce Way	48.5	D	44.4	D	55.0	D	46.3	D	47.8	D	50.1	D	61.2	E
2 Snowy Egret Drive and East Commerce Way	1.3	A	0.3	A	1.0	A	0.2	A	2.5	A	2.6	A	1.9	A
- Northbound U-turn	*11.1*	*B*	*9.8*	*A*	*0.0*	*A*	*0.0*	*A*	*0.0*	*A*	*0.0*	*A*	*0.0*	*A*
- Southbound Left	*10.2*	*B*	*10.1*	*B*	*10.4*	*B*	*11.6*	*B*	*7.1*	*A*	*7.4*	*A*	*7.1*	*A*
- Westbound Left	*15.2*	*C*	*12.9*	*B*	*16.7*	*C*	*15.4*	*C*	*25.8*	*D*	*31.8*	*D*	*16.9*	*C*
- Westbound Right	*10.8*	*B*	*10.5*	*B*	*10.9*	*B*	*11.5*	*B*	*3.9*	*A*	*4.2*	*A*	*5.8*	*A*
3 North Access and East Commerce Way	0.3	A	0.4	A	41.4	D	21.5	C	18.9	B	17.1	B	13.9	B
- Southbound Left	*10.2*	*B*	*10.3*	*B*										
- Westbound Right	*10.6*	*B*	*10.7*	*B*										
4 Center Access and East Commerce Way	5.7	A	4.3	A	41.2	D	38.8	D	17.1	B	15.6	B	14.4	B
5 South Access and East Commerce Way	0.2	A	0.3	A	40.1	D	49.4	D	40.4	D	35.2	D	39.1	D
- Southbound Left	10.1	B	10.3	B										
- Westbound Right	10.5	B	10.8	B										
6 Arena Boulevard and East Commerce Way	26.0	C	23.0	C	42.6	D	38.5	D	107.2	F	43.1	D	37.9	D

Source: DKS Associates, April 20, 2018

3: Natomas Crossing & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	74.6	84.4	20.2	71.4	84.7	11.2	70.9	15.4	7.5	74.7	4.3	0.5

3: Natomas Crossing & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	27.5

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	66.9	9.3	63.0	2.6	5.8	5.1	12.1

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	83.4	74.0	2.4	97.4	96.2	13.2	70.7	1.2	1.4	50.2	9.7	15.0

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	61.8	21.7	11.6	54.0	46.2	35.9	59.0	48.6	4.1	92.2	75.9	29.6

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	45.0

Total Network Performance

Delay / Veh (s)	47.2

3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	38.7	5.5	2.8	4.2	38.1	0.5	12.2

6: access drwy & E Commerce Performance by movement

Movement	NBT	SBT	All
Delay / Veh (s)	0.8	0.3	0.6

8: Amelia Earhart & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	101.6	2.7	1.6	2.0	80.3	1.5	12.2

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	53.5	23.5	6.5	93.5	46.4	15.8	71.2	44.0	7.3	96.9	74.9	35.7

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	41.9

Total Network Performance 39.8

Delay / Veh (s)	48.3

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	L	L	T
Maximum Queue (ft)	54	72	48	29	47	66	18
Average Queue (ft)	15	35	8	2	14	28	1
95th Queue (ft)	46	60	31	14	41	58	6
Link Distance (ft)			958	958			749
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200	200			200	200	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: access drwy & E Commerce

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 8: Amelia Earhart & E Commerce

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	T	T	R	L	T	T
Maximum Queue (ft)	65	43	51	31	28	113	27	21
Average Queue (ft)	12	20	11	4	1	40	1	1
95th Queue (ft)	38	38	34	21	10	91	9	7
Link Distance (ft)		1790	665	665			1150	1150
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200				150	200		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	394	392	205	215	202	48	70	23	173	158	140	176
Average Queue (ft)	228	249	148	149	132	14	28	1	118	100	67	90
95th Queue (ft)	343	361	211	211	208	39	63	8	164	152	130	164
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)											0.00	0.01
Queuing Penalty (veh)											0	2

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	194	170	47	44	42	20	214	215	66	42	186
Average Queue (ft)	100	96	12	11	11	7	100	113	15	7	84
95th Queue (ft)	155	139	37	31	32	20	179	189	39	24	156
Link Distance (ft)			1150	1150	1150				1136	1136	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)							0.00	0.00			
Queuing Penalty (veh)							0	0			

Nework Summary

Network wide Queuing Penalty: 2

3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	37.4	5.2	2.7	5.5	31.5	0.9	13.6

6: access drwy & E Commerce Performance by movement

Movement	NBT	SBT	All
Delay / Veh (s)	0.5	0.6	0.5

8: Amelia Earhart & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)		2.6	1.8	1.4	87.1	1.1	16.7

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	63.8	21.8	8.1	85.8	38.6	10.1	66.4	59.6	7.4	66.4	64.2	18.9

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	35.5

Total Network Performance 35.0

Delay / Veh (s)	44.1

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	R	L	L	T	T
Maximum Queue (ft)	54	54	28	30	29	71	109	65	19
Average Queue (ft)	13	33	6	3	1	31	49	5	1
95th Queue (ft)	39	46	25	16	10	57	81	27	7
Link Distance (ft)			958	958				749	749
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200	200			150	200	200		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 6: access drwy & E Commerce

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 8: Amelia Earhart & E Commerce

Movement	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	T	T	R	L
Maximum Queue (ft)	24	21	54	54	32	198
Average Queue (ft)	0	10	9	4	0	78
95th Queue (ft)	0	25	36	21	0	146
Link Distance (ft)		1790	665	665		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200				150	200
Storage Blk Time (%)						0.02
Queuing Penalty (veh)						2

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	255	269	290	307	254	53	82	255	322	308	259	189
Average Queue (ft)	164	177	156	147	126	29	37	40	184	166	137	59
95th Queue (ft)	265	267	251	242	224	54	74	145	260	252	222	143
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)									0.02		0.05	0.00
Queuing Penalty (veh)									1		10	0

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	92	91	44	23	44	42	225	235	258	44	270
Average Queue (ft)	41	58	15	8	16	11	128	143	43	9	143
95th Queue (ft)	81	99	36	25	41	25	214	215	125	31	221
Link Distance (ft)			1150	1150	1150				2530	2530	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)							0.01	0.03			
Queuing Penalty (veh)							0	1			

Nework Summary

Network wide Queuing Penalty: 14

3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	33.1	6.1	2.5	4.2	35.0	0.8	11.6

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	35.3	2.0	26.2	2.2	3.2	2.7	8.8

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Delay / Veh (s)	53.7	118.0	18.2	93.4	70.0	8.5	75.8	11.1	37.0	7.4	4.0	25.7

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	54.6	37.2	9.9	71.8	51.3	17.3	56.3	47.8	24.2	79.0	51.2	20.7

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	43.4

Total Network Performance

49.7

Delay / Veh (s)	56.8

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	392	395	286	273	327	74	152	252	259	227	295	194
Average Queue (ft)	242	256	194	192	175	32	78	97	116	102	87	87
95th Queue (ft)	346	351	261	260	258	53	137	166	183	174	185	167
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)					0.00				0.00		0.00	0.02
Queuing Penalty (veh)					0				1		1	3

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	315	324	414	61	64	225	179	192	127	114	253
Average Queue (ft)	217	223	44	30	27	110	96	109	39	43	96
95th Queue (ft)	315	312	214	53	60	196	144	155	90	90	188
Link Distance (ft)			1150	1150	1150				1136	1136	
Upstream Blk Time (%)	V = 464										
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)	0.02	0.02				0.02		0.00			
Queuing Penalty (veh)	1	1				1		0			

Nework Summary

Network wide Queuing Penalty: 6

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	T	L	L
Maximum Queue (ft)	32	95	47	27	48	66
Average Queue (ft)	8	45	8	2	22	34
95th Queue (ft)	31	74	31	13	45	61
Link Distance (ft)			958	958		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200	200			200	200
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: access drwy & E Commerce

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	T	R
Maximum Queue (ft)	90	43	20	32	51	31	51	73	28	45
Average Queue (ft)	43	14	3	4	12	2	10	9	3	6
95th Queue (ft)	73	36	13	19	41	14	37	37	15	26
Link Distance (ft)	1324	1324	1324		749	749	749	665	665	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				200						150
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 8: Amelia Earhart & E Commerce

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	T	L	T	T
Maximum Queue (ft)	448	235	43	65	65	37	156	73	74	89	88	67
Average Queue (ft)	205	119	9	12	24	7	65	18	27	31	32	6
95th Queue (ft)	326	200	31	41	51	27	138	52	69	66	74	29
Link Distance (ft)	1321	1321	1321		1790		665	665	665		1150	1150
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				200		200				200		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 8: Amelia Earhart & E Commerce

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	71	53
Average Queue (ft)	23	23
95th Queue (ft)	59	46
Link Distance (ft)	1150	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Existing Plus Background
Quad C
Natomas Crossings

Trip Generation Report

Forecast for am peak

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Quad C (Site	0.00	Retail	61.32	37.22	0	0	0	0.0
1	Quad C (Site	1.00	Fast Food 2.2	21.03	19.23	21	19	40	5.9
1	Quad C (Site	1.00	Fast Food 4.5	42.75	40.05	43	40	83	12.2
1	Quad C (Site	1.00	Gas Station w	36.36	32.76	36	33	69	10.1
1	Quad C (Site	1.00	Auto Parts	9.00	7.20	9	7	16	2.3
1	Quad C (Site	1.00	HTO Rest	30.15	22.05	30	22	52	7.6
	Zone 1 Subtotal					139	121	260	38.1
2	Quad C (Site	0.00	Retail	55.19	33.49	0	0	0	0.0
2	Quad C (Site	1.00	Hotel	42.00	29.00	42	29	71	10.4
2	Quad C (Site	320.00	APTs	0.09	0.27	29	86	115	16.8
	Zone 2 Subtotal					71	115	186	27.2
3	Quad C (Site	270.00	APTs	0.09	0.27	24	73	97	14.2
	Zone 3 Subtotal					24	73	97	14.2
4	Quad C (Site	1.00	Fitness Center	26.00	26.00	26	26	52	7.6
4	Quad C (Site	1.00	Retail	54.87	32.91	55	33	88	12.9
4	Quad C (Site	0.00	Hotel	42.00	29.00	0	0	0	0.0
4	Quad C (Site	0.00	APTs	0.09	0.27	0	0	0	0.0
	Zone 4 Subtotal					81	59	140	20.5
TOTAL						315	368	683	100.0

Existing Plus Background
Quad C
Natomas Crossings

Turning Movement Report
am peak

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 North Access/ Arena Blvd													
Base	0	0	0	0	0	0	0	1745	0	0	1181	0	2926
Added	0	0	0	0	0	0	0	71	68	0	162	0	301
PassBy	0	0	0	0	0	0	0	-81	81	0	0	0	0
Total	0	0	0	0	0	0	0	1735	149	0	1343	0	3227
#2 E Commerce Way/ Arena Blvd													
Base	226	60	24	239	23	498	707	976	62	20	457	287	3579
Added	162	44	144	0	38	0	0	0	71	123	0	0	582
PassBy	76	0	75	0	41	-41	0	-81	0	41	-41	0	70
Total	464	104	243	239	102	457	707	895	133	184	416	287	4231
#3 E Commerce Way/ Northeast Access													
Base	0	210	1	33	78	0	0	0	0	12	0	66	400
Added	0	350	0	0	118	114	0	0	7	0	0	0	589
PassBy	0	151	0	0	0	82	0	0	0	0	0	0	233
Total	0	711	1	33	196	196	0	0	7	12	0	66	1222
#4 E Commerce Way/ Amelia Earhart Ave													
Base	0	210	1	33	78	0	0	0	0	12	0	66	400
Added	14	91	0	0	52	72	258	0	6	0	0	0	493
PassBy	0	0	0	0	0	0	151	0	0	0	0	0	151
Total	14	301	1	33	130	72	409	0	6	12	0	66	1044
#5 E Commerce Way/ Southeast Access													
Base	0	211	0	0	92	0	0	0	0	0	0	0	303
Added	2	14	0	0	14	45	91	0	5	0	0	0	171
Total	2	225	0	0	106	45	91	0	5	0	0	0	474
#6 E Commerce Way/ Natomas Crossings													
Base	0	81	1	66	36	0	0	0	0	10	0	132	326
Added	0	0	0	18	0	0	0	0	0	0	0	16	34
Total	0	81	1	84	36	0	0	0	0	10	0	148	360

3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	46.0	6.6	3.4	7.1	40.3	1.4	19.6

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	30.5	1.5	26.1	1.8	2.4	2.0	5.8

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	52.6	56.6	2.0	92.4	15.9	81.3	23.5	1.0	63.5	6.7	4.2	30.3

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	62.4	39.8	14.3	73.6	47.2	11.4	78.0	74.5	35.4	72.5	61.9	26.6

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	48.0

Total Network Performance 48.3

Delay / Veh (s)	66.3

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	227	227	287	286	269	224	238	241	367	296	260	176
Average Queue (ft)	155	163	200	183	157	73	146	148	173	167	140	81
95th Queue (ft)	215	222	269	268	237	152	218	214	279	258	237	186
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)							0.00	0.01	0.02		0.06	0.00
Queuing Penalty (veh)							1	2	6		12	0

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	311	320	87	86	376	226	235	236	110	146	295
Average Queue (ft)	205	216	40	42	109	163	147	156	63	65	173
95th Queue (ft)	296	302	79	73	316	270	232	230	116	118	278
Link Distance (ft)			1150	1150	1150				2530	2530	
Upstream Blk Time (%)	V=464										
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)	0.02	0.03				0.14	0.01	0.02			
Queuing Penalty (veh)	1	1				6	1	1			

Nework Summary

Network wide Queuing Penalty: 31

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	L	T
Maximum Queue (ft)	73	76	28	30	30	135	154	22
Average Queue (ft)	20	40	7	4	1	58	79	3
95th Queue (ft)	52	64	25	21	10	113	133	15
Link Distance (ft)			958	958				749
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200	200			150	200	200	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: access drwy & E Commerce

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	T	R
Maximum Queue (ft)	84	54	19	30	55	32	32	74	51	53
Average Queue (ft)	34	16	3	3	12	5	6	11	4	2
95th Queue (ft)	72	40	13	15	45	22	25	43	24	14
Link Distance (ft)	1324	1324	1324		749	749	749	665	665	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				200						150
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 8: Amelia Earhart & E Commerce

Movement	EB	EB	EB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	TR	L	T	T	T	R	L	T	T
Maximum Queue (ft)	620	607	22	86	75	115	70	119	32	133	154	102
Average Queue (ft)	319	267	7	24	31	43	23	37	1	66	53	28
95th Queue (ft)	479	437	21	55	72	95	61	85	11	121	118	76
Link Distance (ft)	1321	1321	1321	1790		665	665	665			1150	1150
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					200				150	200		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 8: Amelia Earhart & E Commerce

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	72	58
Average Queue (ft)	35	27
95th Queue (ft)	76	56
Link Distance (ft)	1150	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Existing Plus Background
Quad C
Natomas Crossings

Trip Generation Report

Forecast for pm peak

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Quad C (Site	0.00	Retail	189.90	210.90	0	0	0	0.0
1	Quad C (Site	1.00	Fast Food 2.2	17.37	15.57	17	16	33	2.7
1	Quad C (Site	1.00	Fast Food 4.5	35.88	31.38	36	31	67	5.6
1	Quad C (Site	1.00	Gas Station w	40.51	36.91	41	37	78	6.5
1	Quad C (Site	1.00	Auto Parts	14.40	15.30	14	15	29	2.4
1	Quad C (Site	1.00	HTO Rest	36.64	15.04	37	15	52	4.3
	Zone 1 Subtotal					145	114	259	21.5
2	Quad C (Site	0.00	Retail	170.90	189.80	0	0	0	0.0
2	Quad C (Site	1.00	Hotel	44.00	42.00	44	42	86	7.1
2	Quad C (Site	320.00	APTs	0.27	0.17	86	54	140	11.6
	Zone 2 Subtotal					130	96	226	18.7
3	Quad C (Site	270.00	APTs	0.27	0.17	73	46	119	9.9
	Zone 3 Subtotal					73	46	119	9.9
4	Quad C (Site	1.00	Fitness Center	79.00	59.00	79	59	138	11.4
4	Quad C (Site	1.00	Retail	218.30	246.30	218	246	464	38.5
4	Quad C (Site	0.00	Hotel	44.00	42.00	0	0	0	0.0
4	Quad C (Site	0.00	APTs	0.27	0.17	0	0	0	0.0
	Zone 4 Subtotal					297	305	602	49.9
TOTAL						645	561	1206	100.0

Existing Plus Background
Quad C
Natomas Crossings

Turning Movement Report
pm peak

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 North Access/ Arena Blvd													
Base	0	0	0	0	0	0	0	1548	0	0	1529	0	3077
Added	0	0	0	0	0	0	0	144	133	0	241	0	518
PassBy	0	0	0	0	0	0	0	-150	150	0	0	0	0
Total	0	0	0	0	0	0	0	1542	283	0	1770	0	3595
#2 E Commerce Way/ Arena Blvd													
Base	123	50	36	330	52	623	411	992	145	51	783	195	3791
Added	241	90	202	0	103	0	0	0	144	232	0	0	1012
PassBy	100	0	150	0	25	-25	0	-150	0	75	-75	0	100
Total	464	140	388	330	180	598	411	842	289	358	708	195	4903
#3 E Commerce Way/ Northeast Access													
Base	0	164	0	0	317	0	0	0	0	0	0	0	481
Added	0	533	0	0	248	231	0	0	17	0	0	0	1029
PassBy	0	250	0	0	0	100	0	0	0	0	0	0	350
Total	0	947	0	0	565	331	0	0	17	0	0	0	1860
#4 E Commerce Way/ Amelia Earhart Ave													
Base	0	135	4	88	229	0	0	0	0	1	0	29	486
Added	27	62	0	0	113	152	471	0	8	0	0	0	833
PassBy	0	0	0	0	0	0	250	0	0	0	0	0	250
Total	27	197	4	88	342	152	721	0	8	1	0	29	1569
#5 E Commerce Way/ Southeast Access													
Base	0	140	0	0	229	0	0	0	0	0	0	0	369
Added	5	27	0	0	25	96	62	0	3	0	0	0	218
Total	5	167	0	0	254	96	62	0	3	0	0	0	587
#6 E Commerce Way/ Natomas Crossings													
Base	0	59	1	143	89	0	0	0	0	12	0	99	403
Added	0	0	0	28	0	0	0	0	0	0	0	32	60
Total	0	59	1	171	89	0	0	0	0	12	0	131	463

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3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	41.4	7.5	2.6	5.8	28.8	4.9	7.5

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	29.8	2.4	11.5	2.7	5.7	1.9	6.8

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	66.3	77.6	2.2	79.1	5.2	75.1	7.8	3.5	81.4	9.2	3.4	19.8

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	65.6	52.0	27.4	70.0	55.0	17.5	57.2	41.4	24.8	84.7	70.4	25.6

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	49.7

Total Network Performance 49.2

Delay / Veh (s)	64.0

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	376	388	376	341	276	262	245	255	346	176	160	174
Average Queue (ft)	251	261	209	203	172	78	174	167	130	113	81	82
95th Queue (ft)	347	355	323	299	254	166	238	250	236	169	139	157
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)							V= 371					
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)							0.02	0.03			0.00	0.02
Queuing Penalty (veh)							3	4			1	3

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	309	323	65	85	322	226	152	153	132	128	275
Average Queue (ft)	222	230	29	32	52	133	90	99	50	55	129
95th Queue (ft)	299	309	63	64	222	219	135	152	99	106	231
Link Distance (ft)	V=515		1150	1150	1150				1136	1136	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)	0.00	0.01				0.04					
Queuing Penalty (veh)	0	0				2					

Nework Summary

Network wide Queuing Penalty: 12

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	R	L	L	T	T
Maximum Queue (ft)	73	76	67	49	26	50	64	139	110
Average Queue (ft)	28	45	17	8	3	13	29	15	21
95th Queue (ft)	62	67	48	30	16	40	57	61	65
Link Distance (ft)			958	958				749	749
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200	200			150	200	200		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 6: access drwy & E Commerce

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	T	T	R
Maximum Queue (ft)	106	66	21	26	73	44	53	195	115	32	45
Average Queue (ft)	44	21	5	2	19	8	17	36	38	1	6
95th Queue (ft)	92	55	18	13	55	30	46	109	91	11	25
Link Distance (ft)	1324	1324	1324		749	749	749	665	665	665	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)				200							150
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 8: Amelia Earhart & E Commerce

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	L	TR	L	T	T	T	L	T	T
Maximum Queue (ft)	234	152	22	46	44	53	161	103	114	112	226	237
Average Queue (ft)	152	86	7	14	22	16	62	20	46	28	91	97
95th Queue (ft)	217	148	21	38	41	40	153	68	99	69	188	190
Link Distance (ft)	1321	1321	1321		1790		665	665	665		1150	1150
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				200		200				200		
Storage Blk Time (%)											0.01	
Queuing Penalty (veh)											0	

Intersection: 8: Amelia Earhart & E Commerce

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	120	50
Average Queue (ft)	41	17
95th Queue (ft)	101	44
Link Distance (ft)	1150	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Existing Plus Background
Quad C & D
Natomas Crossings

Trip Generation Report

Forecast for am peak

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Quad C (Site	0.00	Retail	61.32	37.22	0	0	0	0.0
1	Quad C (Site	1.00	Fast Food 2.2	21.03	19.23	21	19	40	3.1
1	Quad C (Site	1.00	Fast Food 4.5	42.75	40.05	43	40	83	6.5
1	Quad C (Site	1.00	Gas Station w	36.36	32.76	36	33	69	5.4
1	Quad C (Site	1.00	Auto Parts	9.00	7.20	9	7	16	1.3
1	Quad C (Site	1.00	HTO Rest	30.15	22.05	30	22	52	4.1
	Zone 1 Subtotal					139	121	260	20.5
2	Quad C (Site	0.00	Retail	55.19	33.49	0	0	0	0.0
2	Quad C (Site	1.00	Hotel	42.00	29.00	42	29	71	5.6
2	Quad C (Site	320.00	APTs	0.09	0.27	29	86	115	9.1
	Zone 2 Subtotal					71	115	186	14.6
3	Quad C (Site	270.00	APTs	0.09	0.27	24	73	97	7.6
	Zone 3 Subtotal					24	73	97	7.6
4	Quad C (Site	1.00	Fitness Center	26.00	26.00	26	26	52	4.1
4	Quad C (Site	1.00	Retail	54.87	32.91	55	33	88	6.9
4	Quad C (Site	0.00	Hotel	42.00	29.00	0	0	0	0.0
4	Quad C (Site	0.00	APTs	0.09	0.27	0	0	0	0.0
	Zone 4 Subtotal					81	59	140	11.0
5	Site D	1.00	SR APT	23.00	42.00	23	42	65	5.1
5	Site D	1.00	Office	449.00	73.00	449	73	522	41.1
5	Site D	0.00	Med Dens Res	25.00	77.00	0	0	0	0.0
	Zone 5 Subtotal					472	115	587	46.2
TOTAL						787	483	1270	100.0

Existing Plus Background
Quad C & D
Natomas Crossings

Turning Movement Report
am peak

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 North Access/ Arena Blvd													
Base	0	0	0	0	0	0	0	1745	0	0	1181	0	2926
Added	0	0	0	0	0	0	0	279	68	0	213	0	560
PassBy	0	0	0	0	0	0	0	-81	81	0	0	0	0
Total	0	0	0	0	0	0	0	1943	149	0	1394	0	3486
#2 E Commerce Way/ Arena Blvd													
Base	226	60	24	239	23	498	707	976	62	20	457	287	3579
Added	213	58	189	0	94	0	0	0	279	310	0	0	1143
PassBy	76	0	75	0	41	-41	0	-81	0	41	-41	0	70
Total	515	118	288	239	158	457	707	895	341	371	416	287	4792
#3 E Commerce Way/ Northeast Access													
Base	0	210	1	33	78	0	0	0	0	12	0	66	400
Added	0	460	0	0	569	114	0	0	7	0	0	0	1150
PassBy	0	151	0	0	0	82	0	0	0	0	0	0	233
Total	0	821	1	33	647	196	0	0	7	12	0	66	1783
#4 E Commerce Way/ Amelia Earhart Ave													
Base	0	210	1	33	78	0	0	0	0	12	0	66	400
Added	14	201	0	0	504	72	258	0	6	0	0	0	1055
PassBy	0	0	0	0	0	0	151	0	0	0	0	0	151
Total	14	411	1	33	582	72	409	0	6	12	0	66	1606
#5 E Commerce Way/ Southeast Access													
Base	0	211	0	0	92	0	0	0	0	0	0	0	303
Added	2	124	0	0	465	45	91	0	5	0	0	0	732
Total	2	335	0	0	557	45	91	0	5	0	0	0	1035
#6 E Commerce Way/ Natomas Crossings													
Base	0	81	1	66	36	0	0	0	0	10	0	132	326
Added	0	110	5	18	451	0	0	0	0	21	0	16	621
Total	0	191	6	84	487	0	0	0	0	31	0	148	947

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3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Delay / Veh (s)	46.4	6.6	4.2	4.8	38.6	1.7	10.3

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	37.9	2.1	35.5	2.8	2.5	1.6	4.5

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	49.0	77.0	19.5	71.2	21.0	88.8	24.2	1.5	87.2	7.9	4.4	28.8

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	55.3	48.2	16.0	79.8	58.6	14.9	60.3	58.2	47.1	96.7	64.8	45.0

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	54.3

Total Network Performance

52.4

Delay / Veh (s)	74.2

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	229	287	329	330	318	161	245	272	431	392	261	176
Average Queue (ft)	141	164	187	185	167	85	174	186	200	196	178	77
95th Queue (ft)	234	249	279	281	251	134	253	276	314	301	269	168
Link Distance (ft)			2513	2513	2513		Vol= 406		3779	3779	3779	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)					0.00		0.05	0.02	0.04		0.11	0.00
Queuing Penalty (veh)					0		12	6	17		21	0

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	316	325	520	408	679	244	226	235	407	640	526
Average Queue (ft)	276	287	200	84	289	217	173	188	130	152	351
95th Queue (ft)	360	372	500	219	610	259	246	262	318	471	586
Link Distance (ft)			1150	1150	1150				2530	2530	
Upstream Blk Time (%)	V= 668										
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)	0.04	0.10				0.30	0.08	0.09			0.03
Queuing Penalty (veh)	3	7				22	8	9			3

Nework Summary

Network wide Queuing Penalty: 108

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	L	T
Maximum Queue (ft)	54	77	153	120	31	112	132	44
Average Queue (ft)	16	43	51	31	2	51	72	1
95th Queue (ft)	44	69	109	83	14	102	120	7
Link Distance (ft)			958	958				749
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200	200			150	200	200	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: access drwy & E Commerce

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	T	R
Maximum Queue (ft)	70	44	21	32	157	96	75	94	91	31
Average Queue (ft)	34	11	5	6	38	26	23	10	10	5
95th Queue (ft)	66	33	18	26	100	72	61	48	44	23
Link Distance (ft)	1324	1324	1324		749	749	749	665	665	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				200						150
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 8: Amelia Earhart & E Commerce

Movement	EB	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	TR	TR	L	T	T	T	L	T	T	T
Maximum Queue (ft)	457	401	64	80	225	334	202	246	154	116	151	92
Average Queue (ft)	292	237	10	19	32	153	81	103	80	60	50	28
95th Queue (ft)	410	356	35	49	103	270	169	194	138	122	104	70
Link Distance (ft)	1321	1321	1321	1790		665	665	665		1150	1150	1150
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					200				200			
Storage Blk Time (%)						0.03		0.04				
Queuing Penalty (veh)						1		0				

Intersection: 8: Amelia Earhart & E Commerce

Movement	SB
Directions Served	R
Maximum Queue (ft)	54
Average Queue (ft)	30
95th Queue (ft)	58
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Existing Plus Background
Quad C & D
Natomas Crossings

Trip Generation Report

Forecast for pm peak

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Quad C (Site	0.00	Retail	189.90	210.90	0	0	0	0.0
1	Quad C (Site	1.00	Fast Food 2.2	17.37	15.57	17	16	33	1.8
1	Quad C (Site	1.00	Fast Food 4.5	35.88	31.38	36	31	67	3.7
1	Quad C (Site	1.00	Gas Station w	40.51	36.91	41	37	78	4.3
1	Quad C (Site	1.00	Auto Parts	14.40	15.30	14	15	29	1.6
1	Quad C (Site	1.00	HTO Rest	36.64	15.04	37	15	52	2.9
	Zone 1 Subtotal					145	114	259	14.3
2	Quad C (Site	0.00	Retail	170.90	189.80	0	0	0	0.0
2	Quad C (Site	1.00	Hotel	44.00	42.00	44	42	86	4.8
2	Quad C (Site	320.00	APTs	0.27	0.17	86	54	140	7.7
	Zone 2 Subtotal					130	96	226	12.5
3	Quad C (Site	270.00	APTs	0.27	0.17	73	46	119	6.6
	Zone 3 Subtotal					73	46	119	6.6
4	Quad C (Site	1.00	Fitness Center	79.00	59.00	79	59	138	7.6
4	Quad C (Site	1.00	Retail	218.30	246.30	218	246	464	25.6
4	Quad C (Site	0.00	Hotel	44.00	42.00	0	0	0	0.0
4	Quad C (Site	0.00	APTs	0.27	0.17	0	0	0	0.0
	Zone 4 Subtotal					297	305	602	33.3
5	Site D	1.00	SR APT	46.00	39.00	46	39	85	4.7
5	Site D	1.00	Office	83.00	435.00	83	435	518	28.6
5	Site D	0.00	Med Dens Res	86.00	51.00	0	0	0	0.0
	Zone 5 Subtotal					129	474	603	33.3
TOTAL						774	1035	1809	100.0

Existing Plus Background
Quad C & D
Natomas Crossings

Turning Movement Report
pm peak

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 North Access/ Arena Blvd													
Base	0	0	0	0	0	0	0	1548	0	0	1529	0	3077
Added	0	0	0	0	0	0	0	200	133	0	445	0	778
PassBy	0	0	0	0	0	0	0	-150	150	0	0	0	0
Total	0	0	0	0	0	0	0	1598	283	0	1974	0	3855
#2 E Commerce Way/ Arena Blvd													
Base	123	50	36	330	52	623	411	992	145	51	783	195	3791
Added	445	166	377	0	124	0	0	0	200	280	0	0	1592
PassBy	100	0	150	0	25	-25	0	-150	0	75	-75	0	100
Total	668	216	563	330	201	598	411	842	345	406	708	195	5483
#3 E Commerce Way/ Northeast Access													
Base	0	164	0	0	317	0	0	0	0	0	0	0	481
Added	0	988	0	0	372	231	0	0	17	0	0	0	1608
PassBy	0	250	0	0	0	100	0	0	0	0	0	0	350
Total	0	1402	0	0	689	331	0	0	17	0	0	0	2439
#4 E Commerce Way/ Amelia Earhart Ave													
Base	0	135	4	88	229	0	0	0	0	1	0	29	486
Added	27	517	0	0	237	152	471	0	8	0	0	0	1412
PassBy	0	0	0	0	0	0	250	0	0	0	0	0	250
Total	27	652	4	88	466	152	721	0	8	1	0	29	2148
#5 E Commerce Way/ Southeast Access													
Base	0	140	0	0	229	0	0	0	0	0	0	0	369
Added	5	482	0	0	149	96	62	0	3	0	0	0	797
Total	5	622	0	0	378	96	62	0	3	0	0	0	1166
#6 E Commerce Way/ Natomas Crossings													
Base	0	59	1	143	89	0	0	0	0	12	0	99	403
Added	0	455	19	28	124	0	0	0	0	5	0	32	663
Total	0	514	20	171	213	0	0	0	0	17	0	131	1066

3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	SBL	SBT	All
Delay / Veh (s)	50.2	7.8	3.1	36.3	1.3	11.0

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	40.5	2.7	46.1	1.2	1.8	2.8	4.8

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	WBL	WBR	NBL	NBT	SBL	SBT	SBR	All
Delay / Veh (s)	65.3	49.5	76.7	4.7	84.8	5.5	63.3	6.3	3.8	16.9

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	58.2	32.8	13.1	76.0	47.2	18.3	58.5	53.2	9.9	79.4	60.0	24.8

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	42.8

Total Network Performance

43.5

Delay / Veh (s)	52.0

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	394	414	228	326	243	96	172	151	195	174	232	175
Average Queue (ft)	271	280	160	166	145	46	79	92	115	99	79	91
95th Queue (ft)	348	363	231	250	224	81	132	140	175	153	175	166
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)											0.00	0.02
Queuing Penalty (veh)											1	3

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	220	238	46	66	64	105	215	217	43	105	169
Average Queue (ft)	119	127	17	16	11	32	107	118	14	26	81
95th Queue (ft)	196	196	47	34	31	70	173	179	36	68	152
Link Distance (ft)			1150	1150	1150				1136	1136	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)							0.00	0.01			
Queuing Penalty (veh)							0	0			

Nework Summary

Network wide Queuing Penalty: 5

Existing Plus Background
Quad C Approved
Natomas Crossings

Trip Generation Report

Forecast for AM EPAP

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Quad C (Site	1.00	Retail	28.00	17.00	28	17	45	8.7
	Zone 1 Subtotal					28	17	45	8.7
2	Quad C (Site	1.00	Retail	28.00	17.00	28	17	45	8.7
	Zone 2 Subtotal					28	17	45	8.7
3	Quad C (Site	1.00	Retail	271.00	22.00	271	22	293	56.9
	Zone 3 Subtotal					271	22	293	56.9
4	Quad C (Site	1.00	Retail	83.00	49.00	83	49	132	25.6
	Zone 4 Subtotal					83	49	132	25.6
TOTAL						410	105	515	100.0

Existing Plus Background
Quad C Approved
Natomas Crossings

Turning Movement Report
AM EPAP

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 North Access/ Arena Blvd													
Base	0	0	0	0	0	0	0	1745	0	0	1181	0	2926
Added	0	0	0	0	0	0	0	146	34	0	46	0	226
PassBy	0	0	0	0	0	0	0	-27	27	0	0	0	0
Total	0	0	0	0	0	0	0	1864	61	0	1227	0	3152
#2 E Commerce Way/ Arena Blvd													
Base	226	60	24	239	23	498	707	976	62	20	457	287	3579
Added	46	13	41	0	49	0	0	0	146	160	0	0	455
PassBy	17	0	18	0	14	74	0	-27	0	14	-14	0	96
Total	289	73	83	239	86	572	707	949	208	194	443	287	4130
#3 E Commerce Way/ Northeast Access													
Base	0	276	0	0	111	0	0	0	0	0	0	0	387
Added	0	100	0	0	298	57	0	0	3	0	0	0	458
PassBy	0	45	0	0	0	28	0	0	0	0	0	0	73
Total	0	421	0	0	409	85	0	0	3	0	0	0	918
#4 E Commerce Way/ Amelia Earhart Ave													
Base	0	210	1	33	78	0	0	0	0	12	0	66	400
Added	7	24	0	0	145	156	76	0	1	0	0	0	409
PassBy	0	0	0	0	0	0	45	0	0	0	0	0	45
Total	7	234	1	33	223	156	121	0	1	12	0	66	854
#5 E Commerce Way/ Southeast Access													
Base	0	211	0	0	92	0	0	0	0	0	0	0	303
Added	14	7	0	0	4	142	24	0	1	0	0	0	192
Total	14	218	0	0	96	142	24	0	1	0	0	0	495
#6 E Commerce Way/ Natomas Crossings													
Base	0	81	1	66	33	0	0	0	0	10	0	132	323
Added	0	0	0	5	0	0	0	0	0	0	0	21	26
Total	0	81	1	71	33	0	0	0	0	10	0	153	349

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to kdANDERSON TRANSP.

3: Natomas Crossing & E Commerce Performance by movement

Movement	WBL	WBR	NBT	SBL	SBT	All
Delay / Veh (s)	48.2	5.5	2.5	41.3	0.9	18.7

6: access drwy & E Commerce Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Delay / Veh (s)	28.5	1.8	42.1	3.0	3.0	1.7	11.9

8: Amelia Earhart & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	48.8	99.3	3.1	5.6	67.2	27.4	2.4	83.2	5.3	3.7	30.8

11: Arena & E Commerce Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Delay / Veh (s)	54.9	39.7	12.0	78.8	54.2	11.4	68.9	67.1	42.5	78.3	62.7	31.3

11: Arena & E Commerce Performance by movement

Movement	All
Delay / Veh (s)	49.6

Total Network Performance 49.5

Delay / Veh (s)	69.4

Intersection: 11: Arena & E Commerce

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	L	L	T	T	T	R
Maximum Queue (ft)	252	264	306	267	253	121	200	255	322	282	256	176
Average Queue (ft)	151	160	189	168	154	50	128	129	192	181	155	78
95th Queue (ft)	240	236	272	254	238	94	181	211	272	257	223	176
Link Distance (ft)			2513	2513	2513				3779	3779	3779	
Upstream Blk Time (%)							V= 305					
Queuing Penalty (veh)												
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)								0.00	0.04		0.09	0.00
Queuing Penalty (veh)								1	11		18	0

Intersection: 11: Arena & E Commerce

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	T	R	L	L	T	T	R
Maximum Queue (ft)	316	325	485	88	493	226	218	233	305	283	511
Average Queue (ft)	252	269	100	55	181	190	140	152	63	63	263
95th Queue (ft)	336	348	296	90	465	269	214	217	152	145	490
Link Distance (ft)			1150	1150	1150				2530	2530	
Upstream Blk Time (%)	Vol = 534										
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200	200			500
Storage Blk Time (%)	0.02	0.08				0.21	0.02	0.02			0.00
Queuing Penalty (veh)	1	5				12	1	2			0

Nework Summary

Network wide Queuing Penalty: 51

Intersection: 3: Natomas Crossing & E Commerce

Movement	WB	WB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	L	L	T	T
Maximum Queue (ft)	54	76	28	29	133	146	23	22
Average Queue (ft)	11	40	6	2	56	79	1	1
95th Queue (ft)	36	62	24	12	111	123	8	7
Link Distance (ft)			958	958			749	749
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200	200			200	200		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: access drwy & E Commerce

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	T	R
Maximum Queue (ft)	134	104	21	32	56	54	32	97	50	32
Average Queue (ft)	79	53	6	7	17	5	11	19	8	9
95th Queue (ft)	119	89	21	28	47	27	34	60	32	31
Link Distance (ft)	1324	1324	1324		749	749	749	665	665	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				200						150
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 8: Amelia Earhart & E Commerce

Movement	EB	EB	EB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	TR	L	T	T	T	R	L	T	T
Maximum Queue (ft)	525	509	43	40	74	185	197	203	31	134	109	79
Average Queue (ft)	308	230	7	11	25	99	53	71	1	66	30	19
95th Queue (ft)	464	370	26	28	60	172	124	146	11	116	83	57
Link Distance (ft)	1321	1321	1321	1790		665	665	665			1150	1150
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					200				150	200		
Storage Blk Time (%)						0.00		0.00				
Queuing Penalty (veh)						0		0				

Intersection: 8: Amelia Earhart & E Commerce

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	52	54
Average Queue (ft)	21	19
95th Queue (ft)	50	49
Link Distance (ft)	1150	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Existing Plus Background
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Natomas Crossings

Trip Generation Report

Forecast for PM EPAP

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	Quad C (Site	1.00	Retail	100.00	105.00	100	105	205	15.8
	Zone 1 Subtotal					100	105	205	15.8
2	Quad C (Site	1.00	Retail	100.00	105.00	100	105	205	15.8
	Zone 2 Subtotal					100	105	205	15.8
3	Quad C (Site	1.00	Retail	37.00	236.00	37	236	273	21.1
	Zone 3 Subtotal					37	236	273	21.1
4	Quad C (Site	1.00	Retail	299.00	313.00	299	313	612	47.3
	Zone 4 Subtotal					299	313	612	47.3
TOTAL						536	759	1295	100.0

Existing Plus Background
Quad C Approved
Natomas Crossings

Turning Movement Report
PM EPAP

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 North Access/ Arena Blvd													
Base	0	0	0	0	0	0	0	1548	0	0	1529	0	3077
Added	0	0	0	0	0	0	0	110	120	0	326	0	556
PassBy	0	0	0	0	0	0	0	-122	122	0	0	0	0
Total	0	0	0	0	0	0	0	1536	242	0	1855	0	3633
#2 E Commerce Way/ Arena Blvd													
Base	123	50	36	330	52	623	411	992	145	51	783	195	3791
Added	326	121	273	0	86	0	0	0	110	193	0	0	1109
PassBy	85	0	127	0	20	-20	0	-122	0	61	-61	0	90
Total	534	171	436	330	158	603	411	870	255	305	722	195	4990
#3 E Commerce Way/ Northeast Access													
Base	0	164	0	0	317	0	0	0	0	0	0	0	481
Added	0	721	0	0	180	209	0	0	17	0	0	0	1127
PassBy	0	212	0	0	0	81	0	0	0	0	0	0	293
Total	0	1097	0	0	497	290	0	0	17	0	0	0	1901
#4 E Commerce Way/ Amelia Earhart Ave													
Base	0	135	4	88	229	0	0	0	0	1	0	29	486
Added	24	244	0	0	82	115	477	0	8	0	0	0	950
PassBy	0	0	0	0	0	0	212	0	0	0	0	0	212
Total	24	379	4	88	311	115	689	0	8	1	0	29	1648
#5 E Commerce Way/ Southeast Access													
Base	0	140	0	0	229	0	0	0	0	0	0	0	369
Added	3	24	0	0	25	65	244	0	13	0	0	0	374
Total	3	164	0	0	254	65	244	0	13	0	0	0	743
#6 E Commerce Way/ Natomas Crossings													
Base	0	59	1	143	89	0	0	0	0	12	0	99	403
Added	0	0	0	38	0	0	0	0	0	0	0	27	65
Total	0	59	1	181	89	0	0	0	0	12	0	126	468

Attachment 4

Biological Resources Assessment

Biological Resources Due Diligence Report

NATOMAS II
SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA

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Appendix B – List of Plant and Wildlife Species Observed within the Study Area
Appendix C – Potential for Special Status Species to Occur within the Study Area
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LIST OF ACRONYMS AND ABBREVIATIONS

CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
ESA	Federal Endangered Species Act
General Plan	City of Sacramento 2035 General Plan
Inventory	CNPS Inventory of Rare and Endangered Plants
MBTA	Migratory Bird Treaty Act
NBHCP	Natomas Basin Habitat Conservation Plan
Rank	California Rare Plant Rank
USFWS	U.S. Fish and Wildlife Service
WRA	WRA, Inc.
WBWG	Western Bat Working Group

1.0 INTRODUCTION

WRA, Inc. (WRA) performed a due-diligence assessment of biological resources on a property located at the intersection of Arena Boulevard and East Commerce Way (Assessor Parcel Numbers: 225-2300-013, 225-3200-012, 225-0150-053, and 225-0180-059) (Study Area) in Sacramento, Sacramento County, California (Figure 1). The approximately 17.3-acre Study Area is an undeveloped, vacant lot within an area of existing commercial and residential development. A site assessment was conducted on October 22, 2019, to determine site conditions and ensure that any future activity at the site will conform to Natomas Basin Habitat Conservation Plan (NBHCP) survey timelines.

This report describes the results of the site visit, which assessed the Study Area for the (1) potential to support special-status species; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations.

In summary, no special-status species were observed during the site visit, and no federal or state regulated habitats were observed. Based on a review of available information and an assessment of site conditions, WRA concludes that there is no potential for special status plants and animals to be found within the Study Area, though they may be found in the vicinity. The Study Area is within the Natomas Basin Habitat Conservation Plan (NBHCP), and fees have be paid to the Plan. Should any sensitive species occur within the Study Area in the future, habitat loss for those species have been mitigated by the Plan under its conservation program. However, in compliance with NBHCP procedures, pre-construction surveys will be required for Swainson's hawk, burrowing owl, and migratory nesting birds.

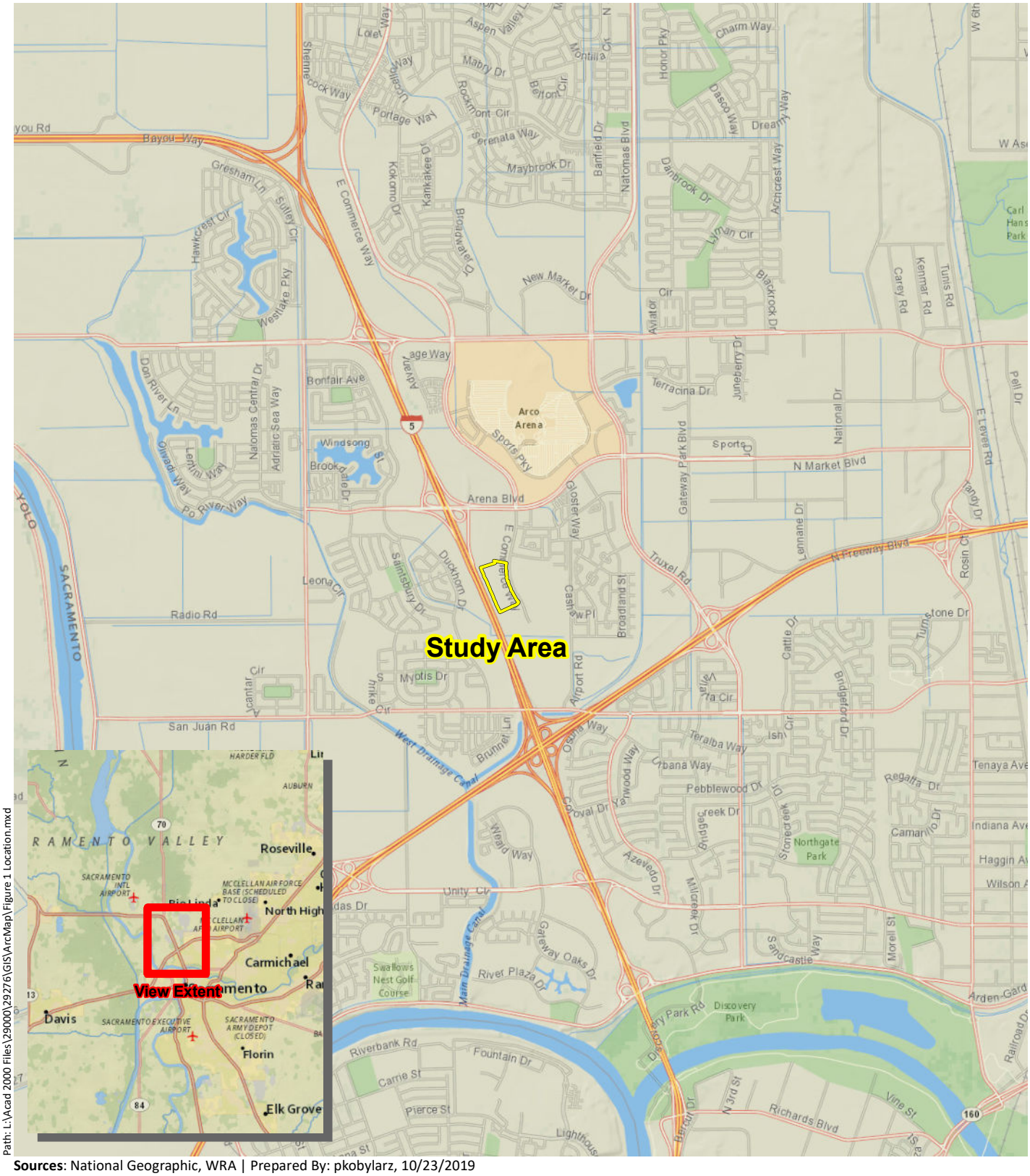
A due diligence assessment provides general information on the potential presence of sensitive species and habitats on the property based on available information and a brief site inspection. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit. Surveyor qualifications are included as Appendix A. This report provides details on the findings of the field and database investigation in compliance with NBHCP guidelines.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological study, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program, and the California Environmental Protection Act (CEQA); or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.



Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/23/2019

Figure 1. Study Area Location

Natomas II
Sacramento, California

0 1 2 Miles

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Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act. Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark. Other waters, for example, generally include lakes, rivers, and streams.

If “waters of the U.S” are present, any fill in these features generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” As a practical matter, the State follows the lead taken by the Corps of Engineers when delineating wetlands and non-wetland waters; however, as of October 2019, the State has adopted a new wetland definition that includes non-vegetated wetlands. In addition, wetlands which are classified as “isolated” or “lacking a significant nexus” by the Corps are also are regulated by the State.

The CDFW also has jurisdiction over streams and riparian areas that are defined by the presence of a bed and bank.

Other Sensitive Biological Communities

Other natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. The CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2019a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2019) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or the U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

City of Sacramento 2035 General Plan

The City of Sacramento’s 2035 General Plan (General Plan; City of Sacramento 2015a) was written to serve as a guide for future development and growth in the City of Sacramento. Included in the General Plan is guidance pertaining to environmental resources, including “riparian habitat,” “annual grasslands,” and “wetland protection.” Relevant General Plan language is as follows:

ER 2.1.6 Wetland Protection. The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands, to the extent feasible. If not feasible, the mitigation of all adverse impacts on wetland resources shall be required in compliance with State and Federal regulations protecting wetland resources, and if applicable, threatened or endangered species. Additionally, the City shall require either on- or off-site permanent preservation of an equivalent amount of wetland habitat to ensure no net-loss of value and/or function.

Natomas Basin Habitat Conservation Plan

The NBHCP (City of Sacramento et al. 2003) was developed to promote biological conservation together with in conjunction with economic and urban development within the Natomas Basin, which is located in northern Sacramento County and southern Sutter County. The NBHCP establishes a multi-species conservation program designed to allow for continued development within the Natomas Basin while mitigating the anticipated impacts to habitats and the incidental take of protected species resulting from development. Projects located within the NBHCP Area may obtain permits and mitigation coverage through payment of in-lieu fees to the NBHCP. Projects receiving permits through the NBHCP must also implement avoidance and minimization measures included in the NBHCP to reduce the potential for take of covered species. These measures are outlined in Chapter 5 of the NBHCP. Measures include a pre-construction survey between 30 days and 6 months (or prior year for species with seasonal survey windows) prior to initiation of construction activities and additional species-specific conservation measures.

The Study Area is located within the NBHCP Area, and according to the 2014 Annual Report of Urban Development for the City of Sacramento (City of Sacramento 2015b), the NBHCP fees have already been paid for the Study Area.

2.2 Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act. These acts afford protection to both listed species and those that are formal candidates for listing. The federal Bald and Golden Eagle Protection Act also provides broad protections to both eagle species that in some regards are similar to those provided by ESA. Additionally, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern (USFWS 2008), and CDFW Special-Status Invertebrates are all considered special-status species. Although these aforementioned species generally have no special legal status, they are given special consideration under CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a “High Priority” or “Medium Priority” species for conservation by the WBWG are typically considered special-status and also considered under CEQA. In addition to regulations for special-status species, most native birds in the United States (including non-status species) are protected by the federal Migratory Bird Treaty Act of 1918 (MBTA) and the California Fish and Game Code (CFGC), i.e., sections 3503, 3503.5 and 3513. Under these laws, deliberately destroying active bird nests, eggs, and/or young is illegal.

Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory; CNPS 2019a) with California Rare Plant Ranks (Rank) of 1, 2, and 3 are also considered special-status plant species and must be considered under CEQA. Rank 4 species may be afforded lesser protection under CEQA but generally must still be considered. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

3.0 METHODS

The survey was conducted by WRA on October 22, 2019. The entire Study Area was traversed on foot to determine (1) biological communities present within the Study Area, (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and (3) if special status species or sensitive habitat are present. All plant and wildlife species encountered within the Study Area were recorded and are summarized in Appendix B. Plant nomenclature follows the Jepson Flora Project (2019), except where noted. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

The NBHCP requires that the area surrounding the Study Area be assessed to determine whether certain species and/or habitats that could potentially support special-status species are present. The area to be assessed ranges from a 200-foot radius surrounding the Study Area (for giant garter snake [*Thamnophis gigas*]) to a 0.5-mile radius surrounding the Study Area (for Swainson's hawk [*Buteo swainsoni*]). WRA did not have permission to access most of the lands outside of the Study Area; however, inaccessible portions of the surrounding area were assessed from roads and other vantage points wherever possible with aid of binoculars. In addition, the surrounding areas were further assessed by interpreting aerial imagery (Google Earth 2019).

3.1 Biological Communities

Prior to the site visits, soil survey data for Sacramento County (CSRL 2019, USDA 1993) were examined to determine whether any unique soil types capable of supporting sensitive plant communities or aquatic features have been mapped in the Study Area. Additional sources, such as U.S. Geological Survey 7.5-minute quadrangle maps for the Taylor Monument, Rio Linda, Sacramento West, and Sacramento East quadrangles (USGS 2018a-d) and available aerial imagery (Google Earth 2019, NETR 2019) were also reviewed to determine the potential for sensitive biological communities to occur in the Study Area. Where possible, biological communities were classified based on existing descriptions found in *A Manual of California Vegetation, Online Edition* (CNPS 2019b). However, it was necessary to identify variants of community types or to describe heavily disturbed areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

To the extent possible given that WRA did not have permission to access all of the surrounding lands, the due diligence study also evaluated a 200-foot to 0.5-mile area surrounding the Study Area, depending on the species, in order to comply with NBHCP requirements. A map of biological communities present outside of the Study Area was not prepared, but a discussion of the presence or potential presence of sensitive habitats described in the NBHCP is included in Section 4.0.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA or other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species. Non-sensitive biological communities observed in the Study Area are described in Section 4.1.1, below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are afforded special protection under CEQA or other applicable federal, state, or local laws, regulations or ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below. Descriptions of sensitive biological communities observed in the Study Area are provided in Section 4.0.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Taylor Monument, Rio Linda, Sacramento West, and Sacramento East quadrangles (USGS 2018a-d). The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- CNDDB records (CDFW 2019a)
- USFWS Information for Planning and Conservation Species Lists (USFWS 2019)
- CNPS Inventory records (CNPS 2019a)
- CDFW California Wildlife Habitat Relationships Database (CDFW 2019b)
- eBird online bird occurrence database (eBird 2019)
- California Department of Fish and Game (CDFG) publication *California Bird Species of Special Concern* (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- CDFG draft publication Terrestrial Mammal Species of Special Concern in California (Bolster 1998)
- Fairy Shrimps of California's Puddles, Pools and Playas (Eriksen and Belk 1999)
- NBHCP (City of Sacramento et al. 2003)
- Google Earth aerial imagery (Google Earth 2019)

3.2.2 Site Assessment

Habitat conditions observed within the Study Area were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Low Potential. Nesting or breeding habitat is not present; but species may fly overhead for foraging. Also may have had historic presence nearby, but site is currently not suitable.
- Likely Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The due diligence study evaluated the likelihood for each special-status species to be present in Study Area based on the suitability of habitat observed (Appendix C). No special field studies (e.g. protocol level) were conducted as part of this study so that any conclusions reached as to presence and absence of a special status species may be subject to modification should such studies be undertaken by the agencies or other consultants.

To the extent possible given that WRA did not have permission to access the surrounding lands, the due diligence study also evaluated a 200-foot to 0.5-mile area surrounding the Study Area, depending on the species, in order to comply with NBHCP requirements. An observed species

list was not prepared for areas outside of the Study Area, but a discussion of the presence or potential presence of special-status species described in the NBHCP is included in Section 4.0.

4.0 RESULTS

The following sections present the results of the biological resources assessment within the Study Area. Plant and wildlife species observed in the Study Area during the site visit are listed in Appendix B. Representative photographs of the Study Area are provided in Appendix D.

The Study Area is an undeveloped, vacant, ruderal urban infill site located approximately 4 miles north of downtown Sacramento, near the northern limits of the City of Sacramento in the in the Natomas Basin region. The Study Area is generally flat, and with the exception of small areas bordering utility infrastructure, the entirety of the Study Area is regularly maintained for weed control. It is dominated by ruderal (e.g. weedy) vegetation.

An analysis of available historic aerial imagery (Google Earth 2019, NETR 2019) shows that the the region surrounding the Study Area was used for agricultural purposes from at least 1947 through 1967. By 1993, the surrounding area began to be developed, and at present, the Study Area is now surrounded by a mix of residential and commercial development and disked vacant lots. Based on the Natomas II Property Phase 1 report (WKA 2019), the Study Area was mostly vacant or under agricultural production since at least 1907 though the 1980s. Although the agricultural uses have ceased within the Study Area, based on historic aerial imagery (Google Earth 2019, NETR 2019), the Study Area has been fallow, vacant, and regularly maintained for weed control for at least the past 16 years.

4.1 Soils

The Soil Survey of Sacramento County (USDA 1993) and an online soil survey of the Study Area (CSRL 2019) indicate that the Study Area contains one soil mapping unit encompassing one native soil series: Clear Lake clay, hardpan substratum, drained, 0 to 1 percent slopes. The native soil series that makes up the aforementioned mapping unit is described below and is shown in Figure 2.

<u>Clear Lake Series</u>
The Clear Lake series consists of very deep, poorly drained soils that formed in fine textured alluvium derived from mixed rock sources. Clear Lake soils are found in flood basins, flood plains, and swales of drainageways. They have negligible to high runoff and slow to very slow permeability. The Clear Lake series is considered hydric.

4.2 Biological Communities

One non-sensitive biological community is present in the Study Area: ruderal herbaceous. The Study Area does not support vernal pools, swales, or seasonal wetlands. No streams or riparian areas are present. Biological communities in the Study Area are shown in Figure 3.

Sources: Sonoma Veg 2013 Aerial, WRA | Prepared By: pkobylarz, 11/7/2019

Figure 2. Soils within the Study Area

Natomas II
Sacramento, California

0 200 400 Feet

N

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Sources: Sonoma Veg 2013 Aerial, WRA | Prepared By: pkobylarz, 11/7/2019

Figure 3. Biological Communities within the Study Area

Natomas II
Sacramento, California

0 200 400 Feet

N

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4.2.1 Non-Sensitive Biological Communities

Ruderal Herbaceous

As stated above, the Study Area is a vacant lot that is plowed on a regular basis and appears to have been in agricultural production or vacant and regularly plowed since at least 1907. As a result, the vegetation is characterized by non-native, herbaceous species typical of ruderal, highly disturbed conditions, such as slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), dwarf mallow (*Malva neglecta*), milk thistle (*Silybum marianum*), summer mustard (*Hirschfeldia incana*), and prostrate knotweed (*Polygonum aviculare*).

In addition, per the NBHCP, a 250-foot area surrounding the Study Area was evaluated to determine whether any vernal pools, swales, or other seasonal wetlands capable of supporting vernal pool-associated species were present. The 250-foot surrounding area was either accessible or was fully visible from roadways and is either entirely developed or consists of vacant, ruderal lands, and no such wetland features were documented.

4.3 Special-Status Species

4.3.1 Plants

Based upon a review of the resources and databases listed above, ten special-status plant species have been documented in the vicinity of the Study Area. All ten of these species are unlikely or have no potential to occur in the Study Area as a result of the regular, high level of disturbance and a lack of suitable habitat elements such as vernal pool or marsh habitats or serpentine substrate.

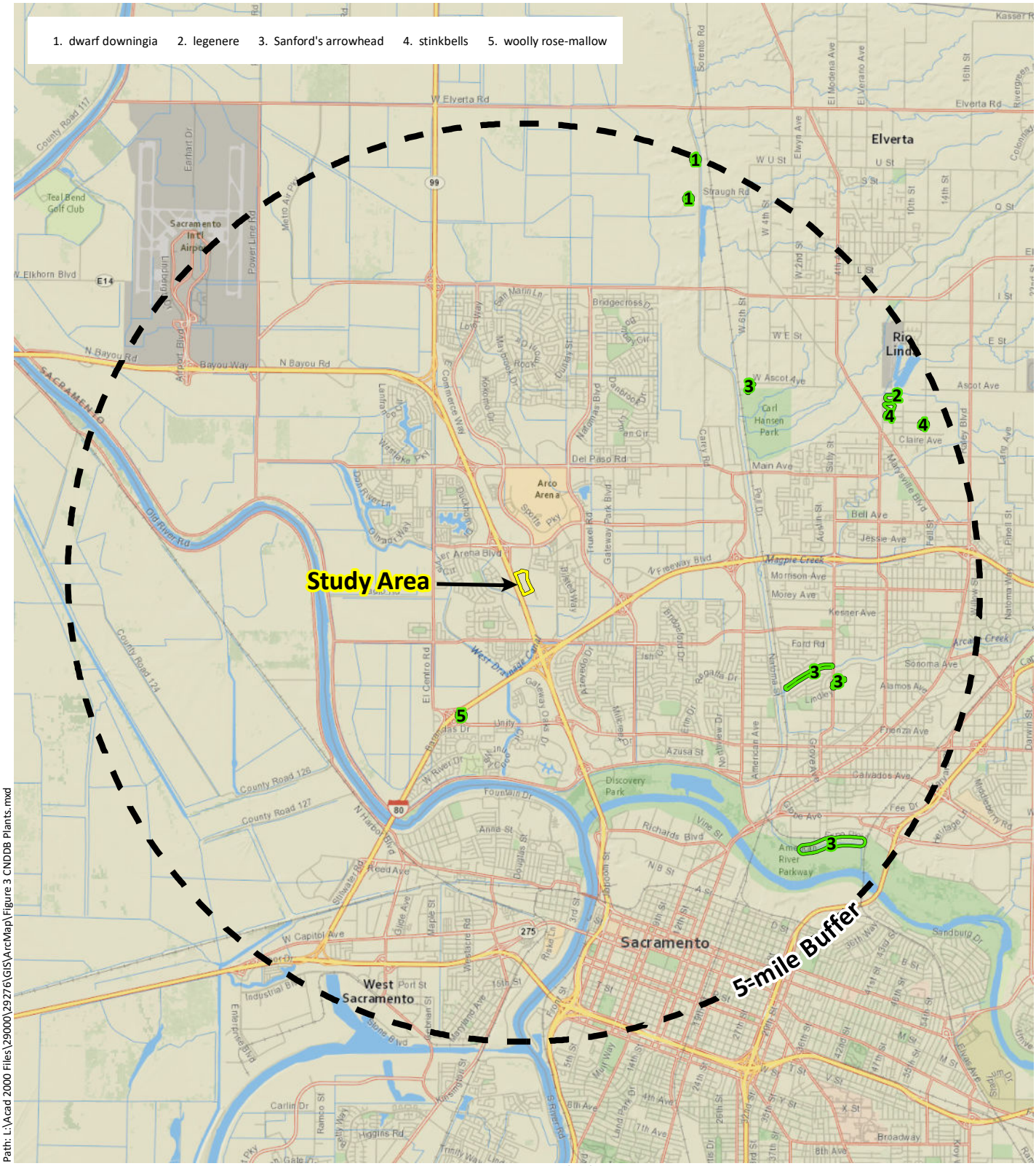
No special-status plant species were observed during the reconnaissance survey in October 22, 2019. Special-status plant species documented in the CNDDB within 5 miles of the Study Area are shown in Figure 4.

Per NBCHP requirements, a 250-foot area surrounding the Study Area was evaluated to determine whether any vernal pools, swales, or other seasonal wetlands capable of supporting vernal pool-associated species such as Colusa grass (*Neostapfia colusana*), Sacramento Orcutt grass (*Orcuttia viscida*), slender Orcutt grass (*O. tenuis*), legenere (*Legenere limosa*), or Bogg's Lake hedge-hyssop (*Gratiola heterosepala*) were present. The 250-foot surrounding area is entirely developed or is the same habitat as the Study Area (ruderal herbaceous), and no such wetland features were documented; therefore, vernal pool-associated species would not be present.

4.3.2 Wildlife

Thirty-seven special-status wildlife species are known to the vicinity of the Study Area. Fifteen of these special-status wildlife species have been documented within 5 miles of the Study Area (CDFW 2019a; Figure 5).

Suitable habitat for special-status wildlife species is not present within the Study Area, primarily because of a lack of wetlands or vernal pools, trees, and burrows. No trees or shrubs for tree- and shrub-nesting bird species are present within the Study Area. Although no special-status



Sources: National Geographic, CNDDB October 2019, WRA | Prepared By: pkobylarz, 10/23/2019

Figure 4. Special-Status Plant Species Documented in the CNDDB within 5 miles of the Study Area

0 1 2 Miles

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Natomas II
Sacramento, California

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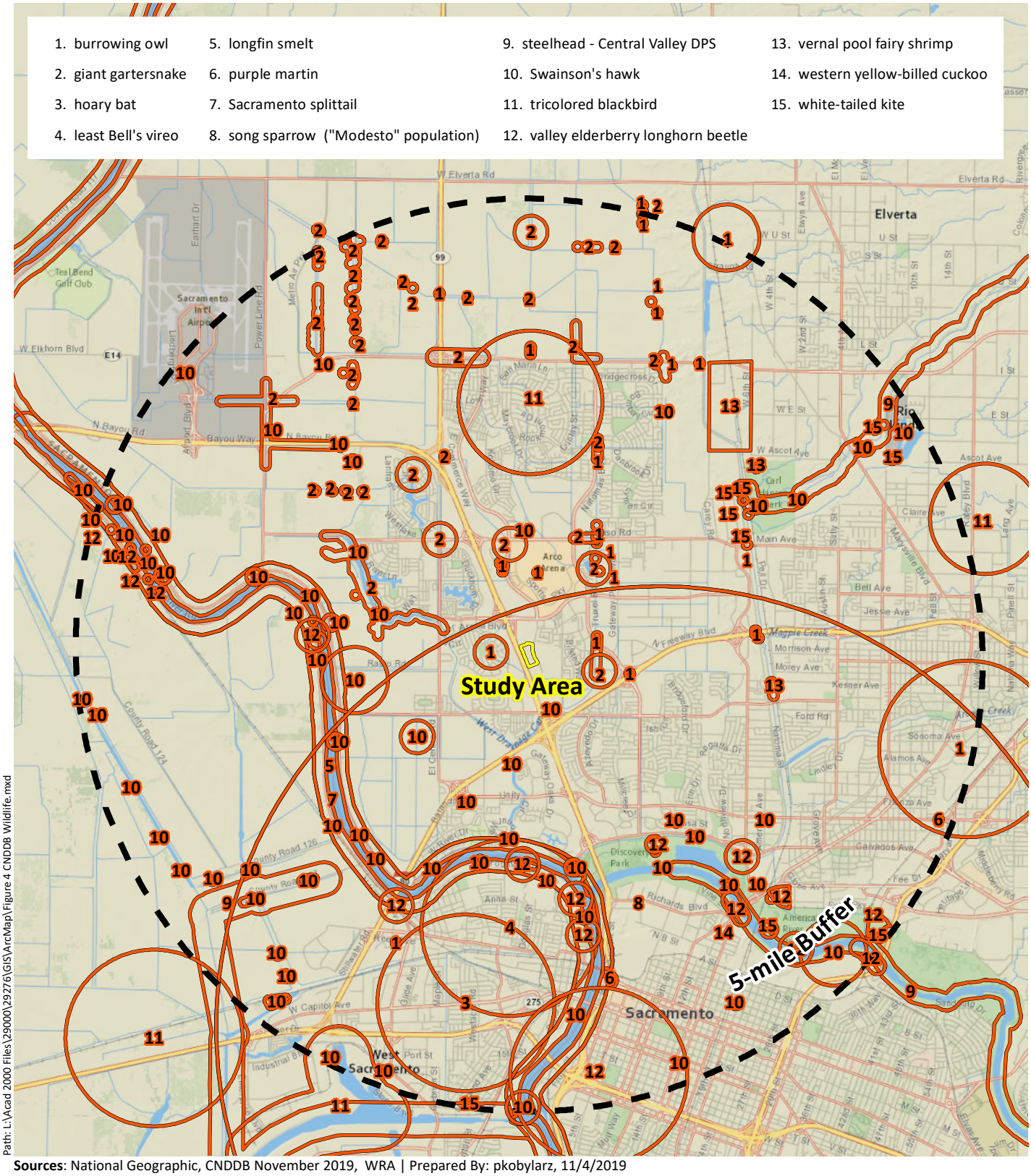

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Sources: National Geographic, CNDDB November 2019, WRA | Prepared By: pkobylarz, 11/4/2019

Figure 5. Special-Status Wildlife Species Documented in the CNDDB within 5 miles of the Study Area

0 1 2 Miles

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Natomas II
Sacramento, California

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species have the potential to occur, native birds protected under the MBTA and CFGC may nest within the Study Area during nesting season (February 1 – August 15). Additionally, Swainson's hawk and burrowing owl are unlikely to nest within the Study Area, but may nest within 0.5 mile of the Study Area. Four common wildlife species were observed within the Study Area, none of which are special-status (Appendix B).

Species documented in the close vicinity of the Study Area but determined to be unlikely or have no potential to occur there are discussed further below. In addition, species and habitats evaluated outside of the Study Area per the requirements of the NBHCP or species that have not been documented in the close vicinity of the Study Area but require discussion by the NBHCP are also discussed below.

Swainson's hawk (*Buteo swainsoni*). State Threatened. Unlikely within Study Area. Moderate Potential in Vicinity. Swainson's hawk is a summer resident and migrant in California's Central Valley and scattered portions of the southern California interior. Areas typically used for nesting include the edges of narrow bands of riparian vegetation, isolated patches of oak woodland, lone trees, and also planted and natural trees associated with roads, farmyards, and sometimes adjacent residential areas. Foraging occurs in open habitats including grasslands, open woodlands, and agricultural areas. Swainson's hawk is not uncommon in the lower Sacramento Valley in locations where nest trees and foraging habitat are present.

There are no trees within the Study Area to support nesting by Swainson's hawk. A limited number of potential nest trees are present within 0.25 mile and 0.5 mile (disturbance buffer within urbanized areas) of the Study Area, as many of the landscaping trees are not of suitable size. One Swainson's hawk nest was documented approximately 0.5 miles south of the Study Area in 2003 (CDFW 2019a). Trees associated with this occurrence appear to have been removed in 2004 (Google Earth 2019). Vegetation in this area has since reestablished and may support nesting by Swainson's hawk, though no nesting structures were observed there during the site visit. Although there is no nesting habitat within the Study Area, it is within foraging distance of documented nest sites. The foraging quality of the Study Area is diminished due to the regular disking that occurs on the site and the site's locations amongst development and other disked land.

Burrowing owl (*Athene cunicularia*). CDFW Species of Special Concern. Unlikely in Study Area. Moderate Potential in Vicinity. The burrowing owl occurs as a year-round resident and winter visitor in much of California's lowlands, inhabiting open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grassland, although human-modified areas such as agricultural lands and airports are also used. This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and in northern California, it is typically found in close association with California ground squirrels (*Otospermophilus beecheyi*). Manmade substrates such as pipes or debris piles may also be occupied in place of burrows.

No burrowing owls or suitable burrows were observed within the Study Area. In addition, no ground squirrels were observed in the Study Area or vicinity during the site visit. Based on aerial imagery and conditions observed during the site visit, the Study Area is regularly disked, which reduces both the suitability of the site for prey species and likelihood for ground squirrels to establish burrow complexes. A 300-foot area surrounding the Study Area was evaluated to determine potential to support burrowing owl. The majority of the surrounding habitat is either

paved or disked, precluding occupation by burrowing owl. However, the berm along Interstate 5 west of the Study Area did not appear disked. This small portion of land may be suitable for burrowing owl.

Giant garter snake (*Thamnophis gigas*). State Threatened, Federal Threatened. No Potential. This endemic species of snake is found only in the Sacramento and San Joaquin Valleys. The giant garter snake prefers freshwater marshes and low gradient streams but has adapted to drainage channels and irrigation ditches. The giant garter snake inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley.

The Study Area does not contain aquatic habitat to support this species and is separated from other aquatic habitat by urban development, roadways, and disked fields. There is no suitable habitat for this species within 200 feet of the Study Area. Additionally, giant garter snake occurrences in this region of Natomas are considered extirpated, including the three occurrences in closest proximity to the Study Area, which are documented 0.6 mile east, 1 mile north, and 1 mile northeast of the Study Area (CDFW 2019a). Land use changes in the vicinity have eliminated suitable habitat.

NBHCP species outside of the Study Area

The following buffers were evaluated for species covered under the NBHCP:

- A 250-foot area surrounding the Study Area was evaluated to determine whether any vernal pools, swales, or other seasonal wetlands capable of supporting vernal pool-associated species such as vernal pool fairy shrimp (*Branchinecta lynchi*), midvalley fairy shrimp (*B. mesovallensis*), vernal pool tadpole shrimp (*Lepidurus packardi*), western spadefoot toad (*Spea hammondii*), and California tiger salamander (*Ambystoma californiense*) were present. The 250-foot surrounding area is either developed, or has been heavily disked and disturbed, and no such wetland features were documented; therefore, vernal pool-associated species would not be present.
- No elderberry (*Sambucus* spp.) shrubs were observed within 1,000 feet of the Study Area.
- No tricolor blackbird (*Agelaius tricolor*) nesting habitat was observed within 500 feet of the Study Area.
- No Aleutian Canada geese (*Branta canadensis leucopareia*) were observed within the Study Area.
- No white-faced ibis (*Plegadis chihi*) nesting habitat were observed within 0.25 mile of the Study Area.
- No loggerhead shrike (*Lanius ludovicianus*) nesting habitat was observed within 100 feet of the Study Area
- No bank swallow (*Riparia riparia*) nesting habitat was observed within 250 feet of the Study Area

5.0 SUMMARY AND RECOMMENDATIONS

No sensitive biological communities are present within the Study Area. No special-status plant species have moderate or high potential to occur within the Study Area. Two special-status wildlife species, Swainson's hawk and burrowing owl, may be present within buffers (300 feet and 0.5 mile respectively) designated in the NBHCP, but are unlikely to nest within the Study Area. In addition, non-status birds protected by the MBTA may nest within or adjacent to the Study Area. No other special-status wildlife species have potential to occur within the Study Area.

Natomas Basin Habitat Conservation Plan Review

The Study Area is within the NBHCP Permit Area, and projects may obtain authorization for take and mitigation coverage through payment of in-lieu fees to the NBHCP. NBHCP fees for this parcel have already been paid. Therefore, the Study Area will have already fulfilled mitigation fee requirements, and no additional habitat mitigation fees, including Swainson's hawk foraging habitat, would be required.

However, as stated in Section 2.2, projects receiving permits through the NBHCP must also implement avoidance and minimization measures included in the NBHCP to reduce the potential for take of covered species. Measures include a pre-construction survey for all species considered "Covered" by the NBHCP between 30 days and 6 months (or prior year for species with seasonal survey windows) prior to initiation of construction activities and additional species-specific conservation measures. See below for additional species-specific conservation measures.

5.1 Biological Communities

The entirety of the Study Area is highly disturbed and almost entirely plowed and is comprised of the ruderal herbaceous biological community, which is not a sensitive community.

5.2 Special-Status Plant Species

No special status plant species have a moderate or high potential to occur within the Study Area, and no special-status plant species were observed during the October 2019 site visit. As such, no additional actions are recommended for special-status plant species.

5.3 Special-Status Wildlife Species

No special status wildlife species have potential to occur within the Study Area. However, Swainson's hawk and burrowing owl may occur within species-specific buffers designated in the NBHCP. Recommendations for these species are detailed below.

Swainson's hawk

While most of the land within 0.5 miles of the Study Area is not suitable for nesting, there is potential for Swainson's hawk to nest in a patch of trees within an undeveloped area approximately 0.5 miles south of the Study Area.

Although Swainson's hawk has no potential to nest within the Study Area, the NBHCP requires a pre-construction survey of the Study Area and potential nest trees within 0.5 mile in urban areas if work is to commence during the Swainson's hawk nesting season from March 15 to September 15 (City of Sacramento et al. 2003). Per the NBHCP, if breeding Swainson's hawks are identified during this time period, no new disturbances will occur within 0.5 mile of an active nest site until a qualified biologist, with concurrence by the CDFW, has determined that young have fledged or that the nest is no longer occupied.

Burrowing owl

While burrowing owl is unlikely to occur within the Study Area, the berm along Interstate 5 did not appear disked and is within 300 feet of the site. This small strip of land to the west may support burrowing owl. The NBHCP requires a pre-construction survey prior to physical disturbance on the site. If burrowing owls are found, additional measures may be necessary as described in the NBHCP, including a 300-foot no-disturbance buffer during the nesting season or relocation of individuals.

5.4 Non-Status Birds

Native birds may nest within the Study Area. Most native birds have baseline protections under the California Fish and Game Code. Under these laws/codes, the intentional killing, collecting or trapping of covered species, including their active nests (those with eggs or young), is prohibited. Measures for the protection of nesting birds typically include a pre-construction survey by a qualified biologist if construction is initiated during the nesting season (February 1-August 31). If nests are located, a no disturbance buffer is placed around the nest and work within the buffer resumes once the nest has either fledged or failed.

6.0 REFERENCES

Bolster, B.C., editor. 1998. Terrestrial Mammal Species of Special Concern in California Draft Update. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No.FG3146WM.

[CDFG] California Department of Fish and Game. 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley. California Department of Fish and Game, Sacramento, CA.

[CDFW] California Department of Fish and Wildlife. 2019a. California Natural Diversity Database. Biogeographic Data Branch, Vegetation Classification and Mapping Program, Sacramento, California. Available online at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp; most recently accessed: November 2019.

[CDFW] California Department of Fish and Wildlife. 2019b. California Wildlife Habitat Relationship System Database for life history accounts and range maps. Available online at: https://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx. Accessed: November 2019.

City of Sacramento. 2015a. Sacramento 2035 General Plan. In consultation with Mintier Harnish, Ascent Environmental, Inc, Fehr & Peers, Nelson Nygaard, New Economics and Advisory, NV5, and Page & Turnbull. Sacramento, California. March 3.

City of Sacramento. 2015b. 2014 Annual Report of Urban Development for the City of Sacramento. Prepared by John F. Shirey for the Sacramento Fish and Wildlife Office, the California Department of Fish and Wildlife, and the Natomas Basin Conservancy. Sacramento, CA. February.

City of Sacramento et al. 2003. Final Natomas Basin Habitat Conservation Plan. Prepared by the City of Sacramento, Sutter County, and the Natomas Basin Conservancy in association with Reclamation District No. 1000 and Natomas Central Mutual Water Company. Prepared for United States Fish and Wildlife Service and California Department of Fish and Game. April.

[CNPS] California Native Plant Society. 2019a. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: November 2019.

[CNPS] California Native Plant Society. 2019b. A Manual of California Vegetation, Online Edition. Sacramento, California. Online at: http://vegetation.cnps.org/; most recently accessed: November 2019.

[CSRL] California Soil Resources Lab. 2019. Online Soil Survey. Online at: http://casoilresource.lawr.ucdavis.edu/drupal/; most recently accessed: November 2019.

eBird. 2019. Online bird occurrence database. Available at: http://ebird.org/content/ebird/. Accessed: November 2019.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

Erikson, C.H. and D. Belk. 1999. Fairy Shrimps of California's Puddles, Ponds and Playas. Mad River Press, Inc., Eureka, CA.

Google Earth. 2019. Aerial Imagery 1993-2019. Most recently accessed November 2019.

Jepson Flora Project (eds.). 2019. Jepson eFlora. Online: http://ucjeps.berkeley.edu/IJM.html; most recently accessed: November 2019.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

NatureServe. 2019. NatureServe Conservation Status. Available online at: http://explorer.natureserve.org/ranking.htm

[NETR] Nationwide Environmental Title Research. 2019. Historic Aerials. Available online at: http://www.historicaerials.com/; most recently accessed: November 2019.

Shuford, WD, and T Gardali (eds). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and CDFG, Sacramento.

Thomson, R.C., A.N. Wright, and H.B. Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. Co-published by the California Department of Fish and Wildlife and University of California Press. Oakland, California.

[USDA] United States Department of Agriculture, Soil Conservation Service. 1993. Soil Survey of Sacramento County, California. In cooperation with the University of California Agricultural Experiment Station.

[USFWS] United States Fish and Wildlife Service. 2019. Information for Planning and Conservation Database. Available online at: https://ecos.fws.gov/ipac/; most recently accessed: November 2019.

[USFWS] United States Fish and Wildlife Service. 2008. Bird of Conservation Concern. Division of Migratory Bird Management. Arlington, Virginia. December.

[USGS] United States Geological Survey. 2018a. Taylor Monument 7.5-minute Quadrangle map.

[USGS] United States Geological Survey. 2018b. Rio Linda 7.5-minute Quadrangle map.

[USGS] United States Geological Survey. 2018c. Sacramento West 7.5-minute Quadrangle map.

[USGS] United States Geological Survey. 2018d. Sacramento East 7.5-minute Quadrangle map.

[WKA] Wallace Kuhl & Associates. 2019. Natomas II Property Phase 1. East Commerce Way, Sacramento, California. Phase I Environmental Site Assessment. WKA No. 12512.01. October 2.

APPENDIX A

RESUMES OF QUALIFICATIONS

SCOTT BATIUK, BS

Plant Biologist

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o: 415.524.7211

Years of Experience: 9

Education

B.S. Forest Resources, University of Washington. 2010.

Permits

CDFW 2081 Plant Voucher Collection Permit #15-032-V

Professional Affiliations

California Native Plant Society

California Lichen Society

Southern California Botanists

Specialized Training

Releve and Rapid Vegetation Assessment, CNPS

Fluvial Geomorphology and River Restoration, UCB

Certified Wetland Delineator, Wetland Training Institute

Advanced Hydric Soils workshop, Wetland Training Institute

Numerous technical botanical workshops through the Jepson Herbarium at UC Berkeley and the CSU Chico Herbarium

Scott Batiuk received a Bachelor of Science degree in Forest Resources from the University of Washington, where his studies focused on forest ecology. He has worked in a wide variety of habitats in California, the Pacific Northwest, Nevada, and Uruguay, and his experience includes special-status plant surveys, plant community mapping, invasive species management, forest plot mapping, post-fire recovery monitoring, native seed collection, restoration planting, and mitigation land monitoring. In addition, Scott has training in soil science, wetland delineation, plant ecophysiology, and fluvial geomorphology. Before joining WRA, Scott worked for a variety of non-profit, academic, private, and government organizations.

At WRA, Scott's work includes protocol-level rare plant monitoring, vernal pool vegetation and hydrology monitoring, vegetation type mapping, and wetland delineation. He also works with permitting, compliance, and habitat restoration plans.

Representative Projects

SPECIAL-STATUS PLANT SURVEYS AND VEGETATION MAPPING

Special-Status Plant Monitoring, Invasive Plant Monitoring, Hydrology Monitoring, and Grazing Management, Elsie Gridley Mitigation Bank, Solano County, California – Spring 2013-Present

The 2,000-acre Elsie Gridley Mitigation Bank, located in rural Solano County, California, encompasses the preservation of existing Sacramento Valley vernal pool habitat, creation of seasonal wetlands and vernal pools which host several species of special status plants and wildlife, and maintenance of interstitial upland grasslands. Scott has monitored and surveyed for special-status plant species; monitored, assessed, and helped to direct the treatment of invasive plant species; helped manage sitewide grazing; and monitored seasonal wetland hydrology. During special-status plant monitoring, Scott has documented and mapped several special-status species at the site, including alkali milkvetch (*Astragalus tener* var. *tener*), San Joaquin spearscale (*Extriplex joaquinana*), dwarf downingia (*Downingia pusilla*), saline clover (*Trifolium hydrophilum*), Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), and hogwallow starfish (*Hesperevax caulescens*). As part of ongoing invasive species monitoring, Scott surveys the site to document new occurrences of invasive species, assess the effectiveness of past treatment on old occurrences, and direct new treatment. For grazing management, Scott assesses the site throughout the year and uses these regular observations as well as residual dry matter estimates to make grazing recommendations to the livestock manager. Finally, Scott helps monitor the inundation period of several seasonal wetlands at the site as part of habitat monitoring for special-status vernal pool crustaceans.

Jurisdictional Delineation, Special-Status Plant Survey, and Sensitive Biological Community Assessment, Confidential Mine Location, Kern County, California – Summer 2018
WRA conducted biological surveys and a jurisdictional waters delineation for the proposed expansion of a mine in the Mojave Desert. Scott led the delineation, biological community, and special-status plant species survey efforts and helped prepare the subsequent reports and maps.

Jurisdictional Delineation, Special-Status Plant Survey, and Sensitive Biological Community Assessment, U.S./Mexico Border, San Diego, California – Fall 2017
WRA conducted biological surveys and a jurisdictional waters delineation for a U.S. Customs and Border Protection border fence replacement project located along approximately 15 miles of the U.S./Mexico border immediately north of the existing primary border fence in the San Diego Border Infrastructure System in San Diego County, California. Scott led the delineation effort and wrote the subsequent report detailing the results of the delineation. In addition, Scott led portions of the special-status plant species and sensitive habitat survey and assessment, where he identified numerous special-status plant species and several sensitive plant communities.

Special-Status Plant Survey and Sensitive Biological Community Assessment, Private Property, Montara, San Mateo County, California – Summer 2015
Scott conducted an assessment of biological resources at a private property situated on coastal terrace and located within California Coastal Commission jurisdiction. The assessment included surveying and mapping special-status plant species and evaluating the potential for occurrence of special-status plant species that were outside of their blooming periods at the time of the site visit. The assessment also including mapping the locations of any natural resources, such as wetlands and riparian vegetation, considered sensitive under federal, state, and local regulations including the Clean Water Act, the California Fish and Game Code, the California Environmental Quality Act (CEQA), and the County of San Mateo Local Coastal Program. Scott mapped populations of woodland strawberry (*Fragaria vesca*; considered sensitive under the San Mateo Local Coastal Program) as well as natural communities such as seasonal wetland and coastal terrace prairie.

Special-Status Plant Survey, Confidential Project Site, Kings County, California – Summer 2015
Scott led a special-status plant survey at a 43-acre project site in the San Joaquin Valley in Kings County, California. The site is composed of alkaline soils and contains a number of vernal pools situated in alkaline grassland. During special-status plant surveys, thousands of individuals of special-status species were mapped, including Earlimart orache (*Atriplex cordulata* var. *erecticaulis*), lesser saltscale (*Atriplex minuscula*), and subtle orache (*Atriplex subtilis*). During the site visit, Scott also led a team in marking the boundaries of wetlands and special-status plant populations using wooden stakes.

Special-Status Plant Survey, The Sea Ranch Association, Sonoma County, California – Summer 2015
Scott performed protocol-level rare plant surveys, as required by the County of Sonoma, for a fiber optic cable installation project. His responsibilities included walking 20 miles of road, identifying common and special-status plants, and collecting georeferenced data points for the special-status plants encountered.

Special-Status Plant Survey, Hawthorne Mill Property, Solano County, California – Spring 2014
The Hawthorne Mill property is a grazed grassland landscape that contains a network of vernal pools and is proposed to become a mixed-use development and conservation area. As part of a resource assessment, Scott conducted a survey that was floristic in nature of part of the property and mapped occurrences of the federal-endangered Contra Costa goldfields (*Lasthenia conjugens*).

Special-Status Plant Surveying and Monitoring and Vegetation Mapping, Confidential Project Site, Santa Barbara County, California – Spring 2013-Winter 2015
Scott has helped to conduct special-status plant surveys and map the vegetation of a 25,000-acre property in Santa Barbara County. Over the course of numerous visits, he has helped to cover the property on-foot, documenting occurrences of special-status plants and mapping plant communities to the alliance level. Scott has also helped to write annual biological resource reports for the site.

Special-Status Plant Surveys, Proposed Tembo Preserve, Tehama County, California – Fall 2013-Summer 2015
The Tembo Preserve is a proposed elephant preserve at a 5,000-acre site in rural Tehama County. Habitats at the project site include oak woodland, non-native annual grassland, vernal pools, and episodic drainages. Scott has led multiple field efforts to survey for special-status plant species throughout the site. During special-status plant surveys, he documented an unknown population of big-scale balsamroot (*Balsamorhiza macrolepis*). Scott has been the lead author on CEQA-level biological resource assessment documents and has provided federal and state permitting support by writing and compiling the applications for the Army Corps of Engineers 404 Department of the Army permit and the State of California Regional Water Quality Control Board Section 401 Water Quality Certification.

Special-Status Plant Survey, Pacific Commons Preserve Biological Monitoring, Alameda County, California – Summer 2013
The Pacific Commons Preserve is a 444-acre preserve encompassing preservation of existing South Bay vernal pool habitat, creation of seasonal wetlands and vernal pools which host several species of special status plants and wildlife, and maintenance of interstitial upland grasslands. Scott worked with U.S. Fish and Wildlife Service staff to conduct annual monitoring of two special-status plant species: San Joaquin spearscale and Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*).

Special-Status Plant Surveys, Antonio Mountain Ranch Conservation and Mitigation Bank-proposed, Roseville, Placer County, California – Spring 2013
The Antonio Mountain Ranch Bank is a proposed conservation and mitigation bank for wildlife and wetlands. Scott conducted special-status plant species surveys and vegetation mapping. The 800-acre ranch supports extensive vernal pool complexes within non-native annual grasslands, perennial marsh and perennial stream habitats. Scott conducted surveys throughout the site for several special-status species that occur in vernal pool and grassland habitat.

Special-Status Plant and Noxious Weed Surveys, Proposed Ramelli-Hall Grazing Allotment, Plumas County, California – Summer 2013
WRA was contracted by Plumas Corporation to survey over 13,000 acres of Sierra meadow, scrub, and mixed conifer stands for special-status plant species as part of a proposed grazing allotment in Plumas National Forest. Scott helped to conduct and report the findings of protocol-level surveys for special-status plant species, sensitive vegetation/aquatic communities, and noxious weeds. During the surveys, thousands of individuals of three Forest Service Sensitive species were mapped in the various project areas. The surveys culminated in the drafting of a written report on-file with Plumas Corporation and Plumas National Forest.

RA'AM AKIBA-HAJIM
Biologist
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Years of Experience: 4

Education

BA Environmental Studies, University of California Santa Barbara, 2015

Specialized Training

Identifying and Appreciating the Native and Naturalized Grasses of California, CNGA, 2018

Wetland Delineation Training, Fairbanks, AK 2016 & 2017

CPR/First Aid Certification 2017

ATV Safety Training 2017

Helicopter Safety Training 2017

Ra'am is a broadly trained biologist with experience in the fields of ecology, botany, horticulture, environmental restoration and soil science. Prior to joining WRA, Ra'am conducted jurisdictional wetland delineations in central Alaska for the Center for Environmental Management of Military Lands and assisted in wetland restoration in Santa Barbara for the Cheadle Center for Biodiversity and Ecological Restoration.

At WRA, Ra'am works both in the field and office, conducting field surveys, preparing technical reports, and assisting with regulatory permitting efforts. Ra'am has experience conducting rare plant surveys, biological resources assessments, wetland delineations, and dry wash mapping. Ra'am has experience preparing permit applications for projects with wetland or stream impacts seeking coverage under Sections 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code, including preparing associated Habitat Mitigation and Monitoring Plans. Ra'am also has experience working with Habitat Conservation Plans (HCPs) and Natural Community Conservation Plan (NCCPs).

Representative Projects

Pacific View LLC, Pacifica Environmental, Pacifica, California
Pacific Views is a proposed development of a subdivision within the City of Pacifica. Ra'am worked alongside a WRA certified arborist to perform a biological resources assessment and an arborist survey. He wrote the corresponding biological resources assessment report and arborist report that followed the on-site surveying. Pacific View project contained sensitive species such as butterfly and associated host plants.

Confidential Client Novato Biological Services, Novato, California
A proposed project for the purpose of establishing housing in Novato. As part of the WRA team, Ra'am conducted both a jurisdictional wetland delineation and biological resources survey. He wrote the corresponding reports that followed the site visit, a biological resources assessment and wetland delineation.

Making Waves Foundation, Making Waves Pittsburg Biological Constraints Analysis and Wetland Delineation, Pittsburg, California
Making Waves Pittsburg is a proposed project for the purpose of establishing a school and related recreational facilitates. Ra'am collaborated with a WRA wildlife biologist to conduct a biological constraints survey that characterized potential sensitive resources and conducted a wetland delineation during another site visit. Additionally he wrote the corresponding biological constraints analysis and wetland delineation report as well as conducting the fee analysis for the East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan.

City of Half Moon Bay, 2806 Alameda Avenue Biological Resources Evaluation, Half Moon Bay, California
2806 Alameda Ave is a proposed project for the establishment of a single home in an existing residential area. As part of the WRA team, Ra'am conducted both a jurisdictional wetland delineation and biological resources survey. Additionally he wrote the corresponding biological resources evaluation report that followed the on-site surveying.

City of Half Moon Bay, Midcoast Multi-Modal Trail, Half Moon Bay, California
The Midcoast Multi-Modal Trail is a proposed project for creating a trail that allows non-vehicle movement adjacent to HWY 1 to service the public. Under guidance of senior staff, Ra'am compiled and wrote the required permits for the project to be completed.

City of Livermore, Springtown Mitigation Project, Livermore, California
The Springtown Mitigation Project is a proposed project for compensatory mitigation for wetlands and several special status species. In cooperation with other WRA staff, Ra'am conducted a wetland delineation and rare plant survey. Additionally, under the guidance of senior staff, Ra'am completed a comprehensive biological resources assessment and wrote the required permits for the project to be completed.

Ecosystem Investment Partners, Lookout Slough Restoration Project, Livermore, California
The Lookout Slough Project is a proposed project that will convert a large area to support several special status species including Delta Smelt and Giant Garter Snake. In cooperation with other WRA staff, Ra'am was involved with an extensive wetland delineation. Additionally, under the guidance of senior staff, Ra'am completed a comprehensive biological resources assessment and wrote the required permits for the project to be completed.

Molly Brewer
Wildlife Biologist
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Years of Experience: 7

Education
BS Biology, University of California Santa Cruz, 2012

Professional Affiliations/ Certifications
CPR, AED, and First Aid for Adults, 2016

Specialized Training
Marbled murrelet surveyor certification, Hamer Environmental/Pacific Seabird Group, 2017

Molly Brewer received her Bachelor's degree in Biology from the University of California, Santa Cruz and has over seven years of experience in wildlife and natural resources. This includes field work across the San Francisco Bay area, Sierra Nevada, Great Basin sage-steppe, Amazon rainforest, Cascade Mountains and Oregon coast. She has experience with surveys for a variety of organisms including nesting birds, amphibians and reptiles, mammals, and invertebrates. Her diverse background in fieldwork has given her hands on experience with hundreds of species in a variety of ecosystems.

With WRA, Molly performs biological assessments, focused wildlife surveys, construction monitoring and provides project coordination and management. She has surveyed or monitored for the following special-status species: burrowing owl, Swainson's hawk, California red-legged frog, foothill yellow-legged frog, western pond turtle, salt-marsh harvest mouse, western snowy plover, California Ridgway's rail, Bay checkerspot butterfly, monarch butterfly, San Francisco giant gartersnake, and California tiger salamander. Prior to arriving at WRA, Molly worked with the USFS, University of Nevada Reno, the CREES Foundation, Oregon Parks and Recreation Department, and the California Tahoe Conservancy. She has conducted surveys on greater sage-grouse and state listed birds including marbled murrelet and northern spotted owl. In addition, she has performed camera trapping, small-mammal trapping, lek-counts, point counts, mist-netting, pitfall traps, visual encounter surveys, and butterfly surveys.

Representative Projects

Elsie Gridley Mitigation Bank, Solano County, California (2018-2019)
The Elsie Gridley Mitigation Bank is the largest mitigation bank in California at more than 1,800 acres, and is a central component of the largest contiguous vernal pool preserve in the United States. The bank is approved by five different agencies and covers two different Army Corps Districts. In addition, the bank sells both numerous species credits such as California tiger salamander, vernal pool crustaceans, Swainson's hawk, and burrowing owl, as well as wetland credits to offset impacts under the Clean Water Act. Molly has performed surveys for special-status species including Swainson's hawk and burrowing owl and annual reporting as part of the ongoing annual monitoring requirement.

Biological Assessment and Focused Wildlife Surveys for Confidential Client, Lake County, California (2018-2019)
A confidential client contracted WRA to conduct a biological resources assessment of a recently purchased property in Lake County to determine the full extent of wildlife that occupied the property. Molly surveyed for and identified special-status species throughout the property including golden and bald eagles and special-status amphibians. In total, five eagle nests were located over two months of surveys. Other special-status species including foothill yellow-legged frog, western pond turtle, tricolored blackbird, white-tailed kite and yellow-headed blackbird were also identified on site.

***Oak Knoll Development Project, Oakland, Alameda County, California* (2019)**
SunCal is proposing to develop the approximately 200-acre former Naval Hospital site with nearly 1000 housing units as well as a retail center, a community center, and more than 60 acres of open space. The project also involves 5,000 linear feet of creek restoration, including 1,000 linear feet of creek daylighting. WRA is the project biological consultant, responsible for California Environmental Quality Act (CEQA) biological studies and regulatory permitting. Molly manages construction monitoring on site and a variety of biological surveys including nesting bird surveys and rare plant surveys.

***Treasure Island/Yerba Buena Island Redevelopment, San Francisco, California* (2018-2019)**
The Treasure Island and Yerba Buena Island Redevelopment Project involves the conversion of 460 acres of the former Naval Base Treasure Island to mixed-use development, parks, and open space sponsored by the City of San Francisco and a consortium of private developers. It is one of the largest and most visible projects in the San Francisco Bay Area in the last 30 years. The project requires shoreline improvements and construction of a new ferry terminal located within an existing Anchorage Zone designated by the U.S. Coast Guard. In accordance with project permits, Molly managed nesting bird surveys and reporting. Molly conducted over 75 hours of nesting bird surveys on both Treasure Island and Yerba Buena Island, successfully identifying numerous active nests. In addition to nesting bird surveys, Molly has conducted pre-demolition bat inspections of buildings on the site. This project is ongoing.

Burrowing Owl, Breeding Bird, and Amphibian Surveys for Confidential Client, San Benito County, California (2018-2019)
As part of a larger wildlife survey effort, Molly performed a comprehensive avian inventory of breeding birds with particular focus for Least Bell's Vireo along the Pajaro River riparian corridor. Molly was able to identify a variety of avian species utilizing the riparian corridor during the breeding season including: cliff swallow, tree swallow, European starling, mourning dove, American crow, red-tailed hawk, white-tailed kite, song sparrow, bewick's wren, Anna's hummingbird, American robin, house wren, chestnut-backed chickadee, barn swallow, house finch, black phoebe, yellow warbler, bushtit, red-shouldered hawk, American kestrel, western bluebird, Nuttall's woodpecker, loggerhead shrike, and Wilson's warbler. Molly also mapped potential burrowing owl habitat and conducted nighttime visual encounter surveys for amphibians.

California Ridgway's Rail Surveys, Bon Air Bridge Rehabilitation, Larkspur, California (2018-2019)
Bon Air Bridge spans Corte Madera Creek, providing an important link between Magnolia Avenue, Larkspur's main street, and the northeast side of the city. The bridge is scheduled to be replaced by a new bridge, correcting structural deficiencies to provide a stable and safe structure. Molly has worked on the project monitoring for salt marsh harvest mouse and marine mammals and conducted surveys for California clapper rails during the early stages of this project under the supervision of federal recovery permit holder Jason Yakich (TE-58760A-0). Molly has positively identified multiple CRR during this project. This project is ongoing.

Ridge Top Ranch Wildlife Conservation Bank, Solano County, California (2017)
Molly assisted WRA Biologist Rob Schell federal recovery permit holder (TE-212445 3), in counting and processing tagged Federal listed California red-legged frogs that had been raised from egg masses within newly established ponds. Over 20 adults were captured and processed.

APPENDIX B

LIST OF PLANT AND WILDLIFE SPECIES OBSERVED WITHIN THE STUDY AREA

Appendix B-1: Plant Species Observed within the Study Area during the October 22, 2019 Site Visit

Family	Scientific Name	Common Name	Origin	Form	Rarity Status[1]
Amaranthaceae	*Amaranthus albus*	Tumbleweed	non-native	annual herb	-
Amaranthaceae	*Amaranthus* sp.	Amaranth	non-native	annual herb	-
Asteraceae	*Carduus pycnocephalus* ssp. *pycnocephalus*	Italian thistle	non-native (invasive)	annual herb	-
Asteraceae	*Centaurea solstitialis*	Yellow starthistle	non-native (invasive)	annual herb	-
Asteraceae	*Dittrichia graveolens*	Stinkwort	non-native (invasive)	annual herb	-
Asteraceae	*Erigeron canadensis*	Canada horseweed	native	annual herb	-
Asteraceae	*Helminthotheca echioides*	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-
Asteraceae	*Lactuca serriola*	Prickly lettuce	non-native (invasive)	annual herb	-
Asteraceae	*Silybum marianum*	Milk thistle	non-native (invasive)	annual, perennial herb	-
Asteraceae	*Sonchus oleraceus*	Sow thistle	non-native	annual herb	-
Brassicaceae	*Hirschfeldia incana*	Summer mustard	non-native (invasive)	perennial herb	-
Brassicaceae	*Lepidium latifolium*	Perennial pepperweed	non-native (invasive)	perennial herb	-
Chenopodiaceae	*Chenopodium album*	Lambs quarters	non-native	annual herb	-
Chenopodiaceae	*Salsola* sp.	Russian thistle	non-native (invasive)	annual herb	-

Family	Scientific Name	Common Name	Origin	Form	Rarity Status[1]
Fabaceae	*Medicago polymorpha*	California burclover	non-native (invasive)	annual herb	-
Malvaceae	*Malva neglecta*	Dwarf mallow	non-native	annual, perennial herb	-
Malvaceae	*Malvella leprosa*	Alkali mallow	native	perennial herb	-
Poaceae	*Avena barbata*	Slim oat	non-native (invasive)	annual, perennial grass	-
Poaceae	*Bromus diandrus*	Ripgut brome	non-native (invasive)	annual grass	-
Poaceae	*Festuca perennis*	Italian rye grass	non-native	annual, perennial grass	-
Poaceae	*Hordeum murinum*	Foxtail barley	non-native (invasive)	annual grass	-
Polygonaceae	*Polygonum aviculare*	Prostrate knotweed	non-native	annual, perennial herb	-
Polygonaceae	*Rumex crispus*	Curly dock	non-native (invasive)	perennial herb	-

- All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2010]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2019]

[1]Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2019a)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extinct in California
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

Appendix B-2: Wildlife Species Observed within the Study Area during the October 22, 2019 Site Visit

Common Name	Scientific Name
Mammals	
black-tailed jackrabbit	*Lepus californicus*
Birds	
American crow	*Corvus brachyrhynchos*
northern mockingbird	*Mimus polyglottos*
Say's phoebe	*Sayornis saya*

APPENDIX C

POTENTIAL FOR SPECIAL STATUS SPECIES TO OCCUR WITHIN THE STUDY AREA

Appendix C. Potential for special-status plant and wildlife species to occur in the Study Area. List compiled from the U.S. Fish and Wildlife Service (USFWS) IPaC Trust Report, a search of the California Department of Fish and Wildlife Natural Diversity Database (CDFW 2019) and the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2019a) for the Taylor Monument, Rio Linda, Sacramento West, and Sacramento East U.S. Geological Survey 7.5' quadrangles (USGS 2018a-d), a review of historical and current satellite imagery (Google Earth 2019, NETR 2019), and a review of other CDFW and USFWS lists and publications (Shuford and Gardali 2008, Tomson et al. 2016, USFWS 2008).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Plants				
Ferris' milk-vetch *Astragalus tener var. ferrisiae*	Rank 1B.1	Meadows and seeps (vernally mesic), valley and foothill grassland (subalkaline flats). Elevation ranges from 10 to 250 feet (2 to 75 meters). Blooms Apr-May.	**No Potential.** The Study Area does not contain meadows or subalkaline flats.	No further actions are recommended for this species.
valley brodiaea *Brodiaea rosea* ssp. *vallicola*	Rank 4.2	Valley and foothill grassland (swales), vernal pools. Elevation ranges from 30 to 1100 feet (10 to 335 meters). Blooms Apr-May (Jun).	**No Potential.** The Study Area does not contain valley and foothill grassland, swales, or vernal pool habitats.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Parry's rough tarplant *Centromadia parryi ssp. rudis*	Rank 4.2	Valley and foothill grassland, vernal pools/alkaline, vernally mesic, seeps, sometimes roadsides. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms May-Oct.	**Unlikely.** Although this taxon is tolerant of disturbed conditions, the long-term disturbance at the site, such as regular, sitewide disking, as well as the lack of mesic habitat reduce the likelihood that the Study Area will support this species. In addition, the nearest occurrence is approximately 8.5 miles WNW of the Study Area. Finally, the site assessment occurred during the blooming period of this species, and no individuals were observed.	No further actions are recommended for this species.
dwarf downingia *Downingia pusilla*	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 0 to 1460 feet (1 to 445 meters). Blooms Mar-May.	**No Potential.** The Study Area does not contain valley and foothill grassland or vernal pool habitats.	No further actions are recommended for this species.
stinkbells *Fritillaria agrestis*	Rank 4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland/clay, sometimes serpentine. Elevation ranges from 30 to 5100 feet (10 to 1555 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland or serpentine substrates. Although the Study Area contains clay substrate, the long-term disturbance and regularly disked conditions of the site are unlikely to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Boggs Lake hedge-hyssop *Gratiola heterosepala*	SE, Rank 1B.2	Marshes and swamps (lake margins), vernal pools/clay. Elevation ranges from 30 to 7790 feet (10 to 2375 meters). Blooms Apr-Aug.	**No Potential.** The Study Area does not contain marsh and swamp or vernal pool habitats.	No further actions are recommended for this species.
woolly rose-mallow *Hibiscus lasiocarpos var. occidentalis*	Rank 1B.2	Marshes and swamps (freshwater)/often in riprap on sides of levees.. Elevation ranges from 0 to 390 feet (0 to 120 meters). Blooms Jun-Sep.	**No Potential.** The Study Area does not contain marsh or swamp habitats.	No further actions are recommended for this species.
legenere *Legenere limosa*	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2890 feet (1 to 880 meters). Blooms Apr-Jun.	**No Potential.** The Study Area does not contain vernal pool habitat.	No further actions are recommended for this species.
Sanford's arrowhead *Sagittaria sanfordii*	Rank 1B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 0 to 2130 feet (0 to 650 meters). Blooms May-Oct (Nov).	**No Potential.** The Study Area does not contain marsh or swamp habitats.	No further actions are recommended for this species.
Suisun Marsh aster *Symphyotrichum lentum*	Rank 1B.2	Marshes and swamps (brackish and freshwater). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms (Apr), May-Nov.	**No Potential.** The Study Area does not contain marsh or swamp habitats.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Mammals				
ringtail (ring-tailed cat) *Bassariscus astutus*	CFP	Is widely distributed throughout most of California, but absent from some portions of the Central Valley and northeastern California. The species is nocturnal, primarily carnivorous and is associated with a mixture of dry forest and shrubland in close association with rocky areas and riparian habitat, using hollow trees and cavities for shelter.	**No Potential.** The Study Area and adjacent areas do not contain forest, shrubland, or riparian habitats to support this species.	No further actions are recommended for this species.
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Unlikely.** Ruderal herbaceous areas within the Study Area has been regularly disked and no badger burrows were observed during the October 22, 2019 site visit. The nearest documented occurrence of this species to the Study Area is approximately 10 miles from the site (CDFW 2019). Additionally, the Study Area is surrounded by dense suburban development and major highways including Interstate 5, likely precluding this species from colonizing the site.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
pallid bat *Antrozous pallidus*	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures such as bridges, barns, and human-occupied as well as vacant buildings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**No Potential.** This species may occasionally fly over the Study Area but there are no trees or structures to support roosting.	No further actions are recommended for this species.
western red bat *Lasiurus blossevillii*	SSC, WBWG High	This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	**No Potential.** This species may occasionally fly over the Study Area but there are no trees to support roosting.	No further actions are recommended for this species.
hoary bat *Lasiurus cinereus*	WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**No Potential.** This species may occasionally fly over the Study Area but there are no trees to support roosting.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Birds				
golden eagle *Aquila chrysaetos*	CFP, BGEPA	Resident in rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees in open areas.	**Unlikely.** Individuals may occasionally fly over the Study Area, but the Study Area does not contain any trees to support nesting, is regularly disked, and is surrounded by development, reducing the likelihood this species may even forage there.	No further actions are recommended for this species.
bald eagle *Haliaeetus leucocephalus*	SE, CFP, BGEPA	Occurs year-round in California, but primarily a winter visitor. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**Unlikely.** The Study Area and surrounding areas do not contain large bodies of water to support foraging or trees near water to support nesting. This species may occasionally fly over the Study Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Swainson's hawk *Buteo swainsonii*	ST	Summer resident in the region. Forages in grasslands and nests in the immediate vicinity, often in relatively isolated, trees or tree groves. Most of the California population breeds in the Central Valley. Forages on insects and rodents, also other vertebrates.	**Unlikely.** There are no trees within the Study Area to support nesting by Swainson's hawk. A limited number of potential nest trees are present within 0.25 mile and 0.5 mile (disturbance buffer within urbanized areas) of the Study Area, as many of the landscaping trees are not of suitable size. One Swainson's hawk nest was documented approximately 0.5 miles south of the Study Area in 2003 (CDFW 2019a). Although there is no nesting habitat within the Study Area, it is within foraging distance of documented nest sites. The foraging quality of the Study Area is diminished due to the regular disking that occurs on the site and the site's locations amongst development and other disked land.	NBHCP fees have been paid; however, under the NBHCP guidelines, preconstruction surveys will be necessary. See Section 5 of the text for further details.
northern harrier *Circus cyaneus*	SSC	Nests and forages in grassland habitats, usually in association with coastal salt and freshwater marshes. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. May also occur in alkali desert sinks.	**Unlikely.** While the Study Area and adjacent areas contain herb-dominated vegetation, the Study Area is regularly disked which likely precludes nesting.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
white-tailed kite *Elanus leucurus*	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Unlikely.** The Study Area does not contain trees or shrubs suitable for nesting, and trees adjacent to the Study Area are landscaped trees amidst suburban residential and commercial development, making nesting unlikely. The Study Area contains ruderal herbaceous areas that may be suitable for foraging; however, the forage quality is diminished due to the regular disking that occurs on the site, and the site's locations amongst development or similar disked grassland on all sides.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
burrowing owl *Athene cunicularia*	SSC	Inhabits, dry annual or perennial grassland, desert and scrubland characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably California ground squirrel.	**Unlikely.** No ground squirrels or ground squirrel burrows were observed in the Study Area during the October 22, 2019 site visit. Additionally, the site is regularly disked, which limits the ability of ground squirrels to colonize the site. Currently the site cannot support burrowing owl occupation, but if management regimes change such that ground squirrels colonize the Study Area, the site may become suitable for burrowing owl. The berm outside of the Study Area to the west did not appear disked and may support burrowing owl.	NBHCP fees have been paid; however, under the NBHCP guidelines, preconstruction surveys will be necessary. See Section 5 of the text for further details.
short-eared owl *Asio flammeus*	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**Unlikely.** The Study Area and adjacent areas do not contain marshes to support nesting for this species, and because the Study Area is surrounded by development and is regularly disked, the quality of the foraging habitat is diminished.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
long-eared owl *Asio otus*	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	**Unlikely.** The Study Area and adjacent areas do not contain woodland or mature riparian habitats to support nesting for this species, and because the Study Area is surrounded by development and is regularly disked, the quality of the foraging habitat is diminished.	No further actions are recommended for this species.
purple martin *Progne subis*	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nest is often located in tall, isolated tree or snag.	**Unlikely.** The Study Area and adjacent areas do not contain woodland, forest, or human-made structures to support nesting for this species. This species may occasionally fly over or forage in the Study Area.	No further actions are recommended for this species.
bank swallow *Riparia riparia*	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and bands with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean. Historical range in southern and central areas of California has been eliminated by loss of nesting habitat due to flood and erosion-control projects, but currently is known to breed in Siskiyou, Shasta, and Lassen Cos., and along Sacramento River from Shasta Co. south to Yolo Co.	**Unlikely.** The Study Area and adjacent areas do not contain cliffs or riparian habitats necessary to support nesting for this species. This species may occasionally forage or fly over the Study Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
loggerhead shrike *Lanius ludovicianus*	SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree and riparian woodlands, and desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Unlikely.** Although the Study Area contains foraging habitat for this species, it does not contains trees or dense shrubs to support nesting. Also, the Study Area is regularly disked and is surrounded on all sides by suburban development, major roadways and similar disked grassland, reducing habitat quality and likelihood of supporting this species.	No further actions are recommended for this species.
California black rail *Laterallus jamaicensis coturniculus*	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**Unlikely.** The Study Area does not contain marsh habitat to support this species. The nearest documented occurrence is over 7 miles from the Study Area in a pond with vegetated islands.	No further actions are recommended for this species.
least bell's vireo *Vireo bellii pusillus*	FE, SE	Summer resident. Breeds in riparian habitat along perennial or intermittent rivers and creeks; prefers a multi-tiered canopy with dense early successional vegetation in the understory. Willows, mulefat and other understory species are typically used for nesting.	**No Potential.** The Study Area and adjacent areas do not contain contiguous riparian habitat to support this species, and the regional documented occurrences of this species in vicinity the past 100 years are west of the Study Area in the Yolo Bypass Wildlife Refuge (eBird 2019, CDFW 2019).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT, SE	Summer resident, breeding in dense riparian forests and jungles, typically with early successional vegetation present. Utilizes densely foliaged deciduous trees and shrubs. Eats mostly caterpillars. Current breeding distribution within California very restricted.	**No Potential.** The Study Area does not contain dense riparian forest to support this species.	No further actions are recommended for this species.
yellow-breasted chat *Icteria virens*	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	**Unlikely.** The Study Area does not contain and is not adjacent to riparian environments to support nesting for this species. This species may occasionally fly over the Study Area, but it will not nest there.	No further actions are recommended for this species.
tricolored blackbird *Agelaius tricolor*	ST, SSC	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Nesting area must be large enough to support about 50 pairs.	**Unlikely.** The Study Area does not contain and is not adjacent to wetlands with dense emergent vegetation to support nesting for this species. This species may occasionally fly over the Study Area, but it will not nest there.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
grasshopper sparrow *Ammodramus savannarum*	SSC	Summer resident in the region. Breeds in open grassland habitats, generally with low- to moderate-height grasses and scattered shrubs.	**Unlikely.** The Study Area is regularly disked and is surrounded on all sides by suburban development, major roadways and similar disked grassland, reducing habitat quality and likelihood of supporting this species. Regularly disking likely precludes nesting by this species.	No further actions are recommended for this species.
song sparrow (Modesto Population) *Melospiza melodia*	SSC	Restricted to the Sacramento and extreme northern San Joaquin Valleys from Colusa County south to Stanislaus County. Associated with woody riparian habitat and freshwater marshes.	**Unlikely.** The Study Area does not contain riparian or wetland habitat to support this species.	No further actions are recommended for this species.
Reptiles and Amphibians				
western spadefoot *Spea (=Scaphiopus) hammondii*	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	**No Potential.** The Study Area does not contain seasonal pools that may support this species and is regularly disked, further reducing suitability of the Study Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California red-legged frog *Rana draytonii*	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	**No Potential.** While the Study Area, is within this species' historic range, red-legged frog is considered extirpated in the region. There are no documented occurrences of this species within 10 miles of the Study Area (CDFW 2019).	No further actions are recommended for this species.
California tiger salamander *Ambystoma californiense*	FT, ST	Populations in Santa Barbara and Sonoma Counties are currently listed as endangered, and the Central Valley populations are listed as threatened. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Seasonal ponds and vernal pools are crucial to breeding. Adults utilize mammal burrows as estivation habitat.	**No Potential.** This species generally does not occur north of the American River. There are no documented occurrences of this species within 5 miles of the Study Area (CDFW 2019).	No further actions are recommended for this species.
giant garter snake *Thamnophis gigas*	FT, ST	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	**No Potential.** The Study Area does not contain marshes or aquatic areas to support this species, and is not accessible to any snakes in the vicinity in the Natomas East Drainage Canal because it is surrounded on all sides by suburban development.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western pond turtle *Actinemys marmorata*	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	**No Potential.** The Study Area does not contain aquatic habitat to support turtles. The Study Area is surrounded on all sides by suburban development, roadways, and disked grassland, further reducing potential for western pond turtle to occur.	No further actions are recommended for this species.
Fishes				
longfin smelt *Spirinchus thaleichthys*	FC, ST	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** The Study Area does not contain any aquatic environments to support fish.	No further actions are recommended for this species.
Sacramento perch *Archoplites interruptus*	SSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerate wide range of physio-chemical water conditions.	**No Potential.** The Study Area does not contain any aquatic environments to support fish.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Sacramento splittail *Pogonichthys macrolepidotus*	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Splittail are primarily freshwater fish, but are tolerant of moderate salinity and can live in water where salinity levels reach of 10-18 parts per thousand.	**No Potential.** The Study Area does not contain any aquatic environments to support fish.	No further actions are recommended for this species.
Chinook salmon - central valley spring-run ESU *Oncorhynchus tshawytscha*	FT, ST	Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	**No Potential.** The Study Area does not contain any aquatic environments to support fish.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chinook salmon – Sacramento winter-run ESU *Oncorhynchus tshawytscha*	FE, SE	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	**No Potential.** The Study Area does not contain any aquatic environments to support fish.	No further actions are recommended for this species.
steelhead - central valley DPS *Oncorhynchus mykiss irideus*	FT	The Central Valley ESU includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat for steelhead is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**No Potential.** The Study Area does not contain any aquatic environments to support fish.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Invertebrates				
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	**No Potential.** No *Sambucus* plants were observed during the October 22, 2019 site visit.	No further actions are recommended for this species.
vernal pool fairy shrimp *Branchinecta lynchi*	FT	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabits small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**No Potential.** The Study Area does not contain vernal pools or other seasonal pools to support this species. Also the Study Area is regularly disked, which disturbs the soil surface and could prevent new pools from forming.	No further actions are recommended for this species.
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**No Potential.** The Study Area does not contain vernal pools or other seasonal pools to support this species. Also the Study Area is regularly disked, which disturbs the soil surface and could prevent new pools from forming.	No further actions are recommended for this species.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FC	Federal Candidate
SE	State Endangered
ST	State Threatened
SC	State Candidate
SSC	CDFW Species of Special Concern
CFP	CDFW Fully Protected Animal
WBWG	Western Bat Working Group (High or Medium) Priority

BGEPA	Bald and Golden Eagle Protection Act
Rank 1A	CRPR Rank 1A: Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	CRPR Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2B	CRPR Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CRPR Rank 3: Plants about which CNPS needs more information (a review list)
Rank 4	CRPR Rank 4: Plants of limited distribution – a watch list

APPENDIX D

REPRESENTATIVE PHOTOGRAPHS OF THE STUDY AREA

Photograph 1. An example of the ruderal herbaceous biological community. Photo taken from the western boundary of the Study Area. View facing northeast. Photograph taken October 22, 2019.

Photograph 2. An example of the ruderal herbaceous biological community on the western boundary of the Study Area. View facing north. Photograph taken October 22, 2019.

Photograph 3. An example of the ruderal herbaceous biological community. The image shows the east side of the Study Area along East Commerce Way facing south. Photograph taken October 22, 2019.

Photograph 4. An example of the ruderal herbaceous biological community. The image shows the east side of Study Area from along East Commerce Way facing north. Photograph taken October 22, 2019..

Attachment 5

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment

NATOMAS II PROPERTY PHASE 1

East Commerce Way

Sacramento, California

WKA No. 12512.01

October 2, 2019

Prepared for:

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Phase I Environmental Site Assessment

NATOMAS II PROPERTY PHASE 1

East Commerce Way
Sacramento, California
WKA No. 12512.01
October 2, 2019

Wallace-Kuhl & Associates (WKA), on behalf of AG Spanos, prepared this Phase I Environmental Site Assessment for the Natomas II Property Phase 1 located along East Commerce Way in Sacramento, California. We declare that, to the best of our professional knowledge and belief, the report reviewer meets the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312 and have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. We have developed and performed the all appropriate inquiries in general conformance with the standards and practices set forth in 40 CFR Part 312 et seq. Resumes of the key staff who prepared this report are included in Appendix A.

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A Resumes
B ASTM E 1527-13 User Questionnaire and Helpful Documents Checklist
C EDR® Radius Map Report Executive Summary
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Attached CD contains: EDR® Reports: (Radius Map Report, Aerial Photographic Decade Package, Historical Topographic Maps, Sanborn Map Search), and Phase I ESA, Natomas II Property Phase 1 (WKA No. 12512.01 dated, October 2, 2019).

EXECUTIVE SUMMARY

The purpose of this Phase I Environmental Site Assessment (ESA) was to assess the Natomas II Property Phase 1 (herein referred to as Site) for evidence of Recognized Environmental Conditions (RECs) resulting from current and/or former Site activities. The Site is comprised of 9.157 acres located along East Commerce Way in Sacramento, California (Figures 1, 2, 3, and 4). Figure 3 shows that the Site occupies the majority of the 9.74 acres comprising Sacramento County Assessor's Parcel Number (APN) 225-2300-12 and a small portion of the 45.40 acres comprising APN 225-2300-13. The following presents a list of observations and findings identified during the preparation of this report:

- The historical land use research dating back to the early 1900s revealed that the Site has been grass-covered land, used for crop cultivation, or vacant land from at least 1902 to 2019.
- Given the documentation reviewed concerning the agency listings for neighboring facilities, none of the facilities reviewed is likely to have a negative impact on the Site.
- Based on the completion of the vapor encroachment condition (VEC) screening matrix, WKA concludes a VEC can be ruled out because a VEC does not or is not likely to exist.

WKA has performed this ESA in conformance with the scope and limitations of ASTM Standard Practice E 1527-13 for the Natomas II Property Phase 1. This ESA has revealed no evidence of RECs in connection with the Site.

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) was to evaluate the Natomas II Property Phase 1 (herein referred to as Site) for evidence of potential Recognized Environmental Conditions (RECs) resulting from current and/or former site activities as defined by the American Society of Testing and Materials (ASTM) Standard E 1527-13 (ASTM, 2013).

According to the ASTM, "this practice is intended to permit a *user* to satisfy one of the requirements to qualify for the *innocent landowner*, *contiguous property owner*, or *bona fide prospective purchaser* limitations under CERCLA [Comprehensive Environmental Response, Compensation and Liability Act] liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"): that is, the practice that constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B)."

This ESA has been performed in general conformance with the ASTM Standard E 1527-13 and the scope and limitations defined in Wallace-Kuhl & Associates (WKA) proposal, 3PR19164, dated August 26, 2019.

1.2 Scope of Services

WKA has completed this ESA for the Site shown on Figures 1 through 4. Ms. Karen Garrett with AG Spanos authorized WKA to proceed with this assessment on September 11, 2019, through email correspondence.

The scope of this assessment included the following:

- Conduct a site reconnaissance for visual evidence of surface contamination and potential sources of subsurface contamination;
- Conduct a visual inspection of the adjoining properties for evidence of RECs;
- Conduct interviews with the following, as available:
  - Key site manager,
  - Major occupants,

- Past and present owners, operators,
- Government and/or agency personnel, and,
- Inquiries conducted at abandoned sites may include interviews with owners or occupants of neighboring or nearby properties;

- Conduct a records review, which included the following:
  - Physical setting documents to determine regional geology, general soil information, and local and regional groundwater conditions,
  - Historical information, including but not limited to, Sanborn maps, topographic maps, aerial photographs, ownership records, building department records, local street directories, zoning and land use records, and prior assessments, as available,
  - Environmental records, including federal, state, tribal, and county regulatory agency lists that will help identify RECs on the Site and the adjoining properties, and,
  - Based on the outcome of the database search, review of specific regulatory agency files for identified contaminated facilities in order to evaluate whether the listed facilities are hazardous materials threats to the Site;
- Conduct a preliminary screen for vapor encroachment conditions on the Site per ASTM E2600-15;
- Review of the completed *ASTM E 1527-13 User Questionnaire* (*Questionnaire*) regarding Recorded Environmental Liens, activity and use limitations (AULs), relationship of the purchase price to the fair market value of the Site, and any specialized knowledge of the Site;
- Review of environmental liens and Activity and Use Limitations (AULs) reports, as provided; and
- Prepare a final report of the results of the ESA.

1.3 Special Terms and Conditions

No special terms or conditions to the WKA Environmental Site Assessment Consulting Agreement or the WKA scope of services were requested or performed during the preparation of this report. Karen Garrett, AG Spanos, did not authorize WKA to conduct a search for environmental liens and AULs.

1.4 User Provided Information

WKA provided AG Spanos a copy of the User Questionnaire and the Helpful Documents checklist. Ms. Karen Garrett, AG Spanos, completed and returned the documents to WKA. Discussion regarding her responses is provided in the following section. A copy of the completed questionnaire is included in Appendix B.

In summary, Ms. Garrett was not aware of any records of environmental liens or AULs currently recorded against the Site. Ms. Garrett stated she does not possess specialized knowledge or experience related to the Site. Ms. Garrett stated that she is not aware of any obvious indicators that point to the presence or likely presence of contamination at the Site.

Ms. Garrett was aware of existing “Helpful Documents” as defined in Section 10.8.1 of the ASTM Standard as noted on the “Helpful Documents Checklist” included in Appendix B. These reports are summarized in Section 4.2.10.

2.0 SITE DESCRIPTION

2.1 Site and Vicinity General Characteristics

The Site is comprised of 9.157 acres located along East Commerce Way in Sacramento, California (Figures 1 and 2).). Figure 3 shows that the Site occupies the majority of the 9.74 acres comprising Sacramento County Assessor's Parcel Number (APN) 225-2300-12 and a small portion of the 45.40 acres comprising APN 225-2300-13 (Figure 3). Surrounding land uses consisted of vacant land, agricultural production, and residential housing.

2.2 Site Reconnaissance

A visual site reconnaissance was conducted by WKA on September 23, 2019. Figure 5 provides color photographs of the Site taken during the site reconnaissance.

On the day of site reconnaissance, the Site was vacant land. The Site surface had been disked; however, WKA observed that a sparsely distributed presence of low-lying volunteer vegetation was returning to the site surface. WKA observed a drainage canal located to the west of the Site. Additionally, WKA observed a series of manhole access into the stormwater collecting system located along the southern portion of the Site (Figure 5).

2.2.1 Municipal Infrastructure and Utilities

Sacramento Municipal Utility District (SMUD) provides electricity to the Site vicinity. Pacific Gas and Electric (PG&E) provides natural gas to the Site vicinity. The City of Sacramento provides potable water and the Sacramento Area Sewer District provides sanitary sewer service to the Site vicinity. No high-voltage, tower-mounted electrical transmission lines or pole-mounted transformers were observed on or adjacent to the Site.

2.3 Adjoining Properties

The Site is bounded to the north by grass covered land. The Site is bounded to the east by East Commerce Way followed by residential housing. Land located south of the Site is grass covered. Land located west of the Site is occupied by a drainage ditch followed by Interstate 5.

3.0 INTERVIEWS

Interviews with various persons familiar with the site vicinity, including representatives of public agencies, were conducted for the purpose of identifying past and present uses, which may have contributed to RECs on the Site. Results of those interviews are discussed in the following sections.

3.1 Owner or Key Site Manager

WKA interviewed Mr. David Bugatto, with Alleghany Properties LLC, regarding the Site. Mr. Bugatto is the owner representative for the Site. According to Mr. Bugatto, Alleghany Properties LLC, bought the property from PCP/B&B Sons Enterprises, obtaining partial ownership in 1994 and full ownership in 1997. Mr. Bugatto stated that the historical Site use consisted of agricultural row crops prior to the Allegahany Properties LLC ownership in 1994 and the row crop activity most likely ended over 35 years ago. Mr Bugatto is unaware of any structures ever existing on the Site. According to Mr. Bugatto, no fill dirt has ever been imported to the Site. Mr. Bugatto stated that he is not aware of any occupants that may have generated, stored, or processed hazardous waste. He said that he is not aware of any underground storage tanks (USTs) or aboveground storage tanks (ASTs) located at the Site. Mr. Bugatto stated that he is not aware of any environmental liens or AULs associated with the property.

3.2 Occupants (Multi-family or Major)

The Site is not occupied; therefore, no occupants were interviewed.

3.3 Past and Present Owners, Operators, and/or Occupants

No information regarding past owners was received by WKA during completion of this report.

3.4 State and/or Local Government Officials

WKA contacted the Sacramento County Environmental Management Department (SCEMD), regarding any regulatory files available for the surrounding facilities. A representative with SCEMD provided available files for review on the SCEMD NextRequest website. Information reviewed on the SCEMD NextRequest website is provided in Section 4.3.

WKA contacted the State Water Resources Control Board (SWRCB) regarding files for the regulatory facilities located within the vicinity of the Site. A representative with the SWRCB indicated that all records for facilities are available for review on their GeoTracker website. Information reviewed on the SWRCB GeoTracker website is provided in Section 4.3.

WKA contacted the Department of Toxic Substances Control (DTSC) regarding files for facilities located in the vicinity of the Site. A representative with DTSC stated that all files are available for public review on their EnviroStor website. Information reviewed on the DTSC EnviroStor website is provided in Section 4.3.

3.5 Abandoned Properties

As referenced in 40 CFR Part 312, in the case of inquiries conducted at "abandoned properties," as defined in §312.23(d), "where there is evidence of potential unauthorized uses of the Site or evidence of uncontrolled access to the Site, the environmental professional's inquiry must include interviewing one or more (as necessary) owners or occupants of neighboring or nearby properties from which it appears possible to have observed uses of, or releases at, such abandoned properties…" No evidence of potential unauthorized uses, or evidence of uncontrolled access to the Site was observed. The Site is not considered an abandoned property and therefore, WKA did not interview owners or occupants of neighboring properties.

4.0 RECORDS REVIEW

The purpose of the records review is to obtain and review information concerning the current and historical use of the Site and adjoining properties that would help identify the presence of RECs in connection with the Site. The records review included review and discussion of the following, as available:

- Physical Setting Source(s);
- Historical Use Information; and,
- Environmental Record Sources.

4.1 Physical Setting Source(s)

The Site is depicted on the 1980 United States Geological Survey (USGS) 7.5 Minute topographic map of the *Taylor Monument, California Quadrangle* as undeveloped land. The Site is located within Sections 14 and 15, Township 9 North, Range 4 East, Mount Diablo Base and Meridian, at an elevation of approximately +20 feet relative to mean sea level (msl).

4.1.1 Regional and Local Geology

The Site is located in the Great Valley geomorphic province of California, a 500 mile, northwest-trending structural trough, generally constrained to the west by the Coast Ranges and to the east by the foothills of the Sierra Nevada Range (Norris and Webb, 1990). The Great Valley consists of two valleys lying end-to-end, with the Sacramento Valley to the north and the San Joaquin Valley to the south.

The Sacramento and San Joaquin Valleys have been filled to their present elevations with thick sequences of sediment derived from both marine and terrestrial sources. The sedimentary deposits range in thickness from relatively thin deposits along the eastern valley edge to more than 25,000 feet in the south central portion of the Great Valley (Norris and Webb, 1990). The sedimentary geologic formations of the Great Valley province vary in age from Jurassic to Quaternary, with the older deposits being primarily marine in origin. Younger sediments are continentally derived and were typically deposited in lacustrine, fluvial, and alluvial environments with their primary source being the Sierra Nevada Range.

The 1981 USGS *Geologic Map of the Sacramento Quadrangle, California*, shows the Site to be underlain by the Riverbank Formation composed of Pleistocene alluvial gravels, sands, silts and clays.

4.1.2 Soil Survey

The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has created a web-based service for accessing soil information. According to the NRCS Web Soil Survey (WSS) the majority of the near-surface soils on the Site consist of Clear Lake clay, hardpan substratum, drained, 0 to 1 percent slopes (USDA, 2019). A copy of the soil report is included on the attached CD.

4.1.3 Regional and Local Groundwater

The Site is located within the California Department of Water Resources (DWR) defined Sacramento Valley Groundwater Basin of the Sacramento River Hydrologic Region. WKA searched data on the DWR website and found no DWR monitored groundwater wells within one-half mile of the Site (DWR, 2019).

WKA also searched the State Water Resources Control Board's (SWRCB) GeoTracker website for quarterly groundwater monitoring reports completed for facilities in the immediate vicinity of the Site. No facilities are located within one-half mile of the Site (SWRCB, 2019).

4.2 Historical Use Information

WKA reviewed historical information to develop a history of the previous uses of the Site and surrounding area, in order to evaluate the Site and adjoining properties for evidence of RECs. Standard historical sources reviewed during the preparation of this report included the following, as available:

- Sanborn® Maps;
- Topographic Maps;
- Oil and Gas Well Maps;
- Aerial Photographs;
- Ownership Records;
- Building Department Records;
- Local Street Directories;
- Zoning and Land Use Records;
- Other Historical Sources; and,
- Prior Assessments.

Discussion of these historical sources is provided in the following sections.

4.2.1 Sanborn® Maps

Sanborn® Maps are obtained through Environmental Data Resources, Inc. (EDR®). EDR® is a national commercial provider of environmental database information. Sanborn® Maps are detailed drawings of site development, and were typically used by fire insurance companies to determine site fire insurability. According to EDR®, Sanborn® Map coverage of the Site is not available (EDR®, 2019a).

4.2.2 Topographic Maps

Historical USGS topographic maps with coverage of the Site and outlying land areas were reviewed. Topographic maps with coverage of the Site dated 1902/1907, 1911/1915/1916, 1950, 1951, 1954, 1967, 1975, 1980, and 2012 were available for review (EDR®, 2019b). Copies of the topographic maps compiled by EDR® with coverage of the Site are included on the CD attached to the back cover of this report. Table 1 notes the changes in the vicinity of the Site.

Table 1

Year	Scale	Observations
1902-1907	1:62,500	Site: The site lies in the American Basin with Bush Lake mapped to the south. North: Vacant land. East: Vacant land followed by Bush Lake. South: Vacant land followed by Bush Lake. West: Vacant land.
1911/ 1915/ 1916	1:31,680	No significant changes noted to the Site or vicinity
1950	1:24,000	Site: Vacant land. North: No significant changes noted. East: A private airport is depicted. South: No significant changes noted. West: No significant changes noted.
1951	1: 24,000	No significant changes noted to the Site or vicinity.
1954	1:62,500	Site: Appears to be vacant land. North: Vacant land followed by a trail road and water tank is depicted. East: The private airport is now labeled as “Branstetter Airport”. South: No significant changes noted. West: No significant changes noted.

Table 1		
Year	**Scale**	**Observations**
1967	1:24,000	Site: Vacant land. The previous label for the airport to the east has been removed. North: No significant changes noted. East: The airport is now labeled as "Natomas Airport" South: No significant changes noted. West: The existing Interstate 5 is depicted.
1975	1:24,000	No significant changes noted to the Site or vicinity.
1980	1:24,000	No significant changes noted to the Site or vicinity.
2012	1:24,000	Site: No significant changes noted. North: Vacant land followed by Arena Boulevard. East: East Commerce Way is depicted. South: No significant changes noted. West: The freeway is labeled as "Interstate 5".

4.2.3 Oil and Gas Well Maps

Review of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) website showed that the Site is not located in a designated natural gas field. No DOGGR wells are located on or within at least one mile of the Site (DOGGR, 2019).

4.2.4 Aerial Photographs

Historical aerial photographs of the Site and general vicinity were compiled by EDR®. Photographs covering the years 1937, 1947, 1953, 1957, 1964, 1966, 1972, 1984, 1993, 1998, 2006, 2009, 2012, and 2016 were available for review (EDR®, 2019c). Table 2 notes the changes on the property and in the vicinity.

Table 2		
Year	**Scale**	**Observations**
August 1937	1" = 500'	Site: Vacant, grass-covered land. North: Vacant, grass-covered land. East: Vacant, grass-covered land. South: Vacant, grass-covered land. West: Vacant, grass-covered land.

Table 2		
Year	**Scale**	**Observations**
July 1947	1” = 500’	Site: Ground markings indicating irrigated pasture are visible. North: Ground markings indicating irrigated pasture are visible. East: Ground markings indicating irrigated pasture are visible. South: Ground markings indicating irrigated pasture are visible. West: Ground markings indicating irrigated pasture are visible.
April 1953	1” = 500’	Site: Ground markings indicative of an irrigated crop. North: Ground markings indicative of an irrigated crop. East: Ground markings indicative of an irrigated crop. Structures and a runway associated with the Natomas Airport are visible approximately 1,000 feet east of the Site. South: Ground markings indicative of an irrigated crop. West: Ground markings indicative of an irrigated crop.
September 1957	1” = 500’	No significant changes noted to the Site or vicinity.
May 1964	1” = 500’	No significant changes noted to the Site or vicinity
August 1966	1” = 500’	Site: No significant changes noted. North: No significant changes noted. East: No significant changes noted. South: No significant changes noted. West: A strip of cleared land is visible in the location that will later be occupied by Interstate 5.
July 1972	1” = 500’	Site: No significant changes noted. North: No significant changes noted. East: No significant changes noted. South: No significant changes noted. West: Interstate 5 is visible.
June 1984	1” = 500’	Site: Fallow land. North: Fallow land. East: Fallow land. South: Fallow land. West: Fallow land followed by Interstate 5.
June 1993	1” = 500’	No significant changes noted to the Site or vicinity.
1998	1” = 500’	No significant changes noted to the Site or vicinity.
2006	1” = 500’	Site: No significant changes noted. North: No significant changes noted. East: Ground markings indicating activities for residential housing development are visible. South: No significant changes noted. West: No significant changes noted.

Table 2		
Year	**Scale**	**Observations**
2009	1" = 500'	Site: Vacant land North: No significant changes noted. East: East Commerce Way is visible. South: No significant changes noted. West: No significant changes noted.
2012	1" = 500'	No significant changes noted to the Site or vicinity.
2016	1" = 500'	No significant changes noted to the Site or vicinity.

4.2.5 Ownership Records

Ownership information was obtained through ParcelQuest®, an on-line distributor of "Assessor-Direct property information throughout the State of California." The ownership entity for the Site was listed as "Alleghany Properties LLC" (ParcelQuest®, 2019).

4.2.6 Building Department Records

WKA contacted the City of Sacramento, Community Development, Building Department for information regarding any building permits recorded for the site. At the time of the completion of this report, our request had not been returned.

4.2.7 Local Street Directories

Local street directories with coverage of the Site and adjoining properties were obtained from EDR® (EDR®, 2019d). These documents contain business listings based on street number identifiers. The parcel was not historically developed; therefore, it would not have an assigned address. The copy of the EDR® City Directory (EDR®, 2019d) is provided on the CD attached to the back cover of this report.

4.2.8 Zoning and Land Use Records

The Site use is listed as vacant (ParcelQuest, 2019).

The Site is located in a Special Flood Hazard Area, as designated by the Federal Emergency Management Agency (FEMA). The floodplain map is provided on the CD attached to the back cover of this report.

WKA reviewed data provided on the National Pipeline Mapping System website and no pipelines are located within one half-mile of the Site (NPMS, 2019).

4.2.9 Other Historical Sources

Review of additional historical sources was not warranted in order for the Environmental Professional to make a determination as to evidence of potential RECs on the Site.

4.2.10 Prior Assessments

Wallace Kuhl & Associates, Inc (WKA, Inc.) prepared a Report of Findings for the Pacific Central Properties (Property B) (WKA No. 3209.01), dated December 16, 1996 (1996 WKA, Inc. Report). The report was completed for a 143.7-acre study area which encompassed the northern portion of the Site. The report stated that the study area was historically utilized for rice and other grain crop production and that a 10-acre area located on the northern portion of the study area had been used for a short time as a nursery. The purpose of the study was to evaluate the surface soils and shallow groundwater for potential impacts due to past agricultural uses, stained areas at the former nursery from leaking 55-gallon drums, and operation of the nearby Natomas Airpark.

Ten samples were reported to have been collected within the study area. The samples were collected at a depth ranging from four to six inches below ground surface (bgs) and submitted to a laboratory for analysis of chlorinated pesticides and polychlorinated biphenyls by EPA Method 8080. No constituents were reported above the laboratory reporting limits.

Approximately 30 cubic yards of petroleum hydrocarbon impacted soil was excavated from the former location of the 55-gallon drums in the nursery area. In addition, the eight 55-gallon drums used to store petroleum oils, paints, and pesticides, were emptied and combined with the excavated soils. The soil was stockpiled, characterized, and hauled by Manley & Sons Trucking to Forward Landfill in Stockton, California. Confirmation samples collected from under the excavations and subsequent laboratory analysis for total petroleum hydrocarbons and fuel oxygenates revealed none of the constituents were reported above the laboratory reporting limits.

WKA also reviewed a Phase I ESA for Alleghany Natomas site 3 that was prepared by WKA dated September 25, 2014. The report covered a 150.92-acre area including a portion of the Site. According to the report, the historical land use research dating back to 1907 revealed that the study area has remained mostly vacant and utilized agricultural production through approximately 1980. The property is owned by Mr. Bugatto, Alleghany Properties LLC and was graded in 2002. No RECs were found in connection with study area.

Additionally, WKA reviewed a Phase I ESA for Alleghany Natomas site 2 that was prepared by WKA dated September 12, 2014. The report covered a 45.40-acre area with the Site occupying a southern portion of the study area. The historical land use research dating back to 1907 revealed that the study area has remained mostly vacant and utilized agricultural production through approximately 1980. A 10-acre nursery was operated within the northern portion of the study area in the 1980s. WKA summarized the findings of the 1996 WKA, Inc. Report summarized in the above paragraph. The property is owned by Mr. Bugatto, Alleghany Properties LLC, and the area was graded in 2002. No RECs were found in connection with the study area.

4.3 Environmental Record Sources

4.3.1 Regulatory Agency Databases

EDR® was contacted to provide a summary of facilities listed on regulatory agency databases (EDR®, 2019e). Table 3 summarizes the researched ASTM required *Standard Environmental Record Sources*, as well as several *Additional Environmental Record Sources*, as defined in Sections 8.2.1 and 8.2.2 of the ASTM Standard. For additional reference, the Executive Summary of the EDR® report is included in Appendix C. A copy of the entire EDR® report is included on the CD attached to the back cover of this report.

Table 3

	EDR Listed Database	*ASTM E 1527-13 Search Distance*	No. of Facilities Listed (within Search Radius)
Federal			
Federal NPL Site List	*NPL*	1-mile	0
Federal Delisted NPL Site List	*Delisted NPL*	1/2-mile	0
Federal CERCLIS List	*CERCLIS*	1/2-mile	0
Federal CERCLIS NFRAP Site List	*CERCLIS NFRAP*	1/2-mile	0
Federal RCRA CORRACTS Facilities	*CORRACTS*	1-mile	0
Federal RCRA Generators List:			
Small Quantity and Large Quantity Generators	*RCRA SQG*	Site & adjoining	0
	RCRA LQG		0
Landfills and Solid Waste Management	*RCRA TSDF*	1/2-mile	0
Federal Institutional Control / Engineering Control Registries	*US ENG Controls*	Site only	0
	US INST Controls		0
Federal ERNS List	*ERNS*	Site only	0

Table 3			
	EDR Listed Database	*ASTM E 1527-13 Search Distance*	No. of Facilities Listed (within Search Radius)
State			
State-equivalent NPL (Hist. Cal-Sites)	*Hist. Cal-Sites*	1-mile	0
State-equivalent CERCLIS	*RESPONSE*	1/2-mile	0
State Landfill and/or Solid Waste Disposal Site	*SWF/LF (SWIS)*	1/2-mile	0
	WMUDS/SWAT		0
State Leaking Underground Storage Tanks	*LUST- Reg 5 Geotracker*	1/2-mile	3
Tribal Leaking Underground Storage	*Indian LUST*	1/2-mile	0
State Registered Underground Storage	*UST*	Site & adjoining	0
Tribal Registered Underground Storage	*Indian UST*	Site & adjoining	0
State Registered Aboveground Storage	*AST*	Site & adjoining	0
State Institutional Control Registries	*DEED*	Site only	0
State Voluntary Cleanup Sites	*VCP*	1/2-mile	1
State Brownfield Sites	*US Brownfields*	1/2-mile	0
California Environmental Reporting System Hazardous Waste	*CERS Haz Waste*	1/4-mile	0
Additional Environmental Record Sources			
Hazardous Waste & Substances Sites	*CORTESE*	1/2-mile	1
DTSC EnviroStor (includes Cal-Sites)	*EnviroStor*	1-mile	4
SLIC	*SLIC - Reg 5*	1/2-mile	2
Cleaner Facilities	*Drycleaners*	1/4-mile	0
HAZNET	*HAZNET*	1/4-mile	0
Local - County			
Sacramento County Contaminated	*Sac Co CS*	1/2-mile	2
Sacramento County Master List	*Sac Co ML*	1/2-mile	0

Review of the EDR® report indicates the Site is not listed on any of the EDR® databases. Regulatory information reviewed concerning the Site, adjoining properties, and the nearest facility in each cardinal direction identified within its respective ASTM search distance is detailed below.

The Natomas Airpark, 3801 Airport Road, was located approximately 1000 feet east of the Site. The Natomas Airpark operated as an airfield for crop-dusting from 1945 to 1975 and a pesticide applicator from 1975 to 1981. The airport was also used for general aviation of small aircraft until its closure in August 2000. During its operation the airport stored materials such as aviation fuel; motor oil; pesticides; gasoline; and detergents. The Natomas Airpark consisted of

6 parcels (Parcels 14, 15, 18, 28, 30, and 32), which for regulatory purposes have three different owners. The Central Valley Regional Water Quality Control Board (CVRWQCB) is the lead agency for all of the remediation activities and the CVRWQCB is reviewing the Parcels as four different sites as demonstrated in GeoTracker.

The Natomas Airpark is listed on the Department of Toxic Substances Control's (DTSC) Envirostor, State Water Resources Control Board (SWRCB) Leaking Underground Storage Tanks (LUST), SWRCB Spills, Leaks, Investigation, and Cleanups (SLIC), Sacramento County Contaminated Sites, DTSC State Voluntary Cleanup Sites, Hazardous Waste and Substances Site List, and the California Environmental Reporting System Hazardous waste databases.

Parcels 15 and 18, owned by Towne Development of Sacramento, Inc., had contaminated soil and groundwater beneath the parcels from historical operations of the Natomas Airpark. After field studies and the completion of remediation activities, parcels 15 and 18 received a no further action letter from the CVRWQCB on April 3, 2009.

Parcels 14, 28, and 30, owned by Beazer Homes of Northern California, were also found to have soil and groundwater contamination from the operation of the Natomas Airpark. Parcels 14 and 28 received a no further action letter from the CVRWQCB on July 19, 2006. While Parcel 30 received a no further action letter on March 2, 2016.

Parcel 32 is owned by Sacramento Aero Services. Sacramento Aero Services accounts for two of the locations being reviewed by the CVRWQCB. A shared fuel tank existed between former Parcels 30 and 32. The fuel tank remediation activities have been completed and a no further action letter was received from the CVRWQCB on March 2, 2016. In addition, Parcel 32 has soil contamination from historical pesticide use. Remediation activities at this location are ongoing and are under the oversight of the CVRWQCB.

Most of the former Natomas Airpark has been redeveloped with residential housing. According to a Remedial Action Plan for Parcels 30 and 32 prepared by WKA, Inc. (WKA No. 3848.22) on August 18, 2006, regional groundwater flow was to the east. Additionally, WKA reviewed groundwater level data on the Department of Water Resources Groundwater Information Center Interactive Map Application. According to the website, the direction of groundwater flow in the region of the property is east to northeast, away from the Site (DWR GICIMA, 2019). Based on the information reviewed, including regional groundwater flow direction, pesticides in soil on Parcel 32 have not impacted the Site.

The Machado residence, 3600 Airport Road, is located approximately ½-mile northeast of the Site. The Machado residence was on the Sacramento County Contaminated Sites List and was identified as having a leaking underground storage tank. The property had soil and

groundwater contamination due to the existence of two 500-gallon underground storage tanks (UST). Corrective action has been taken and a no further action letter was issued by SCEMD on March 9, 2016.

4.3.2 Preliminary Screen for Vapor Encroachment Conditions

WKA conducted a preliminary screening for VEC beneath the Site using the Tier 1 vapor encroachment screening evaluation[1]. The Tier I screening included performing a *Search Distance Test* to identify if there are any known or suspect contaminated properties surrounding or upgradient of the Site within specific search radii, and a *Chemicals of Concern (COC) Test* (for those known or suspect contaminated properties identified within the *Search Distance Test*) to evaluate whether or not COC are likely to be present. The Vapor Encroachment Screening Matrix is included in Appendix D.

Based on the completion of the VEC-screening matrix, a VEC can be ruled out because a VEC does not or is not likely to exist.

4.3.3 Environmental Lien Search

AG Spanos did not authorize WKA to conduct a search for environmental liens and AULs. However, Mr. Bugatto, Alleghany Properties LLC, stated that he was not aware of any environmental liens or AULs associated with the property.

[1] The Preliminary Screen for Vapor Encroachment Conditions was based on the guidelines presented in the ASTM *E 2600-15 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Data Gaps

The time intervals between the Standard Historical Sources (i.e., topographic maps, aerial photographs, other historical sources) exceeded the ASTM minimum five-year period. However, the use of the Site appears unchanged within the time gaps, and therefore, research of the Site use during the time gaps is not required by the ASTM Standard (Refer to *Section 8.3.2.1 – Intervals* of the ASTM E 1527-13 standard).

It is the opinion of WKA that no significant data gaps were identified during the preparation of this report that affects the ability of the Environmental Professional to identify RECs on the Site.

5.2 Conclusions

- The historical land use research dating back to the early 1900s revealed that the Site has been grass-covered land, land use for crop cultivation, or vacant land from at least 1902 to 2019.
- Given the documentation reviewed concerning the agency listings for neighboring facilities, none of the facilities reviewed is likely to have a negative impact on the Site.
- Based on the completion of the vapor encroachment condition (VEC) screening matrix, WKA concludes a VEC can be ruled out because a VEC does not or is not likely to exist.

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 for the Natomas II Property Phase 1. Any exceptions to, or deletions from, this practice are described in Section 5.4 of this report. This assessment has revealed no evidence of RECs in connection with the Site. A full copy of this ESA report, in a .pdf format, is included on the attached CD.

5.3 Recommendations

Based on the conclusions presented and the documentation contained herein, no further assessment is warranted at this time.

5.4 Exceptions and/or Deletions

No exceptions or deletions from the ASTM E 1527-13 standard were made during the performance of this ESA.

5.5 Additional Services

Non-scope considerations, such as assessment for naturally occurring asbestos (NOA), wetlands evaluation, indoor air quality, laboratory testing of the soils and groundwater beneath the Site for environmental contaminants (such as agricultural-related pesticides, termiticides, polychlorinated biphenyls [PCBs], or arsenic and lead), and assessments for asbestos containing materials and lead-based paint were not included or requested as part of this ESA. Additionally, this ESA included conducting a Tier 1 vapor encroachment screening in accordance with the ASTM *E 2600-15 Vapor Encroachment Screening on Property Involved in Real Estate Transactions.*

6.0 LIMITATIONS

The statements and conclusions in this report are based upon the scope of work described above and on observations made only on the date of the field reconnaissance, September 23, 2019. Work was performed using a degree of skill consistent with that of competent environmental consulting firms performing similar work in the area. Information regarding the Site that is *publicly available* and *practically reviewable,* as described in the ASTM standard, was obtained. Additional research or receipt of information regarding the Site that was not disclosed or available to WKA during this assessment may result in revision of the conclusions. The conclusions in this report should be reevaluated if site conditions change. No recommendation is made as to the suitability of the Site for any purpose. The results of this assessment do not preclude the possibility that materials currently or in the future defined as hazardous are present on the Site, nor do the results of this work guarantee the potability of groundwater beneath the Site. This report is applicable only to the investigated Site and should not be used for any other property. No warranty is expressed or implied.

This report is viable for one year from the publication date of the report provided the following components are updated within 180 days of the date of purchase or (for transactions not involving an acquisition) the date of the intended transaction:

- Interviews with current owners/occupants and/or in order to identify changes in Site conditions or uses since the publication date of this report
- Searches for recorded environmental cleanup liens
- Visual inspection of the Site and of adjoining properties with emphasis on changes in conditions or uses since the publication date of this report
- A current review of federal, state, tribal and county databases
- The declaration by the environmental professional responsible for the assessment.

Environmental Site Assessments completed more than one year prior to the date of purchase must be reviewed and updated in order for the *Environmental Site Assessment* to be considered valid per Section 4.6 (*Continued Viability of Environmental Site Assessment*), and Sections 4.7 and 8.4 (*Prior Assessment Usage*) of the ASTM E 1527-13 Standard.

KCG:DBN:mr
H:/dept3/12512.01 - Phase I ESA Natomas II Property 1

7.0 REFERENCES

ASTM International. 2013. American Society for Testing and Materials, ASTM Standard E 1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania (November 2013).

ASTM International. 2015. American Society for Testing and Materials, ASTM Standard E 2600-15, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania (December 2015).

City of Sacramento, Records Library, <http://www.records.cityofsacramento.org/> (September 2019).

Department of Water Resources (DWR), Water Data Library, <http://www.water.ca.gov/waterdatalibrary/> (September 2019).

Department of Water Resources Groundwater Information Center Interactive Map Application (DWR GICIMA), https://gis.water.ca.gov/app/gicima/ (September, 2019).

Department of Toxic Substances Control (DTSC), EnviroStor, <https://www.envirostor.dtsc.ca.gov/public/> (September 2019).

Environmental Data Resources, Inc. (EDR®):

-2019a. *Certified Sanborn Map Report, Natomas II Property, East Commerce Way, Sacramento, California, Inquiry Number 5789113.3* Shelton, Connecticut, (September 13, 2019).

-2019b. *The EDR Historical Topographic Map Report, Natomas II Property, East Commerce Way, Sacramento, California, Inquiry Number 5789113.4* Shelton, Connecticut, (September 13, 2019).

-2019c. *The EDR Aerial Photo Decade Package Report, Natomas II Property, East Commerce Way, Sacramento, California, Inquiry Number 5789113.8* Shelton, Connecticut, (September 13, 2019).

-2019d. *The EDR City Directory Abstract Woodmere Property, Natomas II Property, East Commerce Way, Sacramento, California, Inquiry Number 57879113.5* Shelton, Connecticut, (September 13, 2019).

-2019e. *The EDR Radius Map Report with GeoCheck, Natomas II Property, East Commerce Way, Sacramento, California, Inquiry Number 57879113.2s* Shelton, Connecticut, (September 13, 2019).

National Pipeline Mapping System, 2019, (NPMS), https://www.npms.phmsa.dot.gov/ (September 2019)

Norris, R. M., Webb, R. W., 1990, *Geology of California* Second Edition, John Wiley and Sons, Inc. New York.

ParcelQuest, 2019, Detail Report Property Address: East Commerce Way, CA, Retrieved [September 2019] from the World Wide Web: <http://www.parcelquest.com/>.

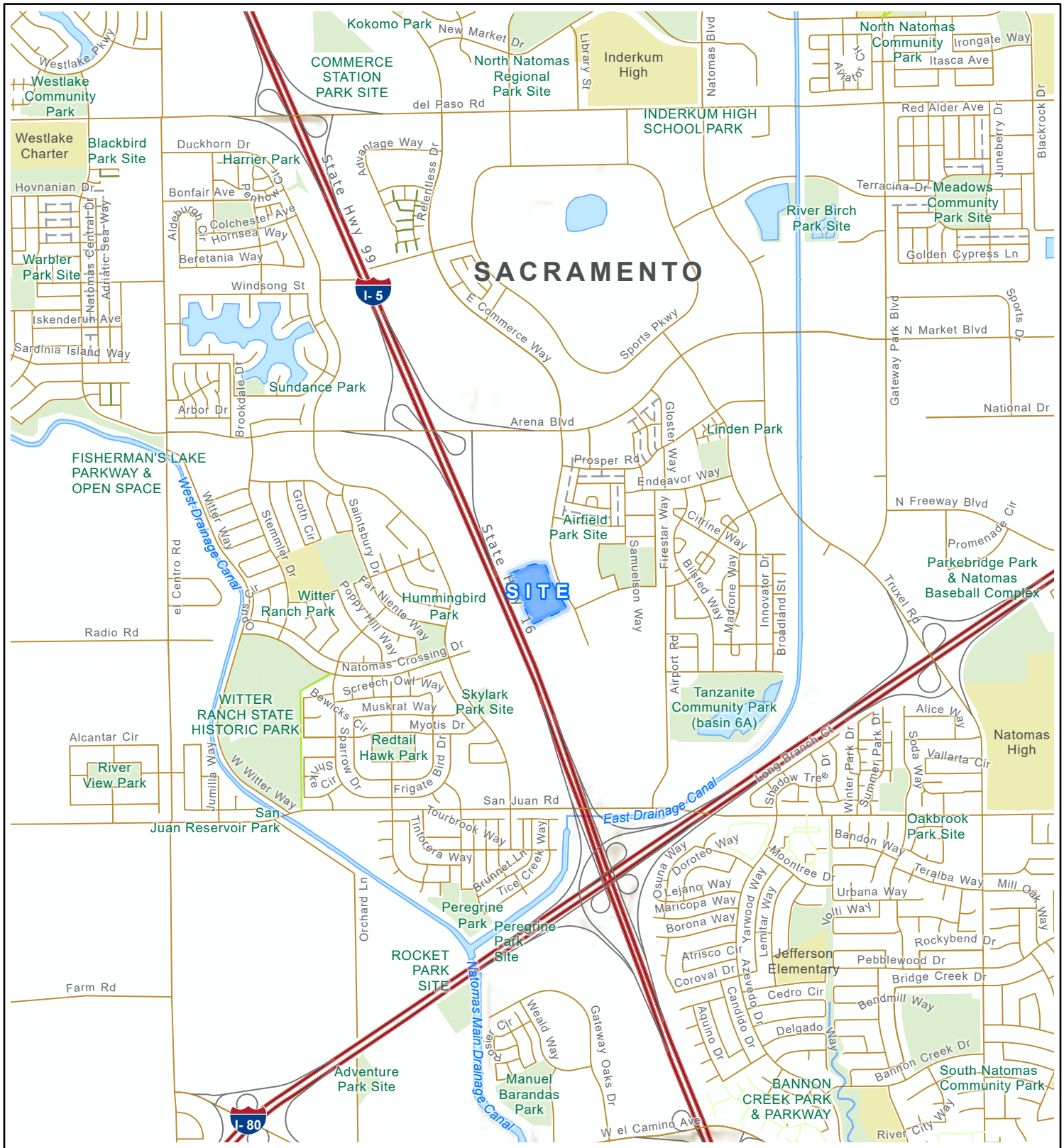
State Water Resources Control Board (SWRCB), GeoTracker, <http://geotracker.waterboards.ca.gov/> (September 2019).

State of California, Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), *DOGGR On-line Mapping System (DOMS), District 6, Northern California* <http://maps.conservation.ca.gov/doms/index.html> (September 2019).

United States Department of Agriculture, Natural Resources Conservation Service, *Web Soil Survey,* <http://soils.usda.gov/technical/classification/osd/index.html> (September 2019).

Wagner, D.L., et al, State of California Department of Mines and Geology, 1981, *Geologic Map of the Sacramento Quadrangle, California* [map]. 1:250,000, Regional Geologic Map Series, Map No. 1A (Geology). Capitol Heights, MD: William Heintz Map Corporation.

FIGURES



Spatial Data provided by Esri, NOAA, and USGS
Projection: NAD 83, California State Plane, Zone II

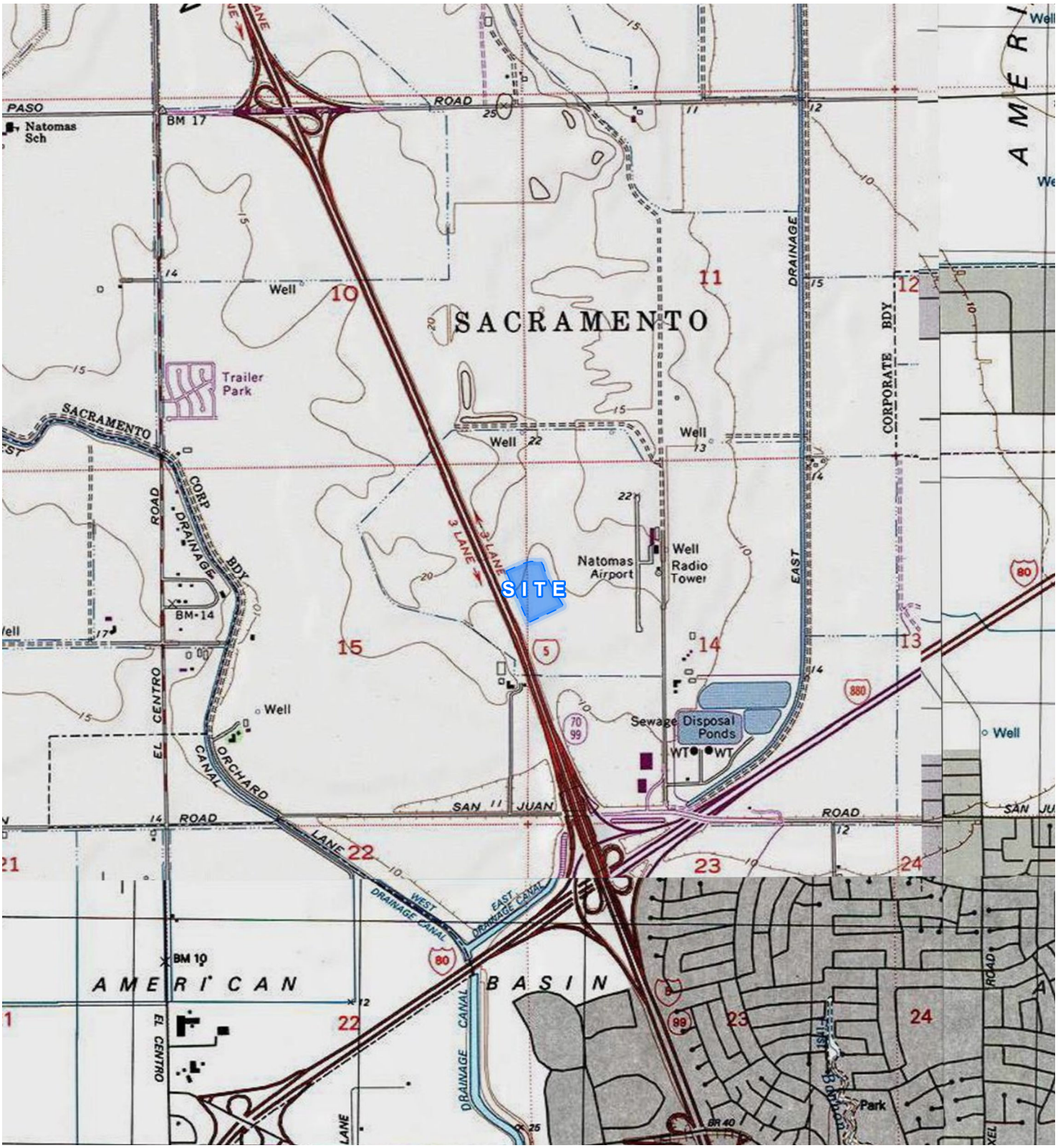
WallaceKuhl & ASSOCIATES

VICINITY MAP

NATOMAS II PROPERTY PHASE 1

Sacramento, California

FIGURE	1
DRAWN BY	JBV
CHECKED BY	NMM
PROJECT MGR	KMB
DATE	09/19
WKA NO.	12512.01



Adapted from U.S. Geological Survey 7.5 minute topographic map of the Taylor Monument quadrangle, California, 1980.
Projection: NAD 83, California State Plane, Zone II

N

0 1,000 2,000
Feet

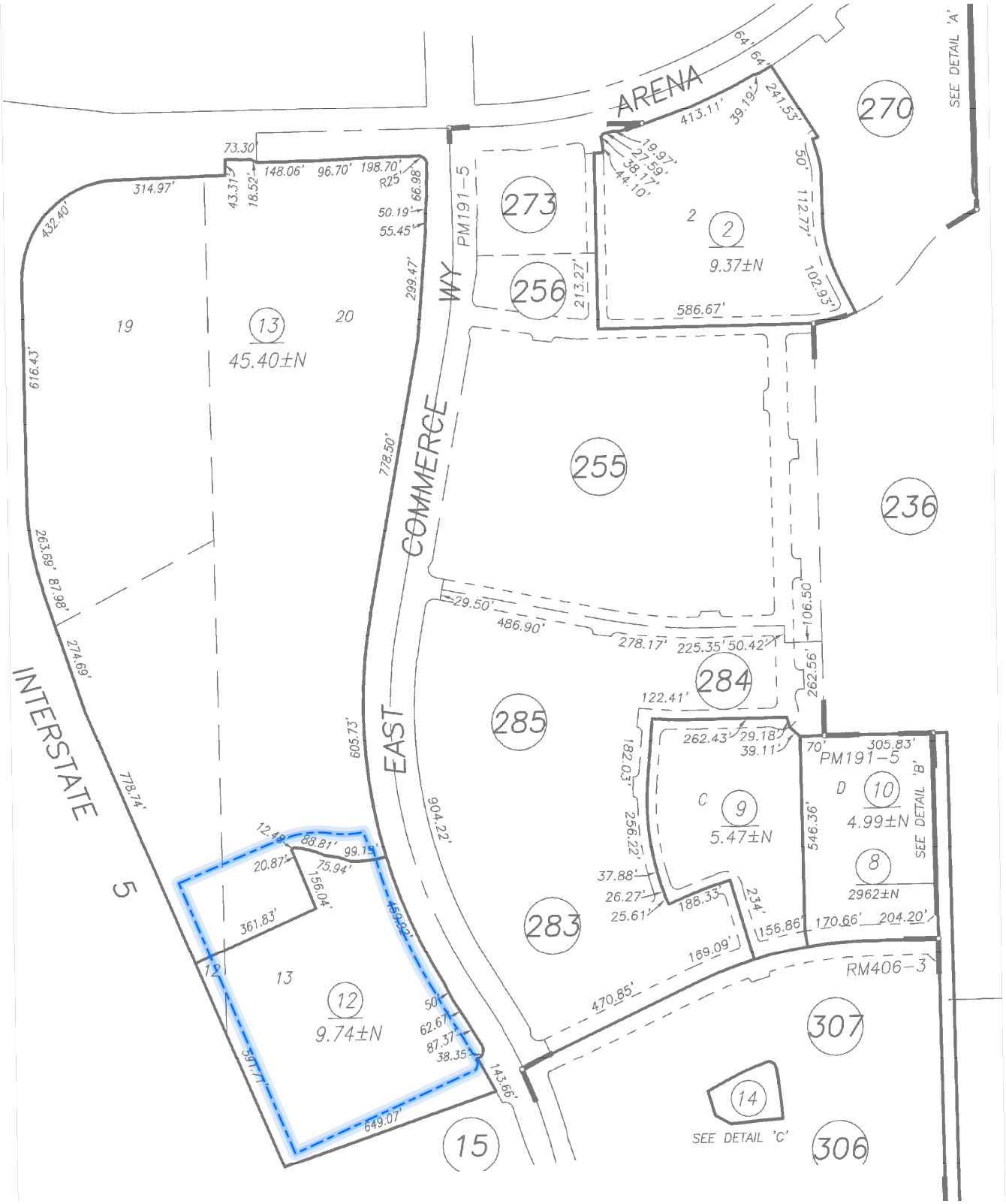
WallaceKuhl & ASSOCIATES

TOPOGRAPHIC MAP

NATOMAS II PROPERTY PHASE 1

Sacramento, California

FIGURE	2
DRAWN BY	JBV
CHECKED BY	NMM
PROJECT MGR	KMB
DATE	09/19
WKA NO.	12512.01



Approximate Site Boundary

N

0 200 400
Feet

Parcel Map provided by the City of Sacramento
Assessor's Map Bk. 225, Pg 230.
Projection: NAD 83, California State Plane, Zone II

WallaceKuhl & ASSOCIATES

PARCEL MAP

NATOMAS II PROPERTY PHASE 1

Sacramento, California

FIGURE	3
DRAWN BY	JBV
CHECKED BY	NMM
PROJECT MGR	KMB
DATE	09/19
WKA NO.	12512.01

Approximate Site Boundary

N

0 100 200
Feet

Aerial imagery provided by Esri
Projection: NAD 83, California State Plane, Zone II

WallaceKuhl & ASSOCIATES

AERIAL SITE MAP

NATOMAS II PROPERTY PHASE 1

Sacramento, California

FIGURE	4
DRAWN BY	JBV
CHECKED BY	NMM
PROJECT MGR	KMB
DATE	09/19
WKA NO.	12512.01

Looking north across the Site.

Looking at a storm drain at the Site.

Looking east across the Site at East Commerce Way followed by residential housing.

Looking west at Interstate 5.

COLOR PHOTOGRAPHS

NATOMAS II PROPERTY PHASE 1

City, California

FIGURE	5
DRAWN BY	KCG
CHECKED BY	NMM
PROJECT MGR	KMB
DATE	9/19

WKA NO. 12512.01

APPENDIX A

RESUMES

DENNIS B. NAKAMOTO

SENIOR HYDROGEOLOGIST

Mr. Nakamoto manages Wallace-Kuhl & Associates' Environmental Department. He has over 35 years of experience in completing chemical contaminant and groundwater studies. Mr. Nakamoto's experience began with underground mapping, open pit mining and milling operations at sites in California, Nevada and Idaho. Mr. Nakamoto monitored the third environmental boring in connection with investigating soil, soil vapor and groundwater contamination at the Aerojet General Corporation rocket facility in Rancho Cordova, California (Aerojet). Mr. Nakamoto, over an eight-year period at Aerojet, was responsible for interpreting geologic samples and geophysical data in support of designing over 1,000 wells, comprised of extraction, recharge and monitoring wells, including nested, multiple completion monitoring wells.

Mr. Nakamoto was responsible for environmental studies at railyards operated by the former Southern Pacific Transportation Company and the Union Pacific Railroad. Mr. Nakamoto's was the Environmental Oversight Authority (EOA) during construction of the Robert Matsui Federal Courthouse and the 7th Street Extension, both projects on land formerly designated as part of the Union Pacific Sacramento Locomotive Works Superfund site, Sacramento, California. The EOA had authority to act on behalf of the Department of Toxic Substances Control, Central Valley Regional Water Quality Control Board, Sacramento County Environmental Health Department and the City of Sacramento on chemical discoveries during construction.

Mr. Nakamoto's experience with groundwater exploration began in 1978 with a successful mapping and interpreting of hydrogeologic conditions that resulting in finding of viable groundwater resources in the Spanish Springs area north of Reno, Nevada. His more recent experience includes the hydrogeologic study at the Elk Grove Unified School District's Cosumnes River Elementary School. He has lead studies to verify that aquifer resources were sufficient to support proposed developments; to interpret hydrogeologic interactions between surface water bodies, chemicals arising from sources such as discharges to the environment and septic disposal facilities; and, impacts of land development on groundwater resources. He has completed hydrogeologic studies in support of permitting surface mining activities, designing new production wells, modeling proposed contaminant capture systems, and developing groundwater resources.

Mr. Nakamoto studies volatile and semi-volatile organic chemicals, polynuclear aromatic hydrocarbons, metals (including hexavalent chromium and arsenic), asbestos, pH, agricultural chemicals and petroleum hydrocarbons in soil, soil vapor or groundwater arising from activities at facilities ranging from railyards, military, dry cleaning, wood treating, agricultural, and manufacturing. He interprets geophysical data from electrical resistivity, spontaneous potential, background radiation, source radiation (when approved for use), ground penetrating radar, magnetic and gravity surveys, using downhole and surface arrays. His studies are completed under oversight by either the United States Environmental Protection Agency, Department of Toxic Substances Control, one of the nine Regional Water Quality Control Boards, County Agencies or one of the several local oversight program agencies. He has investigated facilities such as: surface impoundments, former and active landfills, grit blasting, solvent cleaning, asbestos application and removal, lead acid battery maintenance, smelting activities, and petroleum hydrocarbon fuel refining, storage and dispensing, and agriculture operations throughout California.

Mr. Nakamoto prepares Human Health Risk Assessments based on statistical evaluations of data to advocate for the most efficient strategy for mitigating chemical concentrations at a site. Mr. Nakamoto has successfully defended Human Health Risk Assessments, including Trespasser Scenarios to Department of Toxic Substances Control Office of Human and Ecological Risk Division (HERD) and Human Health Risk (HERO) staff and Local Oversight Agencies. He has completed studies and prepared Asbestos Dust Mitigation Plans at numerous sites impacted by Naturally Occurring Asbestos. He is responsible for Phase I Environmental Site Assessment Reports.

DENNIS B. NAKAMOTO

SENIOR HYDROGEOLOGIST

SELECTED PROJECT EXPERIENCE:

- Lead and Petroleum Hydrocarbon Fuels, Former Crystal Cream and Butter Facility, Risk to Residential land use, Sacramento, California
- Arsenic Trespasser Risk Scenario, Fox Hill Lane Estates, Risk to Residential land use, Newcastle, California
- Hydrogeologic Study, Cosumnes River Elementary School, Surface Water to Groundwater impacts, Rancho Murrieta, California
- Dieldrin, Chlordane and Lead, Risk-Based Cleanup Determination, Sacred Heart Elementary School, Sacramento, California
- Environmental Oversight Authority, 7th Street Extension and Federal Courthouse, Development following Certified RAP, Sacramento, CA

Preliminary Endangerment Assessments

- Eureka School, Granite Bay
- Thermalito Union School District, Oroville
- Shubin Property, Vacaville
- Pan Pacific Property, Woodland

Railroad Transportation Facilities

- Oroville Railyard
- Stockton Railyard
- Sacramento Locomotive Works
- Imlay Locomotive Refueling Yard
- Portola Railyard
- Curtis Park Railyard

HIGHER EDUCATION:

University of California, Davis, California
B.S. Geology (1977)

PROFESSIONAL REGISTRATIONS:

California
Professional Geologist No. 3863
Certified Engineering Geologist No.1353
Certified Hydrogeologist No. 260
Oregon
Professional Geologist and an Engineering Geologist No. E 1535
Wyoming
Professional Geologist No. PG 2157
Louisiana
Professional Geoscientist No. To be assigned.

APPENDIX B

ASTM E 1527-13 User Questionnaire
and Helpful Documents Checklist

E 1527-13 USER QUESTIONNAIRE
NATOMAS II PROPERTY PHASE 2

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"), the *user*[1] must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete.

(1.) Have you performed a search for environmental cleanup liens and AULs, as described under *User Obligations* in the attached proposal, for the *property?* NO

(2.) Are you aware of any environmental cleanup liens against the *property* that are filed or recorded under federal, tribal, state or local law? NO

(3.) Are you aware of any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? NO

(4.) As the *user* of the report, do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? NO

(5.) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present on the *property*? Yes

(6.) Are you aware of commonly known or reasonably ascertainable information about the *property* that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

(a.) Do you know the past uses of the *property*? NO If so, what were they?

(b.) What, if any, specific chemicals are present or once were present at the *property*?

---

[1] User, as defined in the ASTM Standard is "the party seeking to use Practice E 1527 to complete an environmental site assessment of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. The user has specific obligations for completing a successful application of this practice as outline in Section 6 [of the ASTM Standard]."

E 1527-13 USER QUESTIONNAIRE (cont.)
NATOMAS II PROPERTY PHASE 2

Questions 6 continued:

(c.) What, if any, spills or other chemical releases have taken place at the *property*? Not aware of any

(d.) What, if any, environmental cleanups have taken place at the *property*? "

(7.) As the *user* of this ESA, based on your knowledge and experience related to the *property* are there any obvious indicators that point to the presence or likely presence of contamination at the *property*? NO

COMPLETION:

I have completed this User Questionnaire to the best of my knowledge and provided all information to the environmental professional as of the following date:

Completed by: Karen Garrett

Date: 9/12/19

Title: Land Entitlement Manager

Signature: [signature]

Phone Number: (209) 955-2574

Relationship to the Site (i.e., owner, lender, property manager): _____

HELPFUL DOCUMENTS
NATOMAS II PROPERTY PHASE 2

Are you aware of any of the below-listed reports, as they relate specifically to the property?

✓ Yes ____ No (if yes, please check all that apply):

- ☑ Environmental Site Assessment reports (Phase I ESA, Asbestos sampling reports, etc.)
- ☐ Environmental Compliance Audit reports
- ☑ Geotechnical Reports
- ☐ Environmental permits (for example, solid waste disposal permits, hazardous waste disposal permits, wastewater permits, NPDES permits, underground injection permits)
- ☐ Registrations for underground or above ground storage tanks
- ☐ Registrations for underground injection systems
- ☐ Material Safety Data Sheets
- ☐ Community Right-to-Know plan
- ☐ Safety Plan
- ☐ Reports regarding Hydrogeologic conditions on the property or surrounding area
- ☐ Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the property or relating to environmental liens encumbering the property
- ☐ Hazardous waste generator notices, or reports
- ☐ Environmental Impact Reports (draft and/or final)
- ☐ Risk assessments
- ☐ Recorded AULs

If any of the above listed documents are available, will copies be provided to WKA for review?

✓ Yes ____ No

Completed by Karen Garnett

Date: 9/12/19

Title: Land Entitlement Manager

Signature: _____

APPENDIX C

EDR® Radius Map Report Executive Summary

Natomas II Property
East Commerce Way
Sacramento, CA 95834

Inquiry Number: 5789113.2s
September 13, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	50
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-11
Physical Setting Source Map Findings	A-13
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

EAST COMMERCE WAY
SACRAMENTO, CA 95834

COORDINATES

Latitude (North):	38.6375000 - 38˚ 38' 15.00''
Longitude (West):	121.5208000 - 121˚ 31' 14.88''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	628744.0
UTM Y (Meters):	4277381.5
Elevation:	17 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5619770 TAYLOR MONUMENT, CA
Version Date:	2012
Northeast Map:	5629066 RIO LINDA, CA
Version Date:	2012
Southeast Map:	5619748 SACRAMENTO EAST, CA
Version Date:	2012
Southwest Map:	5619750 SACRAMENTO WEST, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140621
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
EAST COMMERCE WAY
SACRAMENTO, CA 95834

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	NATOMAS FIELD STOCKP	EAST COMMERCE WAY SO	CIWQS		TP
A2	SACRAMENTO AERO SERV	3801 AIRPORT RD	RGA LUST	Higher	1358, 0.257, ESE
A3	CHEVRON #1558	3801 AIRPORT RD	RGA LUST	Higher	1358, 0.257, ESE
A4	NATOMAS AIRPORT	3801 AIRPORT RD	CPS-SLIC, SWEEPS UST, HIST UST, CA FID UST, NPDES,...	Higher	1358, 0.257, ESE
A5	PARCEL 15 AND 18 OF	3801 AIRPORT ROAD	SEMS-ARCHIVE, RCRA-LQG, ENVIROSTOR, LUST,...	Higher	1358, 0.257, ESE
A6	NATOMAS AIR PARK PAR	3801 AIRPORT ROAD	RGA LUST	Higher	1358, 0.257, ESE
A7	SACRAMENTO AERO SERV	3801 AIRPORT RD	RGA LUST	Higher	1358, 0.257, ESE
B8	MACHADO RESIDENCE	3600 AIRPORT ROAD	RGA LUST	Lower	1702, 0.322, SE
B9	MACHADO TRUST	3600 AIRPORT RD	Sacramento Co. CS	Lower	1702, 0.322, SE
B10	MACHADO RESIDENCE	3600 AIRPORT ROAD	LUST	Lower	1702, 0.322, SE
11	NATOMAS CROSSING	ENDEAVOR WAY/AIRPORT	ENVIROSTOR, SCH, CERS	Higher	1842, 0.349, ENE
B12	PRIVATE RESIDENCE	PRIVATE RESIDENCE	LUST	Lower	1915, 0.363, ESE
13	WITTER RANCH ELEMENT	STEMMLER DRIVE/POPPY	ENVIROSTOR, SCH	Higher	2686, 0.509, WSW
14	FUTURE K-8 SITE AT T	3949 TRUXEL ROAD	ENVIROSTOR, SCH	Lower	3518, 0.666, ENE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
NATOMAS FIELD STOCKP EAST COMMERCE WAY SO SACRAMENTO, CA 95815	CIWQS	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators

RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-VSQG ..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations

EXECUTIVE SUMMARY

ODI	Open Dump Inventory
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
CERS HAZ WASTE	CERS HAZ WASTE
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register
PFAS	PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System

EXECUTIVE SUMMARY

COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
Sacramento Co. ML	Master Hazardous Materials Facility List
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Hist Auto..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/29/2019 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PARCEL 15 AND 18 OF Facility Id: 34450010 Status: Refer: EPA	***3801 AIRPORT ROAD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A5***	***14***
NATOMAS CROSSING Facility Id: 34010018 Status: No Further Action	***ENDEAVOR WAY/AIRPORT***	***ENE 1/4 - 1/2 (0.349 mi.)***	***11***	***34***
WITTER RANCH ELEMENT Facility Id: 34010013 Status: No Action Required	***STEMMLER DRIVE/POPPY***	***WSW 1/2 - 1 (0.509 mi.)***	***13***	***44***

Lower Elevation	Address	Direction / Distance	Map ID	Page
FUTURE K-8 SITE AT T	***3949 TRUXEL ROAD***	***ENE 1/2 - 1 (0.666 mi.)***	***14***	***46***

Facility Id: 60002414
Status: Inactive - Withdrawn

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 3 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PARCEL 15 AND 18 OF	***3801 AIRPORT ROAD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A5***	***14***
Database: LUST REG 5, Date of Government Version: 07/01/2008 Database: LUST, Date of Government Version: 06/10/2019 Status: Completed - Case Closed Status: Remedial action (cleanup) Underway Global Id: T0606700952				

Lower Elevation	Address	Direction / Distance	Map ID	Page
MACHADO RESIDENCE	3600 AIRPORT ROAD	SE 1/4 - 1/2 (0.322 mi.)	B10	34
Database: LUST REG 5, Date of Government Version: 07/01/2008 Status: Leak being confirmed				
PRIVATE RESIDENCE	PRIVATE RESIDENCE	ESE 1/4 - 1/2 (0.363 mi.)	B12	39
Database: LUST, Date of Government Version: 06/10/2019 Status: Completed - Case Closed Global Id: T0606727901				

CPS-SLIC: Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the CPS-SLIC list, as provided by EDR, has revealed that there are 2 CPS-SLIC sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NATOMAS AIRPORT	***3801 AIRPORT RD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A4***	***9***
Database: SLIC REG 5, Date of Government Version: 04/01/2005				
PARCEL 15 AND 18 OF	***3801 AIRPORT ROAD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A5***	***14***
Database: CPS-SLIC, Date of Government Version: 06/10/2019 Facility Status: Open - Inactive Facility Status: Completed - Case Closed Global Id: SL186443614 Global Id: SL186463790 Global Id: SL186373608				

Sacramento Co. CS: List of sites where unauthorized releases of potentially hazardous materials have occurred.

A review of the Sacramento Co. CS list, as provided by EDR, and dated 05/06/2019 has revealed that there are 2 Sacramento Co. CS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PARCEL 15 AND 18 OF Facility Id: RO0000161	***3801 AIRPORT ROAD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A5***	***14***

Lower Elevation	Address	Direction / Distance	Map ID	Page
MACHADO TRUST Facility Id: RO0001530	3600 AIRPORT RD	SE 1/4 - 1/2 (0.322 mi.)	B9	34

State and tribal voluntary cleanup sites

VCP: Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

A review of the VCP list, as provided by EDR, and dated 04/29/2019 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PARCEL 15 AND 18 OF Status: Refer: EPA Facility Id: 34450010	***3801 AIRPORT ROAD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A5***	***14***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PARCEL 15 AND 18 OF Reg Id: 34450010 Reg Id: 341127	***3801 AIRPORT ROAD***	***ESE 1/4 - 1/2 (0.257 mi.)***	***A5***	***14***

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST: The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

A review of the RGA LUST list, as provided by EDR, has revealed that there are 5 RGA LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO AERO SERV	3801 AIRPORT RD	ESE 1/4 - 1/2 (0.257 mi.)	A2	8
CHEVRON #1558	3801 AIRPORT RD	ESE 1/4 - 1/2 (0.257 mi.)	A3	8
NATOMAS AIR PARK PAR	3801 AIRPORT ROAD	ESE 1/4 - 1/2 (0.257 mi.)	A6	31
SACRAMENTO AERO SERV	3801 AIRPORT RD	ESE 1/4 - 1/2 (0.257 mi.)	A7	32

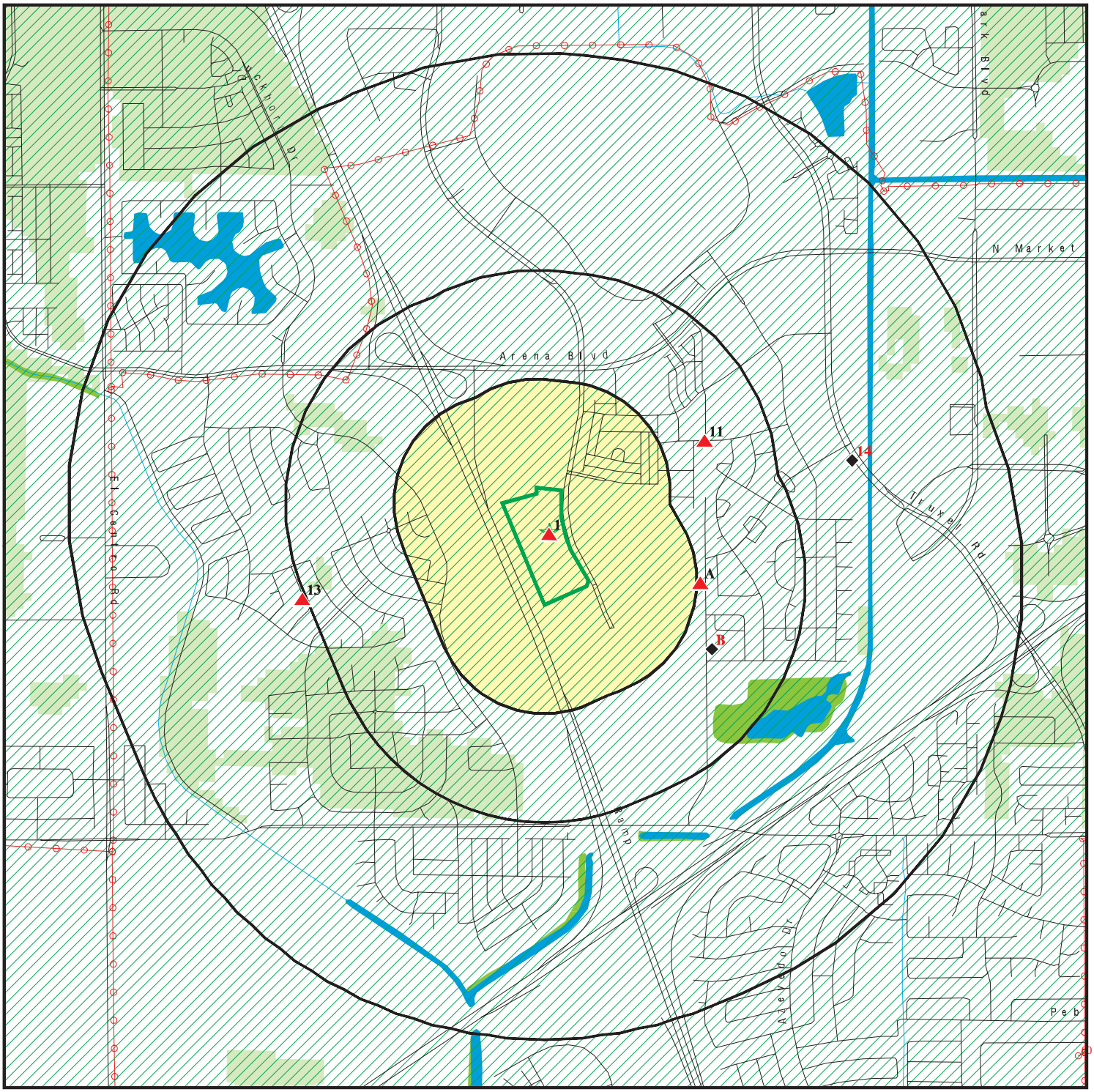
Lower Elevation	Address	Direction / Distance	Map ID	Page
MACHADO RESIDENCE	3600 AIRPORT ROAD	SE 1/4 - 1/2 (0.322 mi.)	B8	33

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
CITY OF SACRAMENTO	Sacramento Co. CS

OVERVIEW MAP - 5789113.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Natomas II Property	CLIENT: Wallace - Kuhl & Associates
ADDRESS: East Commerce Way Sacramento CA 95834	CONTACT: Nancy Malaret
LAT/LONG: 38.6375 / 121.5208	INQUIRY #: 5789113.2s DATE: September 13, 2019 3:16 pm

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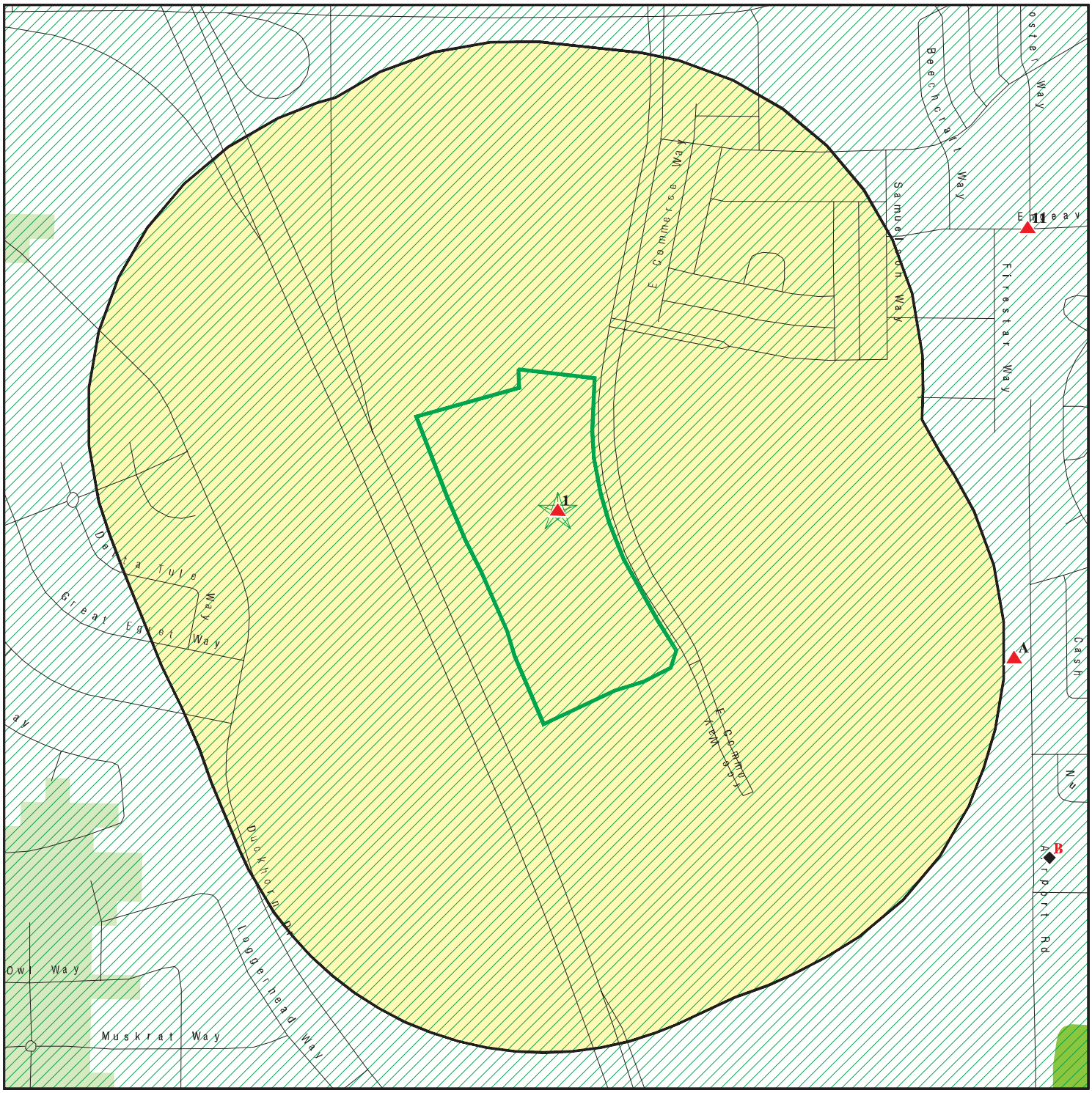
DETAIL MAP - 5789113.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Natomas II Property	CLIENT: Wallace - Kuhl & Associates
ADDRESS: East Commerce Way Sacramento CA 95834	CONTACT: Nancy Malaret
	INQUIRY #: 5789113.2s
LAT/LONG: 38.6375 / 121.5208	DATE: September 13, 2019 3:20 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.250		0	0	NR	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	2	2	NR	4
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	3	NR	NR	3

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	2	NR	NR	2
Sacramento Co. CS	0.500		0	0	2	NR	NR	2
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	TP		NR	NR	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	1	NR	NR	1
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	TP		NR	NR	NR	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	TP		NR	NR	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	0.250		0	0	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	1	NR	NR	1
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	TP		NR	NR	NR	NR	NR	0
Sacramento Co. ML	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP	1	NR	NR	NR	NR	NR	1
CERS	TP		NR	NR	NR	NR	NR	0
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.250		0	0	NR	NR	NR	0
EDR Hist Cleaner	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.500		0	0	0	NR	NR	0
RGA LUST	0.500		0	0	5	NR	NR	5
- Totals --		1	0	0	16	2	0	19

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

APPENDIX D

Preliminary Screen for Vapor Encroachment Conditions Matrix

Screen for Vapor Encroachment Conditions Matrix
NATOMAS II PROPERTY PHASE 1
WKA No. 12512.01

Phase I ESA Screen for Vapor Encroachment Conditions (VEC) matrix includes a (1) **Search Radius Test,** (2) **Chemicals of Concern Test (COC),** and (3) a **Critical Distance Test**[1].

(1) Search Radius Test: Are there any known or suspect contaminated sites in the primary area of concern within the corresponding search radii? (if yes, see attached Table A).

Yes No If No, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If Yes, then:

(2) **Chemicals of Concern**[2] **Test**: Are COC likely to be present within the area of concern for those known or suspect contaminated sites identified based on the Search Distance Test?

Yes No If No, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If Yes, then:

If Yes, check all COC that apply on attached Table B.

(3) Critical Distance Test: A plume test to determine whether or not COC in the contaminated plume(s) may be within the critical distance.

(3a) Is information related to the contaminated(s) plume available (i.e. isoconcentration maps, site drawings, etc.)?
Yes No

(3b) If ***No***, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If ***Yes***, then:

(3c) Is the site less than 100 feet to the nearest edge of a contaminated [non-petroleum hydrocarbon] plume(s)?
Yes No

(3d) Is the site less than 30 feet to the nearest edge of a dissolved petroleum hydrocarbon plume(s)?
Yes No

If the distance from the nearest edge of a contaminated plume to the nearest existing or planned structure on the site is less than 100 feet for non-petroleum hydrocarbon COC, or less than 30 feet for dissolved petroleum hydrocarbons, then it is presumed that a VEC *currently* exists beneath the site. If the distance from the nearest edge of the contaminated plume is greater than or equal to 100 feet for non-petroleum hydrocarbons, or 30 feet for dissolved petroleum hydrocarbon chemicals of concern, then it is presumed unlikely that a VEC *currently* exists beneath the site.

(4) Is it likely that a VEC *currently* exists beneath the site?
Yes No If *Yes,* then recommend performing a full scope VEC assessment according to ASTM E 2600-15.

[1] Based on guidance presented in the ASTM E 2600-15 Standard.
[2] Chemical(s) of concern (COC): See attached table for typical chemicals of concern (as presented in Appendix X6.1 of the ASTM E 2600-15 Standard).

Attachment 6

Environmental Noise Analysis

NATOMAS II Multi-Family Residential Environmental Noise Analysis

City of Sacramento, California

October 23, 2019

jcb Project # 2019-149

Prepared for:

10100 Trinity Parkway, 5th Floor
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INTRODUCTION

The proposed Natomas II multi-family residential project is a two phase project, which consists of 2 parcels. Parcel 11 is the first phase, and includes 264 units. Parcel 10 is the second phase and includes approximately 202 units. Both phases of the project are located adjacent to Interstate 5 (I-5) to the west, and Commerce Way to the east. The project is located within the City of Sacramento, and this analysis is a determination of compliance with the City of Sacramento exterior and interior noise level standards. Figure 1 shows the project location, and the proposed project Phase I and Phase II.

ENVIRONMENTAL SETTING

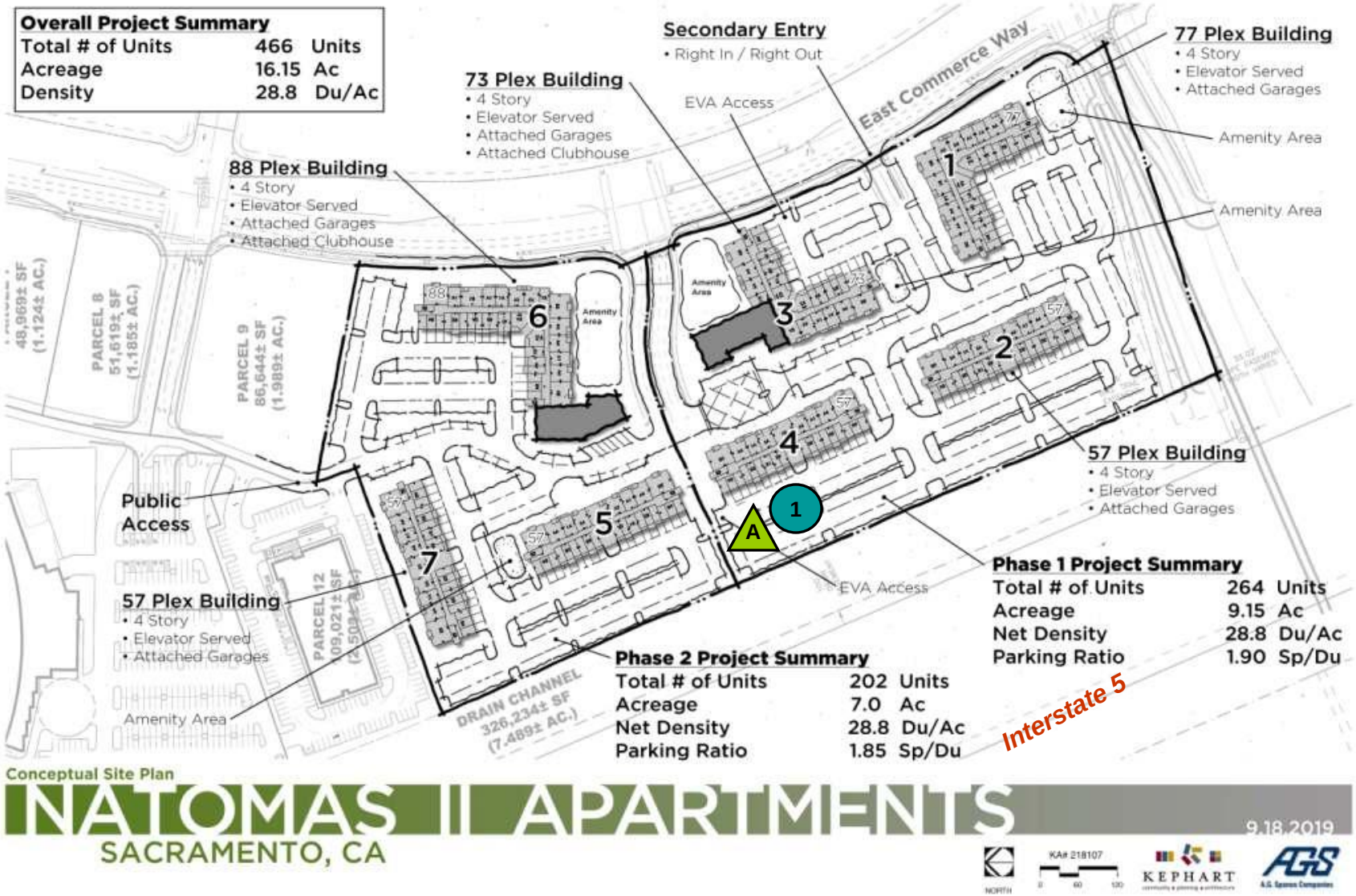
Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dBA) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, unless otherwise noted.



Continuous 24-hour Noise Monitoring Site

I-5 Traffic Noise Calibration Site

Figure 1
Project Site Plan

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The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, Ldn, and shows very good correlation with community response to noise. The day/night average level (Ldn or DNL) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment. Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response

Table 1

LOUDNESS COMPARISON CHART (dBA)

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 1000 ft	110	Rock Band
	100	
Gas Lawn Mower at 3 ft		
	90	Food Blender at 3 ft
Diesel Truck at 50 ft at 50 mph	80	Garbage Disposal at 3 ft
Noisy Urban Area, Daytime		Vacuum Cleaner at 10 ft
Gas Lawn Mower at 100 ft	70	Normal Speech at 3 ft
Commercial Area		
Heavy Traffic at 300 ft	60	Large Business Office
Quiet Urban, Daytime	50	Dishwasher Next Room
Quiet Urban, Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban, Nighttime		
	30	Library
Quiet Rural, Nighttime		Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

An increase of 3 dBA is barely perceptible to the human ear.

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REGULATORY CONTEXT

City of Sacramento General Plan

The City of Sacramento General Plan Noise Element provides the following goals and policies relative to noise.

Goal EC 3.1

Noise Reduction. Minimize noise impacts on human activity to ensure the health and safety of the community.

Policies

EC 3.1.1 **Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1 [**Table 2**], to the extent feasible. (RDR)

EC 3.1.3 **Interior Noise Standards.** The City shall require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dBA Ldn for residential, transient lodgings, hospitals, nursing homes and other uses where people normally sleep; and 45 dBA Leq (peak hour) for office buildings and similar uses. (RDR)

Based upon review of Table EC 1, multi-family residential projects such as the proposed project would be subject to an exterior noise level standard of 65 dBA Ldn. Also, based upon footnote g of Table EC 1, the standard applies at a primary outdoor area, and not at balconies or small patios. Additionally, residential units would be required to comply with an interior noise level standard of 45 dBA Ldn, as outlined in Policy EC 3.1.3 and required by Title 24.

TABLE 2:
CITY OF SACRAMENTO GENERAL PLAN NOISE COMPATIBILITY STANDARDS

Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	Highest Level of Noise Exposure That Is Regarded as "Normally Acceptable" [a] (Ldn [b] or CNEL [c])
Residential – Low Density Single Family, Duplex, Mobile Homes	60 dBA [d,c]
Residential – Multi-family[d]	65 dBA
Urban Residential Infill and Mixed-Use Projects	70 dBA
Transient Lodging – Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office buildings – business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

Source: governor's Office of Planning and Research, *State of California General Plan Guidelines 2003*, October 2003.

a. As defied in the *Guidelines*, "Normally Acceptable" means that the "specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements."

b. Ldn or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.

c. CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.

d. Applies to the primary open space area of a detached single-family home, duplex, or mobile home, which is typically the backyard or fenced side yare, as measured from the center of the primary open space area (not the property line). This tandard does not apply to secondary open space areas, such as front yards, balconies, stoops, and porches.

e. dBA or A-weighted decibel scale is a measurement of noise levels.

f. The exterior noise standard for the residential area west of McClellan Airport known as McClellan Heights/Parker Homes is 65 dBA.

g. Applies to the primary open space areas of townhomes and multi-family apartments or condominiums (private rear yards for townhomes; common courtyards, roof gardens, or gathering spaces for multifamily developments). These standards shall not apply to balconies or small attached patios in multistoried multi-family structures.

h. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High).

i. All mixed-use projects located anywhere in the City of Sacramento.

j. See notes d and g above for definition of primary open space areas for single-family and multi-family developments

EVALUATION OF FUTURE TRAFFIC NOISE LEVELS AT THE PROJECT SITE

Existing Traffic Noise Levels

j.c. brennan & associates, Inc. staff conducted continuous 24-hour noise level measurements at the project site on October 17-18, 2019. See Figure 1 for the noise measurement location.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the ambient noise level measurement survey. The meter was calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The sound level meter was programmed to collect hourly noise level intervals during the survey. The maximum value (L_{max}) represents the highest noise level measured during each one hour period, the average value (L_{eq}) represents the energy average of all of the noise measured during each one hour period, and the median value (L_{50}) represents the sound level exceeded 50 percent of the time during each one hour period.

The noise level measurement survey results are provided in Table 3. Appendix B provides the complete results of the continuous noise level measurement.

TABLE 3
SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Site	Location	Date	Ldn	Average Measured Hourly Noise Levels, dBA					
				Daytime (7am-10pm)			Nighttime (10pm-7am)		
				L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
Continuous (24-hour) Noise Level Measurements									
A	225-feet to I-5 Centerline	10/17-18/2019	71.5	67.1	66.4	79.8	64.6	62.8	74.3
Source: j.c. brennan & associates, Inc., 2019.									

Traffic Noise Prediction Methodology

j.c. brennan & associates, Inc., utilizes the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) for the prediction of traffic noise levels. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

Traffic Noise Calibration

On October 18th, 2019, j.c. brennan & associates, Inc. staff conducted short-term noise level measurement and concurrent counts of traffic on I-5 at the project site. The purpose of the short-term traffic noise level measurement is to determine the accuracy of the FHWA model in describing the existing noise environment on the project site, while accounting for shielding from existing intervening structures, actual travel speeds, and roadway grade. The noise measurements were conducted at an elevation of 12-feet above the ground to represent second story rooms. The noise measurement results were compared to the FHWA model result by entering the observed traffic volume, speed, and distance as inputs to the FHWA model. See Figure 1 for noise measurement location.

Instrumentation used for the measurement was a Larson Davis Laboratories (LDL) Model 824 precision integrating sound level meter which was calibrated in the field before use with an LDL CAL200 acoustical calibrator. A complete listing of FHWA Model inputs and results are shown in Appendix C. Table 4 shows the results of the traffic noise calibration.

TABLE 4
COMPARISON OF PREDICTED TO MEASURED I-5 TRAFFIC NOISE LEVELS

Vehicles				Speed (mph)	Dist. (Feet)*	Measured Leq, dBA	Modeled Leq, dBA**	Difference
Site	Autos	Med. Trk.	Hvy.Trk.					
Interstate 5								
1	2390	26	54	60	225	69.0	72.7	3.7

*The noise measurement location is from the roadway centerline.
**Acoustically "soft" site assumed

Based upon the calibration results, the FHWA Model was found to over-predict I-5 traffic noise levels by approximately 3 to 4 dBA. This was due to the fact that I-5 is elevated and shields the southbound I-5 traffic lanes. A -3 dBA correction is added to the FHWA model for predicted existing and future traffic noise levels.

Future Exterior Traffic Noise Levels:

Future (2035) traffic projections for I-5 at the project site was obtained by adding a growth factor of 1% per year to the existing traffic volumes as reported by Caltrans. This methodology yielded a 2035 ADT volume of 177,480. For Commerce Boulevard, the traffic volumes provided in the traffic report conducted by k.d. Anderson were used.

Table 5 shows the predicted future traffic noise levels and distances to the traffic noise contours. The predicted noise levels at the second row of buildings (Buildings 1, 3 & 6)) and the designated outdoor areas (Amenity Areas and Club Houses) do not account for shielding from the first row of buildings (Buildings 2, 4, 5 & 7). Based upon the size and scale of the buildings, the second row of buildings and the outdoor areas will receive a minimum of 5 dBA shielding of traffic noise from I-5.

TABLE 5
PREDICTED FUTURE TRAFFIC NOISE LEVELS

Roadway	Predicted Ldn	Distances to Noise Contours	
		65 dBA Ldn	70 dBA Ldn
I-5 Buildings 2, 4, 5 & 7 (334-feet) Buildings 1, 3 & 6 (554-feet) Outdoor Areas (554-feet)	71 dBA Ldn 68 dBA Ldn (*63 dBA Ldn with Shielding*) 68 dBA Ldn (*63 dBA with Shielding*)	890-feet	413-feet
Commerce Boulevard	63 dBA Ldn @100-feet	73-feet	34-feet
[1] Distances are measured from the roadway centerline.			

Based upon Table 5, the exterior I-5 traffic noise levels will comply with the City of Sacramento exterior noise level standard of 65 dBA Ldn, at the designated outdoor areas (Amenity Areas and Club Houses). Commerce Boulevard traffic noise levels will comply with the exterior traffic noise level standard.

Interior Traffic Noise Levels:

Standard construction practices, consistent with the uniform building code typically provides an exterior-to-interior noise level reduction of approximately 20 to 25 dBA, assuming that air conditioning is included for each unit, which allows residents to close windows for the required acoustical isolation.

Exterior traffic noise levels are predicted to be 71 dBA Ldn at first floor facades of Buildings 2, 4, 5 & 7). Upper floors will be exposed to exterior noise levels of approximately 3 dBA higher (74 dBA Ldn) due to the lack of excess ground absorption.

Exterior traffic noise levels are predicted to be 63 dBA Ldn at the first floor facades of buildings 1, 3 & 6. Upper floors will be exposed to exterior noise levels of approximately 3 dBA higher (66 dBA Ldn) due to the lack of excess ground absorption.

The following recommendations are provided to comply with the City of Sacramento interior noise level standard of 45 dBA Ldn

1. The first floor facades of Buildings 2, 4, 5 & 7 will require STC 30 rated windows and sliding glass doors on the parallel and perpendicular facades. Facades opposite of I-5 will not require specific STC ratings;
2. The upper floor facades of Buildings 2, 4, 5 & 7 will require STC 33 rated windows and sliding glass doors on the parallel and perpendicular facades. Facades opposite of I-5 will not require specific STC ratings;
3. Buildings 1, 3 & 6 will <u>not</u> require specific STC ratings for windows and sliding glass doors.

CONCLUSIONS

The proposed project is predicted to comply with the City of Sacramento exterior and interior noise level standards provided that the recommendations for achieving the interior noise levels, as described earlier are implemented. In addition, air conditioning must be provided for all units to allow occupants to close windows and doors for the appropriate acoustical isolation.

Appendix A
Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
$L_{(n)}$	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L_{50} is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the AMaximum@ level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is s rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B
2019-149 Natomas II Apartments
24hr Continuous Noise Monitoring - Site A
10/17/19 - 10/18/2019

Hour	Leq	Lmax	L50	L90
18:00	67	79	66	64
19:00	66	85	66	64
20:00	66	75	66	64
21:00	66	72	65	63
22:00	64	76	64	61
23:00	63	72	62	59
0:00	61	73	60	56
1:00	61	72	59	53
2:00	61	69	59	54
3:00	63	71	62	58
4:00	65	74	65	61
5:00	67	77	67	64
6:00	69	83	68	66
7:00	68	80	68	66
8:00	68	81	67	64
9:00	66	77	65	62
10:00	67	74	66	64
11:00	67	78	67	64
12:00	68	89	67	64
13:00	67	74	66	63
14:00	67	79	66	63
15:00	68	84	67	65
16:00	68	93	67	64
17:00	66	78	66	62

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	68.3	65.6	67.1	68.6	60.7	64.6
Lmax (Maximum)	93.1	72.0	79.8	83.4	69.4	74.3
L50 (Median)	68.0	65.3	66.4	68.0	58.9	62.8
L90 (Background)	66.2	62.3	63.9	65.6	53.0	59.0

Computed Ldn, dB	71.5
% Daytime Energy	75%
% Nighttime Energy	25%

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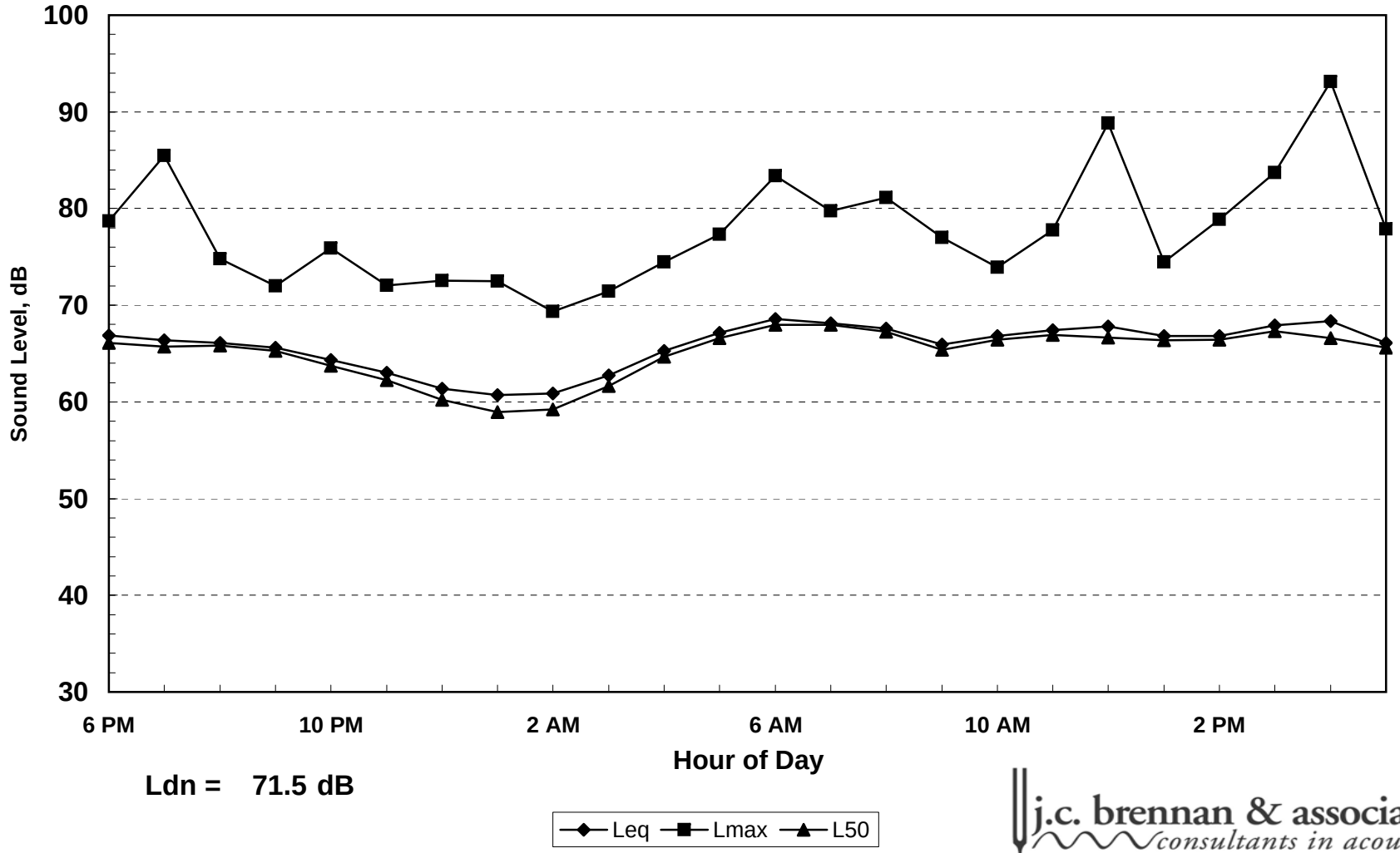
Appendix B
2019-149 Natomas II Apartments
24hr Continuous Noise Monitoring - Site A
10/17/19 - 10/18/2019



Ldn = 71.5 dB

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Appendix C

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Calibration Worksheet

Project Information:	Job Number:	2019-149
	Project Name:	Natomas II Appartments
	Roadway Tested:	I-5
	Test Location:	On Site Lot 11
	Test Date:	October 18, 2019
Weather Conditions:	Temperature (Fahrenheit):	68
	Relative Humidity:	Moderate
	Wind Speed and Direction:	5-10mph From Southwest
	Cloud Cover:	Clear
Sound Level Meter:	Sound Level Meter:	LDL Model 820
	Calibrator:	LDL Model CAL200
	Meter Calibrated:	Immediately before and after test
	Meter Settings:	A-weighted, slow response
Microphone:	Microphone Location:	On Project Site
	Distance to Centerline (feet):	225
	Microphone Height:	10 feet above ground
	Intervening Ground (Hard or Soft):	**Soft**
	Elevation Relative to Road (feet):	10
Roadway Condition:	Pavement Type	Asphalt
	Pavement Condition:	Good
	Number of Lanes:	10
	Posted Maximum Speed (mph):	65
Test Parameters:	Test Time:	4:50 PM
	Test Duration (minutes):	10
	Observed Number Automobiles:	2390
	Observed Number Medium Trucks:	26
	Observed Number Heavy Trucks:	54
	Observed Average Speed (mph):	60
Model Calibration:	Measured Average Level (L_{eq}):	69.0
	Level Predicted by FHWA Model:	72.7
	Difference:	***3.7 dB***

Conclusions: Microphone was elevated to 10 feet above ground elevation, 5 foot tall concrete centerline barrier between northbound and southbound traffic. Line of site to southbound traffic contact to roadway was blocked by 5 foot barrier.

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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Natomas II - 2019-149
Description: I-5 and Commerce Blvd
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Location	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	I-5 Existing	Project Site	153,000	75		25	2	7	65	225	-3
2	I-5 Future	At First Row of Buildings	177,480	75		25	2	7	65	334	-3
3	I-5 Future	At Second Row and Outdoor Areas	177,480	75		25	2	7	65	554	-3
4	Commerce Boulevard	Future	7,640	75		25	2	1	45	100	
5											
6											
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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: Natomas II - 2019-149
Description: I-5 and Commerce Blvd
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Location	Autos	Medium Trucks	Heavy Trucks	Total
1	I-5 Existing	Project Site	70.8	60.3	69.3	73
2	I-5 Future	At First Row of Buildings	68.8	58.4	67.3	71
3	I-5 Future	At Second Row and Outdoor Areas	65.5	55.1	64.0	68
4	Commerce Boulevard	Future	61.7	53.1	54.6	63

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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Natomas II - 2019-149
Description: I-5 and Commerce Blvd
Ldn/CNEL: Ldn
Hard/Soft: Soft

			-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	Location	75	70	65	60	55
1	I-5 Existing	Project Site	174	374	806	1737	3742
2	I-5 Future	At First Row of Buildings	192	413	890	1918	4131
3	I-5 Future	At Second Row and Outdoor Areas	192	413	890	1918	4131
4	Commerce Boulevard	Future	16	34	73	158	340

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