Appendix A

Air Quality and Greenhouse Gas Emissions Modeling Results

Cornerstone Mixed-Use Project

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	34.91	1000sqft	0.80	34,905.00	0
Enclosed Parking with Elevator	183.00	Space	1.90	81,497.00	0
Parking Lot	67.00	Space	0.51	22,154.00	0
High Turnover (Sit Down Restaurant)	11.00	1000sqft	0.25	11,000.00	0
Apartments Low Rise	35.00	Dwelling Unit	2.19	35,000.00	100
Strip Mall	23.01	1000sqft	0.53	23,013.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - per site plans

Construction Phase - Estimated schedule from applicant, 6 mo grading, 18 mo construction

Trips and VMT -

Grading - 92500 CY export

Vehicle Trips - Per traffic study, ATE, 2014

Woodstoves - no hearths

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Energy Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	230.00	372.00
tblConstructionPhase	NumDays	20.00	129.00
tblConstructionPhase	PhaseEndDate	2/23/2017	12/1/2016
tblConstructionPhase	PhaseStartDate	12/2/2016	9/9/2016
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	29.75	0.00
tblFireplaces	NumberNoFireplace	3.50	25.00
tblFireplaces	NumberWood	1.75	0.00
tblGrading	MaterialExported	0.00	92,500.00
tblLandUse	LandUseSquareFeet	34,910.00	34,905.00
tblLandUse	LandUseSquareFeet	73,200.00	81,497.00
tblLandUse	LandUseSquareFeet	26,800.00	22,154.00
tblLandUse	LandUseSquareFeet	23,010.00	23,013.00
tblLandUse	LotAcreage	1.65	1.90
tblLandUse	LotAcreage	0.60	0.51
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	WD_TR	11.01	11.03
tblWoodstoves	NumberCatalytic	1.75	0.00
tblWoodstoves	NumberNoncatalytic	1.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	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					
2015	5.8164	69.9615	49.9762	0.0987	8.3617	2.8005	11.1623	3.8515	2.5764	6.4279	0.0000	10,115.1568	10,115.1568	1.0012	0.0000	10,136.1810
2016	67.4989	34.4329	31.5167	0.0519	1.4291	2.2199	3.6490	0.3829	2.0964	2.4793	0.0000	4,925.6234	4,925.6234	0.7741	0.0000	4,941.8801
Total	**73.3152**	**104.3944**	**81.4928**	**0.1506**	**9.7908**	**5.0204**	**14.8112**	**4.2344**	**4.6728**	**8.9072**	**0.0000**	**15,040.7802**	**15,040.7802**	**1.7753**	**0.0000**	**15,078.0611**

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					
2015	5.8164	69.9615	49.9762	0.0987	4.7134	2.8005	7.5139	1.9926	2.5764	4.5690	0.0000	10,115.1568	10,115.1568	1.0012	0.0000	10,136.1810
2016	67.4989	34.4329	31.5167	0.0519	1.4291	2.2199	3.6490	0.3829	2.0964	2.4793	0.0000	4,925.6234	4,925.6234	0.7741	0.0000	4,941.8801
Total	**73.3152**	**104.3944**	**81.4928**	**0.1506**	**6.1425**	**5.0204**	**11.1628**	**2.3755**	**4.6728**	**7.0483**	**0.0000**	**15,040.7802**	**15,040.7802**	**1.7753**	**0.0000**	**15,078.0611**

	ROG	NOx	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**	**37.26**	**0.00**	**24.63**	**43.90**	**0.00**	**20.87**	**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	5.2381	0.0343	2.9498	1.5000e-004		0.0160	0.0160		0.0160	0.0160	0.0000	5.2691	5.2691	5.4100e-003	0.0000	5.3828
Energy	0.1083	0.9783	0.7814	5.9100e-003		0.0748	0.0748		0.0748	0.0748		1,181.3757	1,181.3757	0.0226	0.0217	1,188.5654
Mobile	10.9127	23.4396	98.8545	0.2023	13.6146	0.3125	13.9271	3.6406	0.2876	3.9282		17,289.8890	17,289.8890	0.7445		17,305.5234
Total	**16.2591**	**24.4521**	**102.5857**	**0.2083**	**13.6146**	**0.4033**	**14.0179**	**3.6406**	**0.3783**	**4.0189**	**0.0000**	**18,476.5339**	**18,476.5339**	**0.7726**	**0.0217**	**18,499.4716**

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	5.2381	0.0343	2.9498	1.5000e-004		0.0160	0.0160		0.0160	0.0160	0.0000	5.2691	5.2691	5.4100e-003	0.0000	5.3828
Energy	0.1083	0.9783	0.7814	5.9100e-003		0.0748	0.0748		0.0748	0.0748		1,181.3757	1,181.3757	0.0226	0.0217	1,188.5654
Mobile	10.6248	21.2731	91.9178	0.1795	12.0081	0.2790	12.2871	3.2110	0.2568	3.4678		15,336.7774	15,336.7774	0.6682		15,350.8090
Total	**15.9713**	**22.2857**	**95.6490**	**0.1855**	**12.0081**	**0.3698**	**12.3779**	**3.2110**	**0.3476**	**3.5586**	**0.0000**	**16,523.4222**	**16,523.4222**	**0.6962**	**0.0217**	**16,544.7572**

	ROG	NOx	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	**1.77**	**8.86**	**6.76**	**10.95**	**11.80**	**8.30**	**11.70**	**11.80**	**8.14**	**11.46**	**0.00**	**10.57**	**10.57**	**9.88**	**0.00**	**10.57**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2015	6/30/2015	5	129	
2	Building Construction	Building Construction	7/1/2015	12/1/2016	5	372	
3	Architectural Coating	Architectural Coating	9/9/2016	12/1/2016	5	60	
4	Paving	Paving	12/2/2016	12/29/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 64.5

Acres of Paving: 0

Residential Indoor: 70,875; Residential Outdoor: 23,625; Non-Residential Indoor: 226,619; Non-Residential Outdoor: 75,540 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38

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
Grading	6	15.00	0.00	11,563.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	92.00	32.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2015

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					6.6334	0.0000	6.6334	3.3798	0.0000	3.3798			0.0000			0.0000
Off-Road	3.8327	40.4161	26.6731	0.0298		2.3284	2.3284		2.1421	2.1421		3,129.0158	3,129.0158	0.9341		3,148.6328
Total	**3.8327**	**40.4161**	**26.6731**	**0.0298**	**6.6334**	**2.3284**	**8.9618**	**3.3798**	**2.1421**	**5.5218**		**3,129.0158**	**3,129.0158**	**0.9341**		**3,148.6328**

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	1.9066	29.4423	22.2223	0.0669	1.5606	0.4705	2.0311	0.4273	0.4328	0.8601		6,806.1248	6,806.1248	0.0561		6,807.3036
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	0.0771	0.1031	1.0807	2.0600e-003	0.1677	1.6800e-003	0.1693	0.0445	1.5300e-003	0.0460		180.0161	180.0161	0.0109		180.2447
Total	**1.9837**	**29.5454**	**23.3030**	**0.0690**	**1.7283**	**0.4722**	**2.2005**	**0.4718**	**0.4343**	**0.9061**		**6,986.1410**	**6,986.1410**	**0.0670**		**6,987.5483**

3.2 Grading - 2015

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					2.9850	0.0000	2.9850	1.5209	0.0000	1.5209			0.0000			0.0000
Off-Road	3.8327	40.4161	26.6731	0.0298		2.3284	2.3284		2.1421	2.1421	0.0000	3,129.0158	3,129.0158	0.9341		3,148.6328
Total	**3.8327**	**40.4161**	**26.6731**	**0.0298**	**2.9850**	**2.3284**	**5.3134**	**1.5209**	**2.1421**	**3.6630**	**0.0000**	**3,129.0158**	**3,129.0158**	**0.9341**		**3,148.6328**

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	1.9066	29.4423	22.2223	0.0669	1.5606	0.4705	2.0311	0.4273	0.4328	0.8601		6,806.1248	6,806.1248	0.0561		6,807.3036
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	0.0771	0.1031	1.0807	2.0600e-003	0.1677	1.6800e-003	0.1693	0.0445	1.5300e-003	0.0460		180.0161	180.0161	0.0109		180.2447
Total	**1.9837**	**29.5454**	**23.3030**	**0.0690**	**1.7283**	**0.4722**	**2.2005**	**0.4718**	**0.4343**	**0.9061**		**6,986.1410**	**6,986.1410**	**0.0670**		**6,987.5483**

3.3 Building Construction - 2015

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	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**		**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

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	0.3391	3.2457	4.2689	6.9900e-003	0.1995	0.0537	0.2532	0.0567	0.0494	0.1061		706.4909	706.4909	5.8800e-003		706.6143
Worker	0.4729	0.6325	6.6283	0.0126	1.0283	0.0103	1.0386	0.2727	9.4100e-003	0.2821		1,104.0989	1,104.0989	0.0668		1,105.5008
Total	**0.8120**	**3.8782**	**10.8971**	**0.0196**	**1.2278**	**0.0640**	**1.2918**	**0.3295**	**0.0588**	**0.3883**		**1,810.5899**	**1,810.5899**	**0.0726**		**1,812.1151**

3.3 Building Construction - 2015

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	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904	0.0000	2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**	**0.0000**	**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

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	0.3391	3.2457	4.2689	6.9900e-003	0.1995	0.0537	0.2532	0.0567	0.0494	0.1061		706.4909	706.4909	5.8800e-003		706.6143
Worker	0.4729	0.6325	6.6283	0.0126	1.0283	0.0103	1.0386	0.2727	9.4100e-003	0.2821		1,104.0989	1,104.0989	0.0668		1,105.5008
Total	**0.8120**	**3.8782**	**10.8971**	**0.0196**	**1.2278**	**0.0640**	**1.2918**	**0.3295**	**0.0588**	**0.3883**		**1,810.5899**	**1,810.5899**	**0.0726**		**1,812.1151**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**		**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

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	0.2974	2.8706	3.9610	6.9800e-003	0.1996	0.0442	0.2438	0.0568	0.0407	0.0975		698.8547	698.8547	5.3200e-003		698.9665
Worker	0.4263	0.5719	5.9926	0.0126	1.0283	9.7300e-003	1.0381	0.2727	8.9400e-003	0.2817		1,067.2286	1,067.2286	0.0616		1,068.5212
Total	**0.7237**	**3.4424**	**9.9537**	**0.0196**	**1.2279**	**0.0540**	**1.2819**	**0.3295**	**0.0496**	**0.3791**		**1,766.0834**	**1,766.0834**	**0.0669**		**1,767.4877**

3.3 Building Construction - 2016

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	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485	0.0000	2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**	**0.0000**	**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

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	0.2974	2.8706	3.9610	6.9800e-003	0.1996	0.0442	0.2438	0.0568	0.0407	0.0975		698.8547	698.8547	5.3200e-003		698.9665
Worker	0.4263	0.5719	5.9926	0.0126	1.0283	9.7300e-003	1.0381	0.2727	8.9400e-003	0.2817		1,067.2286	1,067.2286	0.0616		1,068.5212
Total	**0.7237**	**3.4424**	**9.9537**	**0.0196**	**1.2279**	**0.0540**	**1.2819**	**0.3295**	**0.0496**	**0.3791**		**1,766.0834**	**1,766.0834**	**0.0669**		**1,767.4877**

3.4 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	62.9170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**63.2855**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

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	0.0834	0.1119	1.1725	2.4700e-003	0.2012	1.9000e-003	0.2031	0.0534	1.7500e-003	0.0551		208.8056	208.8056	0.0120		209.0585
Total	**0.0834**	**0.1119**	**1.1725**	**2.4700e-003**	**0.2012**	**1.9000e-003**	**0.2031**	**0.0534**	**1.7500e-003**	**0.0551**		**208.8056**	**208.8056**	**0.0120**		**209.0585**

3.4 Architectural Coating - 2016

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	62.9170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**63.2855**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

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	0.0834	0.1119	1.1725	2.4700e-003	0.2012	1.9000e-003	0.2031	0.0534	1.7500e-003	0.0551		208.8056	208.8056	0.0120		209.0585
Total	**0.0834**	**0.1119**	**1.1725**	**2.4700e-003**	**0.2012**	**1.9000e-003**	**0.2031**	**0.0534**	**1.7500e-003**	**0.0551**		**208.8056**	**208.8056**	**0.0120**		**209.0585**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.0668					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1566**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**		**2,316.3767**	**2,316.3767**	**0.6987**		**2,331.0495**

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	0.0695	0.0932	0.9771	2.0600e-003	0.1677	1.5900e-003	0.1693	0.0445	1.4600e-003	0.0459		174.0047	174.0047	0.0100		174.2154
Total	**0.0695**	**0.0932**	**0.9771**	**2.0600e-003**	**0.1677**	**1.5900e-003**	**0.1693**	**0.0445**	**1.4600e-003**	**0.0459**		**174.0047**	**174.0047**	**0.0100**		**174.2154**

3.5 Paving - 2016

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	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.0668					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1566**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**	**0.0000**	**2,316.3767**	**2,316.3767**	**0.6987**		**2,331.0495**

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	0.0695	0.0932	0.9771	2.0600e-003	0.1677	1.5900e-003	0.1693	0.0445	1.4600e-003	0.0459		174.0047	174.0047	0.0100		174.2154
Total	**0.0695**	**0.0932**	**0.9771**	**2.0600e-003**	**0.1677**	**1.5900e-003**	**0.1693**	**0.0445**	**1.4600e-003**	**0.0459**		**174.0047**	**174.0047**	**0.0100**		**174.2154**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive 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	10.6248	21.2731	91.9178	0.1795	12.0081	0.2790	12.2871	3.2110	0.2568	3.4678		15,336.7774	15,336.7774	0.6682		15,350.8090
Unmitigated	10.9127	23.4396	98.8545	0.2023	13.6146	0.3125	13.9271	3.6406	0.2876	3.9282		17,289.8890	17,289.8890	0.7445		17,305.5234

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	230.65	250.60	212.45	789,020	695,916
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	385.06	82.74	34.21	939,854	828,952
High Turnover (Sit Down Restaurant)	1,398.65	1,742.07	1450.24	1,983,027	1,749,030
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,019.80	967.34	470.09	1,776,603	1,566,964
Total	3,034.16	3,042.75	2,167.00	5,488,505	4,840,861

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.532559	0.058242	0.178229	0.125155	0.038934	0.006273	0.016761	0.032323	0.002478	0.003154	0.003685	0.000544	0.001663

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive 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	0.1083	0.9783	0.7814	5.9100e-003		0.0748	0.0748		0.0748	0.0748		1,181.3757	1,181.3757	0.0226	0.0217	1,188.5654
NaturalGas Unmitigated	0.1083	0.9783	0.7814	5.9100e-003		0.0748	0.0748		0.0748	0.0748		1,181.3757	1,181.3757	0.0226	0.0217	1,188.5654

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 Low Rise	1056.36	0.0114	0.0974	0.0414	6.2000e-004		7.8700e-003	7.8700e-003		7.8700e-003	7.8700e-003		124.2780	124.2780	2.3800e-003	2.2800e-003	125.0344
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	917.093	9.8900e-003	0.0899	0.0755	5.4000e-004		6.8300e-003	6.8300e-003		6.8300e-003	6.8300e-003		107.8933	107.8933	2.0700e-003	1.9800e-003	108.5499
High Turnover (Sit Down Restaurant)	7938.99	0.0856	0.7783	0.6538	4.6700e-003		0.0592	0.0592		0.0592	0.0592		933.9984	933.9984	0.0179	0.0171	939.6826
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	129.251	1.3900e-003	0.0127	0.0106	8.0000e-005		9.6000e-004	9.6000e-004		9.6000e-004	9.6000e-004		15.2060	15.2060	2.9000e-004	2.8000e-004	15.2986
Total		**0.1083**	**0.9783**	**0.7814**	**5.9100e-003**		**0.0748**	**0.0748**		**0.0748**	**0.0748**		**1,181.3757**	**1,181.3757**	**0.0226**	**0.0217**	**1,188.5654**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.917093	9.8900e-003	0.0899	0.0755	5.4000e-004		6.8300e-003	6.8300e-003		6.8300e-003	6.8300e-003		107.8933	107.8933	2.0700e-003	1.9800e-003	108.5499
High Turnover (Sit Down Restaurant)	7.93899	0.0856	0.7783	0.6538	4.6700e-003		0.0592	0.0592		0.0592	0.0592		933.9984	933.9984	0.0179	0.0171	939.6826
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.129251	1.3900e-003	0.0127	0.0106	8.0000e-005		9.6000e-004	9.6000e-004		9.6000e-004	9.6000e-004		15.2060	15.2060	2.9000e-004	2.8000e-004	15.2986
Apartments Low Rise	1.05636	0.0114	0.0974	0.0414	6.2000e-004		7.8700e-003	7.8700e-003		7.8700e-003	7.8700e-003		124.2780	124.2780	2.3800e-003	2.2800e-003	125.0344
Total		**0.1083**	**0.9783**	**0.7814**	**5.9100e-003**		**0.0748**	**0.0748**		**0.0748**	**0.0748**		**1,181.3757**	**1,181.3757**	**0.0226**	**0.0217**	**1,188.5654**

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	5.2381	0.0343	2.9498	1.5000e-004		0.0160	0.0160		0.0160	0.0160	0.0000	5.2691	5.2691	5.4100e-003	0.0000	5.3828
Unmitigated	5.2381	0.0343	2.9498	1.5000e-004		0.0160	0.0160		0.0160	0.0160	0.0000	5.2691	5.2691	5.4100e-003	0.0000	5.3828

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	1.0343					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1099					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	0.0940	0.0343	2.9498	1.5000e-004		0.0160	0.0160		0.0160	0.0160		5.2691	5.2691	5.4100e-003		5.3828
Total	**5.2381**	**0.0343**	**2.9498**	**1.5000e-004**		**0.0160**	**0.0160**		**0.0160**	**0.0160**	**0.0000**	**5.2691**	**5.2691**	**5.4100e-003**	**0.0000**	**5.3828**

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	1.0343					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1099					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	0.0940	0.0343	2.9498	1.5000e-004		0.0160	0.0160		0.0160	0.0160		5.2691	5.2691	5.4100e-003		5.3828
Total	**5.2381**	**0.0343**	**2.9498**	**1.5000e-004**		**0.0160**	**0.0160**		**0.0160**	**0.0160**	**0.0000**	**5.2691**	**5.2691**	**5.4100e-003**	**0.0000**	**5.3828**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Cornerstone Mixed-Use Project

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	34.91	1000sqft	0.80	34,905.00	0
Enclosed Parking with Elevator	183.00	Space	1.90	81,497.00	0
Parking Lot	67.00	Space	0.51	22,154.00	0
High Turnover (Sit Down Restaurant)	11.00	1000sqft	0.25	11,000.00	0
Apartments Low Rise	35.00	Dwelling Unit	2.19	35,000.00	100
Strip Mall	23.01	1000sqft	0.53	23,013.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - per site plans

Construction Phase - Estimated schedule from applicant, 6 mo grading, 18 mo construction

Trips and VMT -

Grading - 92500 CY export

Vehicle Trips - Per traffic study, ATE, 2014

Woodstoves - no hearths

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Energy Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	230.00	372.00
tblConstructionPhase	NumDays	20.00	129.00
tblConstructionPhase	PhaseEndDate	2/23/2017	12/1/2016
tblConstructionPhase	PhaseStartDate	12/2/2016	9/9/2016
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	29.75	0.00
tblFireplaces	NumberNoFireplace	3.50	25.00
tblFireplaces	NumberWood	1.75	0.00
tblGrading	MaterialExported	0.00	92,500.00
tblLandUse	LandUseSquareFeet	34,910.00	34,905.00
tblLandUse	LandUseSquareFeet	73,200.00	81,497.00
tblLandUse	LandUseSquareFeet	26,800.00	22,154.00
tblLandUse	LandUseSquareFeet	23,010.00	23,013.00
tblLandUse	LotAcreage	1.65	1.90
tblLandUse	LotAcreage	0.60	0.51
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	WD_TR	11.01	11.03
tblWoodstoves	NumberCatalytic	1.75	0.00
tblWoodstoves	NumberNoncatalytic	1.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	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					
2015	0.6650	6.7898	5.1405	9.4600e-003	0.6169	0.3245	0.9414	0.2693	0.3013	0.5707	0.0000	863.2937	863.2937	0.1033	0.0000	865.4632
2016	2.4146	4.1420	3.6620	6.0100e-003	0.1521	0.2611	0.4132	0.0409	0.2453	0.2862	0.0000	521.1326	521.1326	0.0870	0.0000	522.9597
Total	**3.0797**	**10.9318**	**8.8026**	**0.0155**	**0.7690**	**0.5856**	**1.3546**	**0.3102**	**0.5467**	**0.8568**	**0.0000**	**1,384.4264**	**1,384.4264**	**0.1903**	**0.0000**	**1,388.4228**

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					
2015	0.6650	6.7898	5.1405	9.4600e-003	0.3816	0.3245	0.7060	0.1494	0.3013	0.4508	0.0000	863.2933	863.2933	0.1033	0.0000	865.4627
2016	2.4146	4.1420	3.6620	6.0100e-003	0.1521	0.2611	0.4132	0.0409	0.2453	0.2862	0.0000	521.1323	521.1323	0.0870	0.0000	522.9593
Total	**3.0797**	**10.9318**	**8.8026**	**0.0155**	**0.5337**	**0.5856**	**1.1192**	**0.1903**	**0.5467**	**0.7369**	**0.0000**	**1,384.4256**	**1,384.4256**	**0.1903**	**0.0000**	**1,388.4220**

	ROG	NOx	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**	**30.60**	**0.00**	**17.37**	**38.66**	**0.00**	**13.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Energy	0.0198	0.1785	0.1426	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	758.5460	758.5460	0.0296	8.9400e-003	761.9395
Mobile	1.6000	3.7192	15.3395	0.0319	2.0802	0.0485	2.1287	0.5572	0.0446	0.6018	0.0000	2,472.4197	2,472.4197	0.1050	0.0000	2,474.6255
Waste						0.0000	0.0000		0.0000	0.0000	41.3351	0.0000	41.3351	2.4428	0.0000	92.6345
Water						0.0000	0.0000		0.0000	0.0000	4.2919	71.0691	75.3610	0.4441	0.0111	88.1231
Total	**2.5703**	**3.9020**	**15.8508**	**0.0330**	**2.0802**	**0.0641**	**2.1443**	**0.5572**	**0.0602**	**0.6174**	**45.6270**	**3,302.6323**	**3,348.2593**	**3.0222**	**0.0200**	**3,417.9330**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Energy	0.0198	0.1785	0.1426	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	739.1996	739.1996	0.0287	8.7600e-003	742.5174
Mobile	1.5548	3.3746	14.2314	0.0283	1.8348	0.0433	1.8780	0.4914	0.0398	0.5312	0.0000	2,193.2875	2,193.2875	0.0943	0.0000	2,195.2671
Waste						0.0000	0.0000		0.0000	0.0000	20.6675	0.0000	20.6675	1.2214	0.0000	46.3173
Water						0.0000	0.0000		0.0000	0.0000	3.4335	60.9873	64.4208	0.3554	8.8900e-003	74.6412
Total	**2.5251**	**3.5574**	**14.7428**	**0.0294**	**1.8348**	**0.0589**	**1.8937**	**0.4914**	**0.0554**	**0.5469**	**24.1011**	**2,994.0720**	**3,018.1730**	**1.7004**	**0.0177**	**3,059.3534**

	ROG	NOx	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	**1.76**	**8.83**	**6.99**	**10.91**	**11.80**	**8.11**	**11.69**	**11.80**	**7.95**	**11.42**	**47.18**	**9.34**	**9.86**	**43.74**	**11.84**	**10.49**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2015	6/30/2015	5	129	
2	Building Construction	Building Construction	7/1/2015	12/1/2016	5	372	
3	Architectural Coating	Architectural Coating	9/9/2016	12/1/2016	5	60	
4	Paving	Paving	12/2/2016	12/29/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 64.5

Acres of Paving: 0

Residential Indoor: 70,875; Residential Outdoor: 23,625; Non-Residential Indoor: 226,619; Non-Residential Outdoor: 75,540 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38

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
Grading	6	15.00	0.00	11,563.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	92.00	32.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2015

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					0.4279	0.0000	0.4279	0.2180	0.0000	0.2180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2472	2.6068	1.7204	1.9200e-003		0.1502	0.1502		0.1382	0.1382	0.0000	183.0894	183.0894	0.0547	0.0000	184.2373
Total	**0.2472**	**2.6068**	**1.7204**	**1.9200e-003**	**0.4279**	**0.1502**	**0.5780**	**0.2180**	**0.1382**	**0.3562**	**0.0000**	**183.0894**	**183.0894**	**0.0547**	**0.0000**	**184.2373**

3.2 Grading - 2015

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	0.1206	1.9329	1.3943	4.3200e-003	0.0989	0.0303	0.1292	0.0271	0.0279	0.0550	0.0000	398.7916	398.7916	3.2600e-003	0.0000	398.8601
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	4.6900e-003	6.8300e-003	0.0711	1.3000e-004	0.0106	1.1000e-004	0.0107	2.8200e-003	1.0000e-004	2.9100e-003	0.0000	10.7025	10.7025	6.4000e-004	0.0000	10.7159
Total	**0.1253**	**1.9397**	**1.4654**	**4.4500e-003**	**0.1095**	**0.0304**	**0.1399**	**0.0300**	**0.0280**	**0.0579**	**0.0000**	**409.4942**	**409.4942**	**3.9000e-003**	**0.0000**	**409.5760**

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					0.1925	0.0000	0.1925	0.0981	0.0000	0.0981	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2472	2.6068	1.7204	1.9200e-003		0.1502	0.1502		0.1382	0.1382	0.0000	183.0892	183.0892	0.0547	0.0000	184.2370
Total	**0.2472**	**2.6068**	**1.7204**	**1.9200e-003**	**0.1925**	**0.1502**	**0.3427**	**0.0981**	**0.1382**	**0.2363**	**0.0000**	**183.0892**	**183.0892**	**0.0547**	**0.0000**	**184.2370**

3.2 Grading - 2015

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	0.1206	1.9329	1.3943	4.3200e-003	0.0989	0.0303	0.1292	0.0271	0.0279	0.0550	0.0000	398.7916	398.7916	3.2600e-003	0.0000	398.8601
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	4.6900e-003	6.8300e-003	0.0711	1.3000e-004	0.0106	1.1000e-004	0.0107	2.8200e-003	1.0000e-004	2.9100e-003	0.0000	10.7025	10.7025	6.4000e-004	0.0000	10.7159
Total	**0.1253**	**1.9397**	**1.4654**	**4.4500e-003**	**0.1095**	**0.0304**	**0.1399**	**0.0300**	**0.0280**	**0.0579**	**0.0000**	**409.4942**	**409.4942**	**3.9000e-003**	**0.0000**	**409.5760**

3.3 Building Construction - 2015

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	0.2415	1.9820	1.2371	1.7700e-003		0.1397	0.1397		0.1314	0.1314	0.0000	161.0363	161.0363	0.0404	0.0000	161.8848
Total	**0.2415**	**1.9820**	**1.2371**	**1.7700e-003**		**0.1397**	**0.1397**		**0.1314**	**0.1314**	**0.0000**	**161.0363**	**161.0363**	**0.0404**	**0.0000**	**161.8848**

3.3 Building Construction - 2015

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	0.0216	0.2185	0.2712	4.6000e-004	0.0130	3.5200e-003	0.0165	3.6900e-003	3.2400e-003	6.9300e-003	0.0000	42.5051	42.5051	3.5000e-004	0.0000	42.5124
Worker	0.0295	0.0429	0.4463	8.5000e-004	0.0665	6.8000e-004	0.0672	0.0177	6.2000e-004	0.0183	0.0000	67.1688	67.1688	4.0000e-003	0.0000	67.2528
Total	**0.0511**	**0.2613**	**0.7175**	**1.3100e-003**	**0.0795**	**4.2000e-003**	**0.0837**	**0.0214**	**3.8600e-003**	**0.0252**	**0.0000**	**109.6739**	**109.6739**	**4.3500e-003**	**0.0000**	**109.7651**

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	0.2415	1.9820	1.2371	1.7700e-003		0.1397	0.1397		0.1314	0.1314	0.0000	161.0361	161.0361	0.0404	0.0000	161.8846
Total	**0.2415**	**1.9820**	**1.2371**	**1.7700e-003**		**0.1397**	**0.1397**		**0.1314**	**0.1314**	**0.0000**	**161.0361**	**161.0361**	**0.0404**	**0.0000**	**161.8846**

3.3 Building Construction - 2015

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	0.0216	0.2185	0.2712	4.6000e-004	0.0130	3.5200e-003	0.0165	3.6900e-003	3.2400e-003	6.9300e-003	0.0000	42.5051	42.5051	3.5000e-004	0.0000	42.5124
Worker	0.0295	0.0429	0.4463	8.5000e-004	0.0665	6.8000e-004	0.0672	0.0177	6.2000e-004	0.0183	0.0000	67.1688	67.1688	4.0000e-003	0.0000	67.2528
Total	**0.0511**	**0.2613**	**0.7175**	**1.3100e-003**	**0.0795**	**4.2000e-003**	**0.0837**	**0.0214**	**3.8600e-003**	**0.0252**	**0.0000**	**109.6739**	**109.6739**	**4.3500e-003**	**0.0000**	**109.7651**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4088	3.4208	2.2208	3.2200e-003		0.2361	0.2361		0.2218	0.2218	0.0000	290.5843	290.5843	0.0721	0.0000	292.0978
Total	**0.4088**	**3.4208**	**2.2208**	**3.2200e-003**		**0.2361**	**0.2361**		**0.2218**	**0.2218**	**0.0000**	**290.5843**	**290.5843**	**0.0721**	**0.0000**	**292.0978**

3.3 Building Construction - 2016

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	0.0345	0.3513	0.4563	8.4000e-004	0.0236	5.2800e-003	0.0288	6.7200e-003	4.8500e-003	0.0116	0.0000	76.4483	76.4483	5.7000e-004	0.0000	76.4603
Worker	0.0482	0.0705	0.7343	1.5400e-003	0.1210	1.1700e-003	0.1221	0.0321	1.0700e-003	0.0332	0.0000	118.0484	118.0484	6.7000e-003	0.0000	118.1892
Total	**0.0827**	**0.4218**	**1.1907**	**2.3800e-003**	**0.1445**	**6.4500e-003**	**0.1510**	**0.0389**	**5.9200e-003**	**0.0448**	**0.0000**	**194.4967**	**194.4967**	**7.2700e-003**	**0.0000**	**194.6494**

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	0.4088	3.4208	2.2208	3.2200e-003		0.2361	0.2361		0.2218	0.2218	0.0000	290.5840	290.5840	0.0721	0.0000	292.0974
Total	**0.4088**	**3.4208**	**2.2208**	**3.2200e-003**		**0.2361**	**0.2361**		**0.2218**	**0.2218**	**0.0000**	**290.5840**	**290.5840**	**0.0721**	**0.0000**	**292.0974**

3.3 Building Construction - 2016

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	0.0345	0.3513	0.4563	8.4000e-004	0.0236	5.2800e-003	0.0288	6.7200e-003	4.8500e-003	0.0116	0.0000	76.4483	76.4483	5.7000e-004	0.0000	76.4603
Worker	0.0482	0.0705	0.7343	1.5400e-003	0.1210	1.1700e-003	0.1221	0.0321	1.0700e-003	0.0332	0.0000	118.0484	118.0484	6.7000e-003	0.0000	118.1892
Total	**0.0827**	**0.4218**	**1.1907**	**2.3800e-003**	**0.1445**	**6.4500e-003**	**0.1510**	**0.0389**	**5.9200e-003**	**0.0448**	**0.0000**	**194.4967**	**194.4967**	**7.2700e-003**	**0.0000**	**194.6494**

3.4 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.0712	0.0565	9.0000e-005		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	7.6598	7.6598	9.0000e-004	0.0000	7.6787
Total	**1.8986**	**0.0712**	**0.0565**	**9.0000e-005**		**5.9000e-003**	**5.9000e-003**		**5.9000e-003**	**5.9000e-003**	**0.0000**	**7.6598**	**7.6598**	**9.0000e-004**	**0.0000**	**7.6787**

3.4 Architectural Coating - 2016

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	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	**2.3600e-003**	**3.4500e-003**	**0.0359**	**8.0000e-005**	**5.9200e-003**	**6.0000e-005**	**5.9700e-003**	**1.5700e-003**	**5.0000e-005**	**1.6200e-003**	**0.0000**	**5.7741**	**5.7741**	**3.3000e-004**	**0.0000**	**5.7810**

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	1.8875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.0712	0.0565	9.0000e-005		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	7.6598	7.6598	9.0000e-004	0.0000	7.6787
Total	**1.8986**	**0.0712**	**0.0565**	**9.0000e-005**		**5.9000e-003**	**5.9000e-003**		**5.9000e-003**	**5.9000e-003**	**0.0000**	**7.6598**	**7.6598**	**9.0000e-004**	**0.0000**	**7.6787**

3.4 Architectural Coating - 2016

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	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	**2.3600e-003**	**3.4500e-003**	**0.0359**	**8.0000e-005**	**5.9200e-003**	**6.0000e-005**	**5.9700e-003**	**1.5700e-003**	**5.0000e-005**	**1.6200e-003**	**0.0000**	**5.7741**	**5.7741**	**3.3000e-004**	**0.0000**	**5.7810**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	6.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0216**	**0.2239**	**0.1482**	**2.2000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**21.0138**	**21.0138**	**6.3400e-003**	**0.0000**	**21.1469**

3.5 Paving - 2016

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	6.6000e-004	9.6000e-004	9.9800e-003	2.0000e-005	1.6400e-003	2.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.6039	1.6039	9.0000e-005	0.0000	1.6058
Total	**6.6000e-004**	**9.6000e-004**	**9.9800e-003**	**2.0000e-005**	**1.6400e-003**	**2.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.6039**	**1.6039**	**9.0000e-005**	**0.0000**	**1.6058**

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	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	6.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0216**	**0.2239**	**0.1482**	**2.2000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**21.0138**	**21.0138**	**6.3400e-003**	**0.0000**	**21.1469**

3.5 Paving - 2016

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	6.6000e-004	9.6000e-004	9.9800e-003	2.0000e-005	1.6400e-003	2.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.6039	1.6039	9.0000e-005	0.0000	1.6058
Total	**6.6000e-004**	**9.6000e-004**	**9.9800e-003**	**2.0000e-005**	**1.6400e-003**	**2.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.6039**	**1.6039**	**9.0000e-005**	**0.0000**	**1.6058**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	1.6000	3.7192	15.3395	0.0319	2.0802	0.0485	2.1287	0.5572	0.0446	0.6018	0.0000	2,472.4197	2,472.4197	0.1050	0.0000	2,474.6255
Mitigated	1.5548	3.3746	14.2314	0.0283	1.8348	0.0433	1.8780	0.4914	0.0398	0.5312	0.0000	2,193.2875	2,193.2875	0.0943	0.0000	2,195.2671

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	230.65	250.60	212.45	789,020	695,916
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	385.06	82.74	34.21	939,854	828,952
High Turnover (Sit Down Restaurant)	1,398.65	1,742.07	1450.24	1,983,027	1,749,030
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,019.80	967.34	470.09	1,776,603	1,566,964
Total	3,034.16	3,042.75	2,167.00	5,488,505	4,840,861

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.532559	0.058242	0.178229	0.125155	0.038934	0.006273	0.016761	0.032323	0.002478	0.003154	0.003685	0.000544	0.001663

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive 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					
NaturalGas Mitigated	0.0198	0.1785	0.1426	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	195.5900	195.5900	3.7500e-003	3.5900e-003	196.7803
NaturalGas Unmitigated	0.0198	0.1785	0.1426	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	195.5900	195.5900	3.7500e-003	3.5900e-003	196.7803
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	543.6096	543.6096	0.0250	5.1700e-003	545.7371
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	562.9560	562.9560	0.0259	5.3500e-003	565.1591

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	385573	2.0800e-003	0.0178	7.5600e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5756	20.5756	3.9000e-004	3.8000e-004	20.7008
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	334739	1.8000e-003	0.0164	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	17.8630	17.8630	3.4000e-004	3.3000e-004	17.9717
High Turnover (Sit Down Restaurant)	2.89773e+006	0.0156	0.1421	0.1193	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.6339	154.6339	2.9600e-003	2.8300e-003	155.5750
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	47176.6	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.5175	2.5175	5.0000e-005	5.0000e-005	2.5329
Total		**0.0198**	**0.1785**	**0.1426**	**1.0700e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**195.5900**	**195.5900**	**3.7400e-003**	**3.5900e-003**	**196.7803**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	385573	2.0800e-003	0.0178	7.5600e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5756	20.5756	3.9000e-004	3.8000e-004	20.7008
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	334739	1.8000e-003	0.0164	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	17.8630	17.8630	3.4000e-004	3.3000e-004	17.9717
High Turnover (Sit Down Restaurant)	2.89773e+006	0.0156	0.1421	0.1193	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.6339	154.6339	2.9600e-003	2.8300e-003	155.5750
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	47176.6	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.5175	2.5175	5.0000e-005	5.0000e-005	2.5329
Total		**0.0198**	**0.1785**	**0.1426**	**1.0700e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**195.5900**	**195.5900**	**3.7400e-003**	**3.5900e-003**	**196.7803**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	126032	36.0661	1.6600e-003	3.4000e-004	36.2073
Enclosed Parking with Elevator	549290	157.1886	7.2300e-003	1.4900e-003	157.8037
General Office Building	545216	156.0228	7.1700e-003	1.4800e-003	156.6334
High Turnover (Sit Down Restaurant)	432630	123.8044	5.6900e-003	1.1800e-003	124.2889
Parking Lot	19495.5	5.5790	2.6000e-004	5.0000e-005	5.6008
Strip Mall	294566	84.2952	3.8700e-003	8.0000e-004	84.6250
Total		**562.9560**	**0.0259**	**5.3400e-003**	**565.1591**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	123196	35.2545	1.6200e-003	3.4000e-004	35.3925
Enclosed Parking with Elevator	527856	151.0549	6.9400e-003	1.4400e-003	151.6461
General Office Building	528043	151.1084	6.9500e-003	1.4400e-003	151.6997
High Turnover (Sit Down Restaurant)	423192	121.1035	5.5700e-003	1.1500e-003	121.5775
Parking Lot	17546	5.0211	2.3000e-004	5.0000e-005	5.0407
Strip Mall	279792	80.0672	3.6800e-003	7.6000e-004	80.3806
Total		**543.6097**	**0.0250**	**5.1800e-003**	**545.7371**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Mitigated	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104

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	0.1888					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7501					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	0.0118	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Total	**0.9506**	**4.2900e-003**	**0.3687**	**2.0000e-005**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**0.5975**	**0.5975**	**6.1000e-004**	**0.0000**	**0.6104**

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	0.1888					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7501					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	0.0118	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Total	**0.9506**	**4.2900e-003**	**0.3687**	**2.0000e-005**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**0.5975**	**0.5975**	**6.1000e-004**	**0.0000**	**0.6104**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	75.3610	0.4441	0.0111	88.1231
Mitigated	64.4208	0.3554	8.8900e-003	74.6412

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	2.28039 / 1.43764	13.7913	0.0749	1.8800e-003	15.9468
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	6.20469 / 3.80287	37.1788	0.2038	5.1100e-003	43.0422
High Turnover (Sit Down Restaurant)	3.33887 / 0.213119	14.1781	0.1094	2.6900e-003	17.3105
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.70441 / 1.04464	10.2129	0.0560	1.4000e-003	11.8236
Total		**75.3610**	**0.4441**	**0.0111**	**88.1231**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.82431 / 1.43764	11.9472	0.0600	1.5100e-003	13.6742
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	4.96375 / 3.80287	32.1611	0.1631	4.1000e-003	36.8588
High Turnover (Sit Down Restaurant)	2.6711 / 0.213119	11.4780	0.0875	2.1500e-003	13.9831
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.36353 / 1.04464	8.8346	0.0448	1.1300e-003	10.1250
Total		**64.4208**	**0.3554**	**8.8900e-003**	**74.6412**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	20.6675	1.2214	0.0000	46.3173
Unmitigated	41.3351	2.4428	0.0000	92.6345

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	16.1	3.2682	0.1931	0.0000	7.3241
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	32.47	6.5911	0.3895	0.0000	14.7711
High Turnover (Sit Down Restaurant)	130.9	26.5715	1.5703	0.0000	59.5485
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	24.16	4.9043	0.2898	0.0000	10.9908
Total		**41.3351**	**2.4428**	**0.0000**	**92.6345**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	8.05	1.6341	0.0966	0.0000	3.6621
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	16.235	3.2956	0.1948	0.0000	7.3856
High Turnover (Sit Down Restaurant)	65.45	13.2858	0.7852	0.0000	29.7742
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	12.08	2.4521	0.1449	0.0000	5.4954
Total		**20.6675**	**1.2214**	**0.0000**	**46.3173**

9.0 Operational Offroad

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

10.0 Vegetation

Cornerstone Mixed-Use Project - Mitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	34.91	1000sqft	0.80	34,905.00	0
Enclosed Parking with Elevator	183.00	Space	1.90	81,497.00	0
Parking Lot	67.00	Space	0.51	22,154.00	0
High Turnover (Sit Down Restaurant)	11.00	1000sqft	0.25	11,000.00	0
Apartments Low Rise	35.00	Dwelling Unit	2.19	35,000.00	100
Strip Mall	23.01	1000sqft	0.53	23,013.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - per site plans

Construction Phase - Estimated schedule from applicant, 6 mo grading, 18 mo construction

Trips and VMT -

Grading - 92500 CY export

Vehicle Trips - Per traffic study, ATE, 2014

Woodstoves - no hearths

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Water Mitigation -

Waste Mitigation -

Energy Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	230.00	372.00
tblConstructionPhase	NumDays	20.00	129.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	29.75	0.00
tblFireplaces	NumberNoFireplace	3.50	25.00
tblFireplaces	NumberWood	1.75	0.00
tblGrading	MaterialExported	0.00	92,500.00
tblLandUse	LandUseSquareFeet	34,910.00	34,905.00
tblLandUse	LandUseSquareFeet	73,200.00	81,497.00
tblLandUse	LandUseSquareFeet	26,800.00	22,154.00
tblLandUse	LandUseSquareFeet	23,010.00	23,013.00
tblLandUse	LotAcreage	1.65	1.90
tblLandUse	LotAcreage	0.60	0.51
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	WD_TR	11.01	11.03
tblWoodstoves	NumberCatalytic	1.75	0.00
tblWoodstoves	NumberNoncatalytic	1.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	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					
2015	0.6650	6.7898	5.1405	9.4600e-003	0.6169	0.3245	0.9414	0.2693	0.3013	0.5707	0.0000	863.2937	863.2937	0.1033	0.0000	865.4632
2016	1.1568	3.8686	3.4438	5.6600e-003	0.1466	0.2446	0.3912	0.0394	0.2298	0.2692	0.0000	489.7829	489.7829	0.0798	0.0000	491.4581
2017	1.2551	0.2485	0.2138	3.5000e-004	5.4900e-003	0.0148	0.0203	1.4600e-003	0.0139	0.0154	0.0000	30.8286	30.8286	7.1500e-003	0.0000	30.9787
Total	**3.0769**	**10.9069**	**8.7981**	**0.0155**	**0.7690**	**0.5839**	**1.3529**	**0.3102**	**0.5451**	**0.8552**	**0.0000**	**1,383.9052**	**1,383.9052**	**0.1902**	**0.0000**	**1,387.8999**

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					
2015	0.6650	6.7898	5.1405	9.4600e-003	0.3816	0.3245	0.7060	0.1494	0.3013	0.4508	0.0000	863.2933	863.2933	0.1033	0.0000	865.4627
2016	1.1568	3.8686	3.4438	5.6600e-003	0.1466	0.2446	0.3912	0.0394	0.2298	0.2692	0.0000	489.7825	489.7825	0.0798	0.0000	491.4577
2017	1.2551	0.2485	0.2138	3.5000e-004	5.4900e-003	0.0148	0.0203	1.4600e-003	0.0139	0.0154	0.0000	30.8286	30.8286	7.1500e-003	0.0000	30.9787
Total	**3.0769**	**10.9069**	**8.7981**	**0.0155**	**0.5337**	**0.5839**	**1.1175**	**0.1903**	**0.5451**	**0.7353**	**0.0000**	**1,383.9044**	**1,383.9044**	**0.1902**	**0.0000**	**1,387.8991**

	ROG	NOx	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**	**30.60**	**0.00**	**17.39**	**38.66**	**0.00**	**14.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Energy	0.0198	0.1785	0.1426	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	758.5460	758.5460	0.0296	8.9400e-003	761.9395
Mobile	1.6000	3.7192	15.3395	0.0319	2.0802	0.0485	2.1287	0.5572	0.0446	0.6018	0.0000	2,472.4197	2,472.4197	0.1050	0.0000	2,474.6255
Waste						0.0000	0.0000		0.0000	0.0000	41.3351	0.0000	41.3351	2.4428	0.0000	92.6345
Water						0.0000	0.0000		0.0000	0.0000	4.2919	71.0691	75.3610	0.4441	0.0111	88.1231
Total	**2.5703**	**3.9020**	**15.8508**	**0.0330**	**2.0802**	**0.0641**	**2.1443**	**0.5572**	**0.0602**	**0.6174**	**45.6270**	**3,302.6323**	**3,348.2593**	**3.0222**	**0.0200**	**3,417.9330**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Energy	0.0181	0.1636	0.1312	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	679.9786	679.9786	0.0265	8.0500e-003	683.0288
Mobile	1.5291	3.1789	13.6023	0.0263	1.6954	0.0403	1.7357	0.4541	0.0371	0.4912	0.0000	2,034.7986	2,034.7986	0.0882	0.0000	2,036.6497
Waste						0.0000	0.0000		0.0000	0.0000	20.6675	0.0000	20.6675	1.2214	0.0000	46.3173
Water						0.0000	0.0000		0.0000	0.0000	3.4335	59.7270	63.1606	0.3553	8.8800e-003	73.3760
Total	**2.4977**	**3.3468**	**14.1022**	**0.0273**	**1.6954**	**0.0548**	**1.7502**	**0.4541**	**0.0516**	**0.5057**	**24.1011**	**2,775.1018**	**2,799.2028**	**1.6920**	**0.0169**	**2,839.9821**

	ROG	NOx	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	**2.83**	**14.23**	**11.03**	**17.36**	**18.50**	**14.53**	**18.38**	**18.50**	**14.38**	**18.10**	**47.18**	**15.97**	**16.40**	**44.01**	**15.43**	**16.91**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2015	6/30/2015	5	129	
2	Building Construction	Building Construction	7/1/2015	12/1/2016	5	372	
3	Architectural Coating	Architectural Coating	12/2/2016	2/23/2017	5	60	
4	Paving	Paving	2/24/2017	3/23/2017	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 64.5

Acres of Paving: 0

Residential Indoor: 70,875; Residential Outdoor: 23,625; Non-Residential Indoor: 226,619; Non-Residential Outdoor: 75,540 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38

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
Grading	6	15.00	0.00	11,563.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	92.00	32.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2015

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					0.4279	0.0000	0.4279	0.2180	0.0000	0.2180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2472	2.6068	1.7204	1.9200e-003		0.1502	0.1502		0.1382	0.1382	0.0000	183.0894	183.0894	0.0547	0.0000	184.2373
Total	**0.2472**	**2.6068**	**1.7204**	**1.9200e-003**	**0.4279**	**0.1502**	**0.5780**	**0.2180**	**0.1382**	**0.3562**	**0.0000**	**183.0894**	**183.0894**	**0.0547**	**0.0000**	**184.2373**

3.2 Grading - 2015

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	0.1206	1.9329	1.3943	4.3200e-003	0.0989	0.0303	0.1292	0.0271	0.0279	0.0550	0.0000	398.7916	398.7916	3.2600e-003	0.0000	398.8601
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	4.6900e-003	6.8300e-003	0.0711	1.3000e-004	0.0106	1.1000e-004	0.0107	2.8200e-003	1.0000e-004	2.9100e-003	0.0000	10.7025	10.7025	6.4000e-004	0.0000	10.7159
Total	**0.1253**	**1.9397**	**1.4654**	**4.4500e-003**	**0.1095**	**0.0304**	**0.1399**	**0.0300**	**0.0280**	**0.0579**	**0.0000**	**409.4942**	**409.4942**	**3.9000e-003**	**0.0000**	**409.5760**

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					0.1925	0.0000	0.1925	0.0981	0.0000	0.0981	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2472	2.6068	1.7204	1.9200e-003		0.1502	0.1502		0.1382	0.1382	0.0000	183.0892	183.0892	0.0547	0.0000	184.2370
Total	**0.2472**	**2.6068**	**1.7204**	**1.9200e-003**	**0.1925**	**0.1502**	**0.3427**	**0.0981**	**0.1382**	**0.2363**	**0.0000**	**183.0892**	**183.0892**	**0.0547**	**0.0000**	**184.2370**

3.2 Grading - 2015

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	0.1206	1.9329	1.3943	4.3200e-003	0.0989	0.0303	0.1292	0.0271	0.0279	0.0550	0.0000	398.7916	398.7916	3.2600e-003	0.0000	398.8601
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	4.6900e-003	6.8300e-003	0.0711	1.3000e-004	0.0106	1.1000e-004	0.0107	2.8200e-003	1.0000e-004	2.9100e-003	0.0000	10.7025	10.7025	6.4000e-004	0.0000	10.7159
Total	**0.1253**	**1.9397**	**1.4654**	**4.4500e-003**	**0.1095**	**0.0304**	**0.1399**	**0.0300**	**0.0280**	**0.0579**	**0.0000**	**409.4942**	**409.4942**	**3.9000e-003**	**0.0000**	**409.5760**

3.3 Building Construction - 2015

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	0.2415	1.9820	1.2371	1.7700e-003		0.1397	0.1397		0.1314	0.1314	0.0000	161.0363	161.0363	0.0404	0.0000	161.8848
Total	**0.2415**	**1.9820**	**1.2371**	**1.7700e-003**		**0.1397**	**0.1397**		**0.1314**	**0.1314**	**0.0000**	**161.0363**	**161.0363**	**0.0404**	**0.0000**	**161.8848**

3.3 Building Construction - 2015

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	0.0216	0.2185	0.2712	4.6000e-004	0.0130	3.5200e-003	0.0165	3.6900e-003	3.2400e-003	6.9300e-003	0.0000	42.5051	42.5051	3.5000e-004	0.0000	42.5124
Worker	0.0295	0.0429	0.4463	8.5000e-004	0.0665	6.8000e-004	0.0672	0.0177	6.2000e-004	0.0183	0.0000	67.1688	67.1688	4.0000e-003	0.0000	67.2528
Total	**0.0511**	**0.2613**	**0.7175**	**1.3100e-003**	**0.0795**	**4.2000e-003**	**0.0837**	**0.0214**	**3.8600e-003**	**0.0252**	**0.0000**	**109.6739**	**109.6739**	**4.3500e-003**	**0.0000**	**109.7651**

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	0.2415	1.9820	1.2371	1.7700e-003		0.1397	0.1397		0.1314	0.1314	0.0000	161.0361	161.0361	0.0404	0.0000	161.8846
Total	**0.2415**	**1.9820**	**1.2371**	**1.7700e-003**		**0.1397**	**0.1397**		**0.1314**	**0.1314**	**0.0000**	**161.0361**	**161.0361**	**0.0404**	**0.0000**	**161.8846**

3.3 Building Construction - 2015

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	0.0216	0.2185	0.2712	4.6000e-004	0.0130	3.5200e-003	0.0165	3.6900e-003	3.2400e-003	6.9300e-003	0.0000	42.5051	42.5051	3.5000e-004	0.0000	42.5124
Worker	0.0295	0.0429	0.4463	8.5000e-004	0.0665	6.8000e-004	0.0672	0.0177	6.2000e-004	0.0183	0.0000	67.1688	67.1688	4.0000e-003	0.0000	67.2528
Total	**0.0511**	**0.2613**	**0.7175**	**1.3100e-003**	**0.0795**	**4.2000e-003**	**0.0837**	**0.0214**	**3.8600e-003**	**0.0252**	**0.0000**	**109.6739**	**109.6739**	**4.3500e-003**	**0.0000**	**109.7651**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4088	3.4208	2.2208	3.2200e-003		0.2361	0.2361		0.2218	0.2218	0.0000	290.5843	290.5843	0.0721	0.0000	292.0978
Total	**0.4088**	**3.4208**	**2.2208**	**3.2200e-003**		**0.2361**	**0.2361**		**0.2218**	**0.2218**	**0.0000**	**290.5843**	**290.5843**	**0.0721**	**0.0000**	**292.0978**

3.3 Building Construction - 2016

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	0.0345	0.3513	0.4563	8.4000e-004	0.0236	5.2800e-003	0.0288	6.7200e-003	4.8500e-003	0.0116	0.0000	76.4483	76.4483	5.7000e-004	0.0000	76.4603
Worker	0.0482	0.0705	0.7343	1.5400e-003	0.1210	1.1700e-003	0.1221	0.0321	1.0700e-003	0.0332	0.0000	118.0484	118.0484	6.7000e-003	0.0000	118.1892
Total	**0.0827**	**0.4218**	**1.1907**	**2.3800e-003**	**0.1445**	**6.4500e-003**	**0.1510**	**0.0389**	**5.9200e-003**	**0.0448**	**0.0000**	**194.4967**	**194.4967**	**7.2700e-003**	**0.0000**	**194.6494**

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	0.4088	3.4208	2.2208	3.2200e-003		0.2361	0.2361		0.2218	0.2218	0.0000	290.5840	290.5840	0.0721	0.0000	292.0974
Total	**0.4088**	**3.4208**	**2.2208**	**3.2200e-003**		**0.2361**	**0.2361**		**0.2218**	**0.2218**	**0.0000**	**290.5840**	**290.5840**	**0.0721**	**0.0000**	**292.0974**

3.3 Building Construction - 2016

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	0.0345	0.3513	0.4563	8.4000e-004	0.0236	5.2800e-003	0.0288	6.7200e-003	4.8500e-003	0.0116	0.0000	76.4483	76.4483	5.7000e-004	0.0000	76.4603
Worker	0.0482	0.0705	0.7343	1.5400e-003	0.1210	1.1700e-003	0.1221	0.0321	1.0700e-003	0.0332	0.0000	118.0484	118.0484	6.7000e-003	0.0000	118.1892
Total	**0.0827**	**0.4218**	**1.1907**	**2.3800e-003**	**0.1445**	**6.4500e-003**	**0.1510**	**0.0389**	**5.9200e-003**	**0.0448**	**0.0000**	**194.4967**	**194.4967**	**7.2700e-003**	**0.0000**	**194.6494**

3.4 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6606					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8700e-003	0.0249	0.0198	3.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	2.6809	2.6809	3.2000e-004	0.0000	2.6876
Total	**0.6645**	**0.0249**	**0.0198**	**3.0000e-005**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**2.6809**	**2.6809**	**3.2000e-004**	**0.0000**	**2.6876**

3.4 Architectural Coating - 2016

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	8.3000e-004	1.2100e-003	0.0126	3.0000e-005	2.0700e-003	2.0000e-005	2.0900e-003	5.5000e-004	2.0000e-005	5.7000e-004	0.0000	2.0209	2.0209	1.1000e-004	0.0000	2.0234
Total	**8.3000e-004**	**1.2100e-003**	**0.0126**	**3.0000e-005**	**2.0700e-003**	**2.0000e-005**	**2.0900e-003**	**5.5000e-004**	**2.0000e-005**	**5.7000e-004**	**0.0000**	**2.0209**	**2.0209**	**1.1000e-004**	**0.0000**	**2.0234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6606					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8700e-003	0.0249	0.0198	3.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	2.6809	2.6809	3.2000e-004	0.0000	2.6876
Total	**0.6645**	**0.0249**	**0.0198**	**3.0000e-005**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**2.6809**	**2.6809**	**3.2000e-004**	**0.0000**	**2.6876**

3.4 Architectural Coating - 2016

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	8.3000e-004	1.2100e-003	0.0126	3.0000e-005	2.0700e-003	2.0000e-005	2.0900e-003	5.5000e-004	2.0000e-005	5.7000e-004	0.0000	2.0209	2.0209	1.1000e-004	0.0000	2.0234
Total	**8.3000e-004**	**1.2100e-003**	**0.0126**	**3.0000e-005**	**2.0700e-003**	**2.0000e-005**	**2.0900e-003**	**5.5000e-004**	**2.0000e-005**	**5.7000e-004**	**0.0000**	**2.0209**	**2.0209**	**1.1000e-004**	**0.0000**	**2.0234**

3.4 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2269					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4800e-003	0.0426	0.0364	6.0000e-005		3.3800e-003	3.3800e-003		3.3800e-003	3.3800e-003	0.0000	4.9788	4.9788	5.3000e-004	0.0000	4.9899
Total	**1.2334**	**0.0426**	**0.0364**	**6.0000e-005**		**3.3800e-003**	**3.3800e-003**		**3.3800e-003**	**3.3800e-003**	**0.0000**	**4.9788**	**4.9788**	**5.3000e-004**	**0.0000**	**4.9899**

3.4 Architectural Coating - 2017

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	1.3700e-003	2.0300e-003	0.0211	5.0000e-005	3.8500e-003	4.0000e-005	3.8800e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.6125	3.6125	2.0000e-004	0.0000	3.6167
Total	**1.3700e-003**	**2.0300e-003**	**0.0211**	**5.0000e-005**	**3.8500e-003**	**4.0000e-005**	**3.8800e-003**	**1.0200e-003**	**3.0000e-005**	**1.0500e-003**	**0.0000**	**3.6125**	**3.6125**	**2.0000e-004**	**0.0000**	**3.6167**

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	1.2269					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4800e-003	0.0426	0.0364	6.0000e-005		3.3800e-003	3.3800e-003		3.3800e-003	3.3800e-003	0.0000	4.9788	4.9788	5.3000e-004	0.0000	4.9899
Total	**1.2334**	**0.0426**	**0.0364**	**6.0000e-005**		**3.3800e-003**	**3.3800e-003**		**3.3800e-003**	**3.3800e-003**	**0.0000**	**4.9788**	**4.9788**	**5.3000e-004**	**0.0000**	**4.9899**

3.4 Architectural Coating - 2017

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	1.3700e-003	2.0300e-003	0.0211	5.0000e-005	3.8500e-003	4.0000e-005	3.8800e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.6125	3.6125	2.0000e-004	0.0000	3.6167
Total	**1.3700e-003**	**2.0300e-003**	**0.0211**	**5.0000e-005**	**3.8500e-003**	**4.0000e-005**	**3.8800e-003**	**1.0200e-003**	**3.0000e-005**	**1.0500e-003**	**0.0000**	**3.6125**	**3.6125**	**2.0000e-004**	**0.0000**	**3.6167**

3.5 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0191	0.2030	0.1473	2.2000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	20.6934	20.6934	6.3400e-003	0.0000	20.8266
Paving	6.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0197**	**0.2030**	**0.1473**	**2.2000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**20.6934**	**20.6934**	**6.3400e-003**	**0.0000**	**20.8266**

3.5 Paving - 2017

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	5.9000e-004	8.7000e-004	9.0100e-003	2.0000e-005	1.6400e-003	2.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5438	1.5438	8.0000e-005	0.0000	1.5456
Total	**5.9000e-004**	**8.7000e-004**	**9.0100e-003**	**2.0000e-005**	**1.6400e-003**	**2.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5438**	**1.5438**	**8.0000e-005**	**0.0000**	**1.5456**

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	0.0191	0.2030	0.1473	2.2000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	20.6934	20.6934	6.3400e-003	0.0000	20.8265
Paving	6.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0197**	**0.2030**	**0.1473**	**2.2000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**20.6934**	**20.6934**	**6.3400e-003**	**0.0000**	**20.8265**

3.5 Paving - 2017

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	5.9000e-004	8.7000e-004	9.0100e-003	2.0000e-005	1.6400e-003	2.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5438	1.5438	8.0000e-005	0.0000	1.5456
Total	**5.9000e-004**	**8.7000e-004**	**9.0100e-003**	**2.0000e-005**	**1.6400e-003**	**2.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5438**	**1.5438**	**8.0000e-005**	**0.0000**	**1.5456**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Pedestrian Network

Implement Trip Reduction Program

Transit Subsidy

Provide Riade Sharing Program

	ROG	NOx	CO	SO2	Fugitive 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	1.5291	3.1789	13.6023	0.0263	1.6954	0.0403	1.7357	0.4541	0.0371	0.4912	0.0000	2,034.7986	2,034.7986	0.0882	0.0000	2,036.6497
Unmitigated	1.6000	3.7192	15.3395	0.0319	2.0802	0.0485	2.1287	0.5572	0.0446	0.6018	0.0000	2,472.4197	2,472.4197	0.1050	0.0000	2,474.6255

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	230.65	250.60	212.45	789,020	659,762
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	385.06	82.74	34.21	939,854	761,223
High Turnover (Sit Down Restaurant)	1,398.65	1,742.07	1450.24	1,983,027	1,610,691
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,019.80	967.34	470.09	1,776,603	1,441,458
Total	3,034.16	3,042.75	2,167.00	5,488,505	4,473,135

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.532559	0.058242	0.178229	0.125155	0.038934	0.006273	0.016761	0.032323	0.002478	0.003154	0.003685	0.000544	0.001663

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive 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	500.8894	500.8894	0.0230	4.7600e-003	502.8497
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	562.9560	562.9560	0.0259	5.3500e-003	565.1591
NaturalGas Mitigated	0.0181	0.1636	0.1312	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	179.0892	179.0892	3.4300e-003	3.2800e-003	180.1791
NaturalGas Unmitigated	0.0198	0.1785	0.1426	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	195.5900	195.5900	3.7500e-003	3.5900e-003	196.7803

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					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	334739	1.8000e-003	0.0164	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	17.8630	17.8630	3.4000e-004	3.3000e-004	17.9717
High Turnover (Sit Down Restaurant)	2.89773e+006	0.0156	0.1421	0.1193	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.6339	154.6339	2.9600e-003	2.8300e-003	155.5750
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	47176.6	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	2.5175	2.5175	5.0000e-005	5.0000e-005	2.5329
Apartments Low Rise	385573	2.0800e-003	0.0178	7.5600e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.5756	20.5756	3.9000e-004	3.8000e-004	20.7008
Total		**0.0198**	**0.1785**	**0.1426**	**1.0700e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**195.5900**	**195.5900**	**3.7400e-003**	**3.5900e-003**	**196.7803**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	271631	1.4600e-003	0.0133	0.0112	8.0000e-005		1.0100e-003	1.0100e-003		1.0100e-003	1.0100e-003	0.0000	14.4953	14.4953	2.8000e-004	2.7000e-004	14.5835
High Turnover (Sit Down Restaurant)	2.71586e+006	0.0146	0.1331	0.1118	8.0000e-004		0.0101	0.0101		0.0101	0.0101	0.0000	144.9284	144.9284	2.7800e-003	2.6600e-003	145.8104
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	42574.1	2.3000e-004	2.0900e-003	1.7500e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.2719	2.2719	4.0000e-005	4.0000e-005	2.2857
Apartments Low Rise	325944	1.7600e-003	0.0150	6.3900e-003	1.0000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	17.3936	17.3936	3.3000e-004	3.2000e-004	17.4995
Total		**0.0181**	**0.1636**	**0.1312**	**9.9000e-004**		**0.0125**	**0.0125**		**0.0125**	**0.0125**	**0.0000**	**179.0892**	**179.0892**	**3.4300e-003**	**3.2900e-003**	**180.1791**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	126032	36.0661	1.6600e-003	3.4000e-004	36.2073
Enclosed Parking with Elevator	549290	157.1886	7.2300e-003	1.4900e-003	157.8037
General Office Building	545216	156.0228	7.1700e-003	1.4800e-003	156.6334
High Turnover (Sit Down Restaurant)	432630	123.8044	5.6900e-003	1.1800e-003	124.2889
Parking Lot	19495.5	5.5790	2.6000e-004	5.0000e-005	5.6008
Strip Mall	294566	84.2952	3.8700e-003	8.0000e-004	84.6250
Total		**562.9560**	**0.0259**	**5.3400e-003**	**565.1591**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	117901	33.7393	1.5500e-003	3.2000e-004	33.8714
Enclosed Parking with Elevator	463962	132.7707	6.1000e-003	1.2600e-003	133.2903
General Office Building	487832	139.6015	6.4200e-003	1.3300e-003	140.1478
High Turnover (Sit Down Restaurant)	399784	114.4049	5.2600e-003	1.0900e-003	114.8527
Parking Lot	17546	5.0211	2.3000e-004	5.0000e-005	5.0407
Strip Mall	263315	75.3520	3.4600e-003	7.2000e-004	75.6469
Total		**500.8894**	**0.0230**	**4.7700e-003**	**502.8497**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Unmitigated	0.9506	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104

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	0.1888					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7501					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	0.0118	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Total	**0.9506**	**4.2900e-003**	**0.3687**	**2.0000e-005**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**0.5975**	**0.5975**	**6.1000e-004**	**0.0000**	**0.6104**

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	0.1888					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7501					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	0.0118	4.2900e-003	0.3687	2.0000e-005		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	0.5975	0.5975	6.1000e-004	0.0000	0.6104
Total	**0.9506**	**4.2900e-003**	**0.3687**	**2.0000e-005**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**0.5975**	**0.5975**	**6.1000e-004**	**0.0000**	**0.6104**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	63.1606	0.3553	8.8800e-003	73.3760
Unmitigated	75.3610	0.4441	0.0111	88.1231

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	2.28039 / 1.43764	13.7913	0.0749	1.8800e-003	15.9468
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	6.20469 / 3.80287	37.1788	0.2038	5.1100e-003	43.0422
High Turnover (Sit Down Restaurant)	3.33887 / 0.213119	14.1781	0.1094	2.6900e-003	17.3105
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.70441 / 1.04464	10.2129	0.0560	1.4000e-003	11.8236
Total		**75.3610**	**0.4441**	**0.0111**	**88.1231**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.82431 / 1.34994	11.6684	0.0599	1.5100e-003	13.3943
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	4.96375 / 3.5709	31.4236	0.1631	4.1000e-003	36.1184
High Turnover (Sit Down Restaurant)	2.6711 / 0.200119	11.4366	0.0875	2.1500e-003	13.9416
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.36353 / 0.980915	8.6320	0.0448	1.1300e-003	9.9216
Total		**63.1606**	**0.3553**	**8.8900e-003**	**73.3760**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	20.6675	1.2214	0.0000	46.3173
Unmitigated	41.3351	2.4428	0.0000	92.6345

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	16.1	3.2682	0.1931	0.0000	7.3241
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	32.47	6.5911	0.3895	0.0000	14.7711
High Turnover (Sit Down Restaurant)	130.9	26.5715	1.5703	0.0000	59.5485
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	24.16	4.9043	0.2898	0.0000	10.9908
Total		**41.3351**	**2.4428**	**0.0000**	**92.6345**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	8.05	1.6341	0.0966	0.0000	3.6621
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	16.235	3.2956	0.1948	0.0000	7.3856
High Turnover (Sit Down Restaurant)	65.45	13.2858	0.7852	0.0000	29.7742
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	12.08	2.4521	0.1449	0.0000	5.4954
Total		**20.6675**	**1.2214**	**0.0000**	**46.3173**

9.0 Operational Offroad

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

10.0 Vegetation

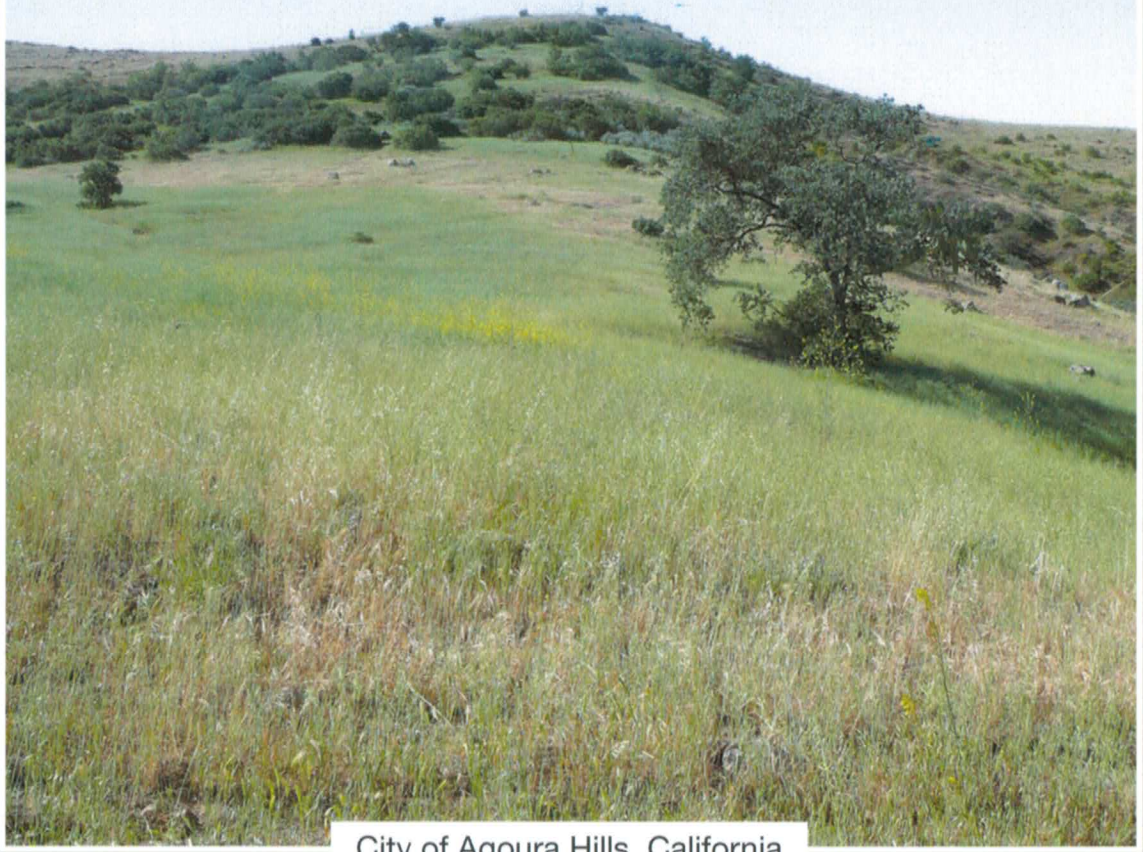
Appendix B

Biological Resources Inventory and Impact Analysis
Spring 2014 Rare Plant Survey
Oak Tree Report
Supplemental Oak Tree Report Memo

Biological Resources Inventory and Impact Analysis

Agoura Cornerstone

MIXED-USE PROJECT



City of Agoura Hills, California

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February 28, 2014

BIOLOGICAL RESOURCES INVENTORY AND IMPACT ANALYSIS

Agoura Cornerstone Mixed-Use Project
City of Agoura Hills, California

Prepared for:

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February 28, 2014

APPENDICES

1.0 INTRODUCTION

Envicom Corporation has prepared this biological resources inventory and impact analysis for the proposed Agoura Cornerstone Mixed-Use Project in the City of Agoura Hills. The project site is located south of Highway 101 and southeast of the intersection of Agoura Road and Cornell Road, as shown on **Figure 1**, Location Map. Agoura and Cornell Roads, L.P. proposes to develop a retail-residential project at the site. The approximate 8.0-acre property consisting of 26 parcels is situated in the northern foothills of the Santa Monica Mountains at elevations ranging from 800 to 1,050 feet. The site is vacant with no existing structures or development. An unimproved public road (Cleveland Drive) traverses the site, which curves from the west to the south and then to the north and northeast. A channelized reach of Medea Creek is located several hundred feet to the west of the site, and the concrete-lined Cheseboro Channel is located approximately 100 feet to the north. The project site includes APNs 2061-029-008 through -017; 2061-029-023; 2061-029-029; 2061-030-001 through -013; and, 2061-030-017. The majority of the project site is within Land Use Zones E and G of the Agoura Village Specific Plan (AVSP) area, with the exception of APNs 2061-029-017 & 029, which are zoned OS-R (open space-reserved) and are outside of the AVSP area. As shown on Figure 4.3-6 of the Agoura Village Specific Plan Updated Revised and Recirculated FEIR (AVSP-FEIR)(August 2008), APNs 2061-029-017 & 029 are also within Los Angeles County Las Virgenes Significant Ecological Area (SEA #6).

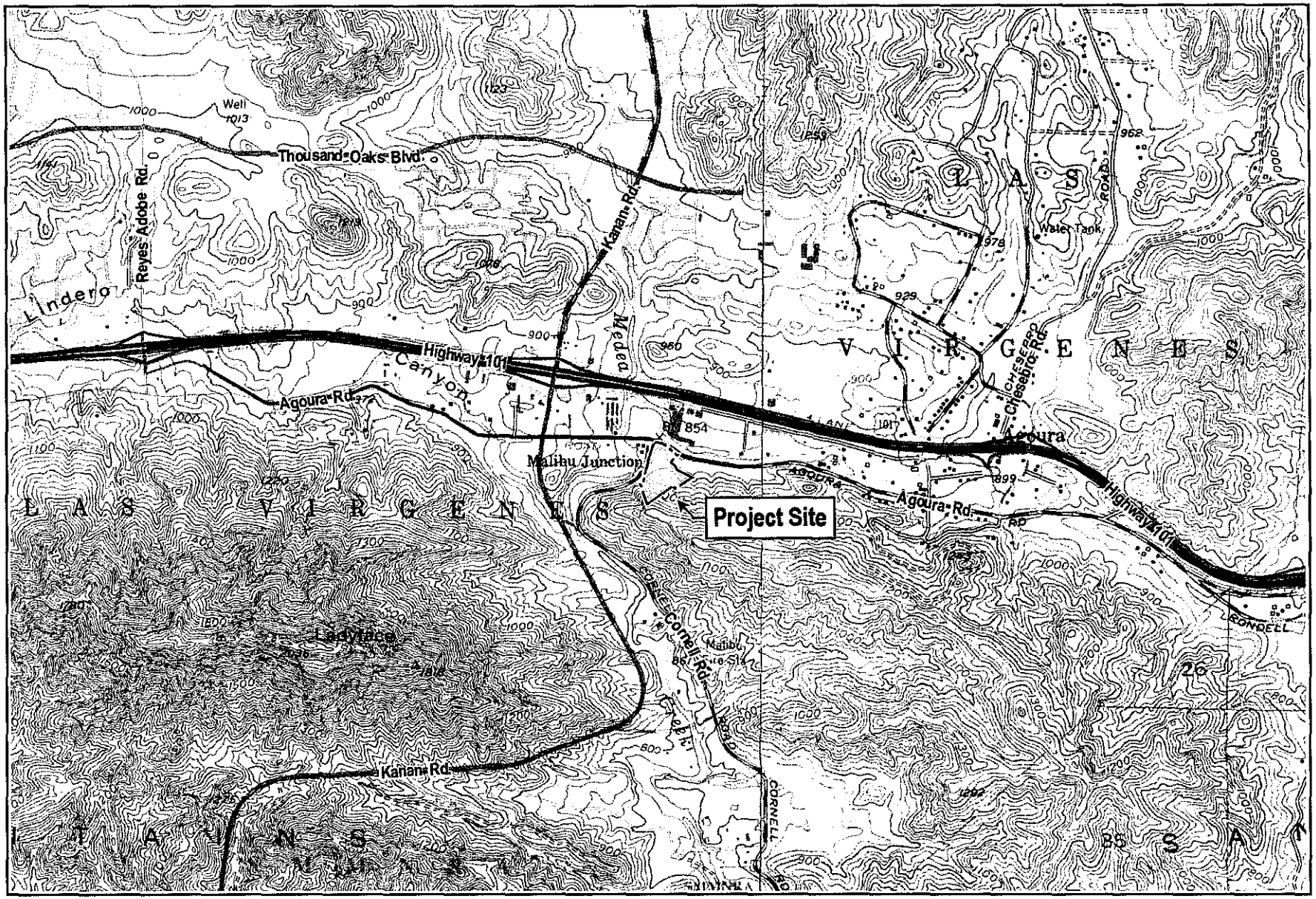
This report provides an inventory of the biological resources at the project site and an analysis of impacts to biological resources for use in preparation of a CEQA document for the proposed project. The report first covers the literature reviewed and field surveys conducted to identify the biological resources at the site, followed by a discussion of existing biological conditions and mapped biological resources. The existing conditions discussion is followed by project impacts and recommended mitigation measures to offset the impacts. Lists of plant and wildlife species observed, as well as an assessment of the potential for occurrence of special-status plant and wildlife species at the site are included as appendices to the report.

2.0 METHODS

2.1 LITERATURE REVIEW

Literature that directly discusses the biological resources and related physical conditions of the Agoura Cornerstone Mixed-Use Project site included the AVSP-FEIR. Additional literature that is not site-specific, but still relevant to the actual or potential biological resources of the site were also reviewed, including:

- *Biogeographic Information and Observation System (BIOS),* California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game (CDFG), data as of December 2013;
- *California Natural Diversity Database (CNDDB) Rarefind 5* report for the 7.5' United States Geological Survey (USGS) Thousand Oaks quadrangle and eight surrounding quadrangles, CDFW, data as of December 2013;
- *California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California* report for the 7.5' USGS Thousand Oaks quadrangle and eight surrounding quadrangles, CNPS, data as of December 2013;
- *FWS Critical Habitat Mapper for Threatened and Endangered Species*, U.S. Fish and Wildlife Service (USFWS), data as of December 2013;



Source: USGS 7.5' Topographic Quadrangle, Thousand Oaks & Calabasas.

AGOURA CORNERSTONE MIXED-USE PROJECT - BIOLOGICAL RESOURCES INVENTORY

ENVICOM CORPORATION

Location Map

0 1,000 2,000 Feet

FIGURE 1

- *List of Special Vascular Plants, Bryophytes, and Lichens,* CDFW, October 2013;
- *List of Vegetation Alliances and Associations (Natural Communities List),* CDFW, September 2010; and,
- *Special Animals,* CDFW, January 2011.

2.2 FIELD SURVEYS

A biological survey of the Agoura Cornerstone Mixed-Use Project site was conducted by Mr. Jim Anderson, Senior Biologist of Envicom Corporation, on December 12 & 13, 2013. Mr. Anderson also conducted a focused survey for the woven-spored lichen (*Texosporium sancti-jacobi*) on December 13, 2013. Other biological surveys of the site include a survey by Mr. Stephen Jones, Senior Biologist of Envicom Corporation, on April 3, 2008 and a survey by Mr. Carl Wishner, Principal Biologist of Envicom Corporation, on April 17 and 18, 2008. Field surveys were conducted by walking accessible areas of the site. Vegetation surveys included identification of plant communities, the plant species within each community, and a search for special-status plant species. All observed plant species were identified and recorded to the lowest taxonomic level possible. Plant nomenclature follows *The Jepson Manual: Vascular Plants of California, 2nd edition* (Baldwin B., et al. 2012). With the exception of the woven spored lichen, surveys of non-vascular plants (lichens, mosses, liverworts, and hornworts) were not undertaken. Plant species observed by Envicom during the December 2013 and April 2008 surveys are presented as **Appendix 1**. Casual observations of wildlife have been recorded based on sight, or sign including, tracks, scat or vocal recognition. **Appendix 2** provides a comprehensive listing of vertebrate wildlife species expected and observed, including many that would only be expected to occur occasionally, rarely, sporadically, seasonally, infrequently, as transient, or during migration. This list covers the overall range of vertebrate wildlife species that have been observed, or can be reasonably anticipated to occur on the project site and in the vicinity, on the basis of the reported ranges of these species using several sources, and considering the types and extent of habitat that is available. Wildlife species observed during surveys of the site in December 2013 and April 2008 are indicated in Appendix 2 in bold lettering.

3.0 BIOLOGICAL RESOURCES

3.1 JURISDICTIONAL AREAS

An ephemeral drainage that flows through a steep gully is located in the southwest corner of the site. The drainage does not have incised banks and lacks hydric soils or hydrophytic vegetation. However, there is evidence of hydrology, providing transport of runoff from the adjacent slopes during storm events, but flows are minimal. A high water mark is present in portions of the drainage, but is difficult to discern as flow is typically over volcanic rock. The drainage is approximately 265 linear feet and traverses through upland vegetation with a steep gradient from the southeast to the northwest ending at Cornell Road. The drainage currently discharges directly onto Cornell Road and lacks a direct connection to Medea Creek or other downstream waters. For this reason as well as the lack of riparian vegetation, the ephemeral drainage appears to be non-jurisdictional. There is no riparian vegetation at the project site.

3.2 PLANTS AND VEGETATION COMMUNITIES

To date 160 taxa of vascular plants have been observed, as compiled in Appendix 1. These comprise: four native ferns and fern allies; and 156 taxa of flowering plants, including 135 (118 native and 17 alien) dicotyledonous taxa, and 25 (14 native and 11 alien) monocotyledonous taxa.

The AVSP-FEIR identified the following vegetation types as present at the project site:

- Oak Stands
- Ruderal Series/Disturbed
- California Annual Grassland
- Valley Needlegrass Grassland
- Mixed Chaparral

The vegetation at the site is classified in greater detail herein based on the most current system for identifying rare or sensitive plant communities recognized by the CDFW. Nine native and two non-native plant communities occur within the study area, as shown on **Figure 2,** Plant Communities and Impacts Map. Plant communities were correlated with those plant communities included in the *Vegetation Classification of the Santa Monica Mountains Natural Recreation Area and Environs in Ventura and Los Angeles Counties, California* (CDFW/CNPS, January 2006) and/or the *List of Vegetation Alliances and Associations (Natural Communities List)* (CDFW, September 2010). These documents provide lists of plant communities occurring in the Santa Monica Mountains and environs and in the State of California, respectively. In these documents, each plant community is assigned a conservation status rank (also known as "rarity rank"), which is used to determine the sensitivity of the plant community. Plant communities with global or state status ranks of G1 through G3, or S1 through S3, respectively, are considered to be sensitive, and are referred to as "natural communities of special concern." Plant communities are classified based on plant species composition and abundance, as well as the underlying abiotic conditions of the stand, such as slope, aspect, or soil type. The acreage and conservation status rank of plant communities occurring at the site are provided in **Table 1**. The following four plant communities within the study area are considered to be rare or sensitive:

- Valley Oak–Coast Live Oak/Grass Woodland Association (*Quercus lobata - Quercus agrifolia*)
- Toyon Shrubland Alliance (*Heteromeles arbutifolia*)
- Purple Needlegrass Herbaceous Alliance (*Stipa pulchra*)
- Bushy Spikemoss–California Buckwheat Association (*Selaginella bigelovii / Eriogonum fasciculatum*)

Woodland

Valley oaks (Quercus lobata) and coast live oaks (Quercus agrifolia) occur scattered throughout the matrix of the grassland community primarily along the boundary, west and north, of the site. The mature oaks appear to be a remnant of what was a more extensive valley oak woodland or savanna that occurred in the area prior to suburban development. The oak trees comprise a Valley Oak – Coast Live Oak / Grass Woodland plant community, which occupies an estimated 0.62 acres of the site. The woodland understory is highly disturbed and comprised primarily of non-native grasses and forbs. Other trees or shrubs that occur within the grassland matrix adjacent to or within the canopies of the oaks are blue elderberry (Sambucus nigra ssp. caerulea), chaparral honeysuckle (Lonicera subspicata), holly-leaf redberry (Rhamnus ilicifolia), toyon (Heteromeles arbutifolia), and one California walnut (Juglans californica). The Valley Oak – Coast Live Oak / Grass Woodland plant community is assigned a G3S3 rank, indicating that it is vulnerable and at moderate risk of extinction (CDFW, September 2010). It is estimated that approximately 90% of valley oak stands that existed prior to European contact in California

Legend

- Existing Property Line
- Proposed Property Line
- Zone E/G Boundary
- Landscaping Boundary
- Limits of Grading/Construction
- Non-Jurisdictional Ephemeral Drainage
- Limits of Fuel Modification (200-Foot Buffer of Proposed Structures)

Woodland

- Valley Oak – Coast Live Oak / Grass Woodland (*Quercus lobata – Quercus agrifolia*)
  - **Ql** - Valley Oak (*Quercus lobata*)
  - **Qa** - Coast Live Oak (*Quercus agrifolia*)

Chaparral

- Qb — Scrub Oak Chaparral (*Quercus berberidifolia*)
- QbH — Scrub Oak - Toyon Chaparral (*Quercus berberidifolia - Heteromeles arbutifolia*)
- QbC — Scrub Oak - Birchleaf Mountain Mahogany Chaparral (*Quercus berberidifolia - Cercocarpus betuloides* var. *betuloides*)
- Ha — Toyon Chaparral (*Heteromeles arbutifolia*) w/ Birchleaf Mountain Mahogany (*Cercocarpus betuloides* var. *betuloides*)*
- Cb — Birchleaf Mountain Mahogany Chaparral (*Cercocarpus betuloides* var. *betuloides*)

Coastal Scrub

- Sl — Purple Sage Scrub (*Salvia leucophylla*)

Coastal Scrub / Native Herbaceous

- SbE — Bushy Spikemoss / California Buckwheat (*Selaginella bigelovii / Eriogonum fasciculatum*)*

Native Herbaceous

- Sp — Purple Needlegrass (*Stipa pulchra*)*

Non-Native Herbaceous

- NG — Non-Native Grasses and Forbs

Individual Native Trees / Shrubs **

- Qa — Coast Live Oak (*Quercus agrifolia*)
- Ql — Valley Oak (*Quercus lobata*)
- Qb — Scrub Oak (*Quercus berberidifolia*)
- Jc — Southern California Black Walnut (*Juglans californica*)
- Sn — Blue Elderberry (*Sambucus nigra* ssp. *caerulea*)
- Ls — Chaparral Honeysuckle (*Lonicera subspicata*)
- H — Toyon (*Heteromeles arbutifolia*)

Other

- L — Ornamental Trees / Landscaping
- B — Barren/Sparsely Vegetated
- P — Paved Road

Special-Status Plant Species ***

- Lyon's Pentachaeta (*Pentachaeta lyonii*) [FE, CE]
- Agoura Hills Dudleya (*Dudleya cymosa* ssp. *agourensis*) [FT, CRPR 1B.2]
- Catalina Mariposa Lily (*Calochortus catalinae*) [CRPR 4.2]
- Linear-Leaf Goldenbush (*Ericameria linearifolia*) [SEA #6]
- Undetermined Navarretia (Potentially Ojai navarretia - *Navarretia ojaiensis* [CRPR 1B.1])

* CDFW Natural Community of Special Concern (sensitive plant community)

** Selected individual oak trees only are shown on the map. See the oak tree study for a compehensive study of the oak trees at this site.

*** The number in parenthesis represents the number of individual plants at that location.

AGOURA CORNERSTONE MIXED-USE PROJECT - BIOLOGICAL RESOURCES INVENTORY AND IMPACT ANALYSIS

ENVICOM CORPORATION

Plant Communities and Impacts Map

0 60 120 Feet

FIGURE 2

Table 1
Plant Communities and Landcover Within Project Site*

Habitat Class	Plant Community or Landcover[1]	Conservation Status Rank	Acres (Project Site)
Woodland	Valley Oak – Coast Live Oak / Grass Woodland Association (*Quercus lobata - Quercus agrifolia*) [71.040.06]**	G3S3	0.62
Chaparral	Scrub Oak Shrubland Association (*Quercus berberidifolia*) [37.407.02]	G4S4	0.74
	Scrub Oak – Toyon Shrubland Association (*Quercus berberidifolia – Heteromeles arbutifolia*) [37.407.04]	G4S4	0.71
	Scrub Oak – Birch-leaf Mountain Mahogany Shrubland Association (*Quercus berberidifolia – Cercocarpus betuloides* var. *betuloides*) [37.407.06][2]	G4S4	0.16
	Birch-leaf Mountain Mahogany Shrubland Association (*Cercocarpus betuloides* var. *betuloides*) [76.100.03]	G5S4	0.05
	Toyon Shrubland Alliance (*Heteromeles arbutifolia*) [37.911.00]**	G5S3	0.14
Coastal Scrub	Purple Sage Shrubland Association (*Salvia leucophylla*) [32.090.03]	G4S4	0.08
Coastal Scrub/Native Herbaceous	Bushy Spikemoss – California Buckwheat Association (*Selaginella bigelovii / Eriogonum fasciculatum*) [42.062.01]**	G4S3	0.35
Native Herbaceous	Purple Needlegrass Herbaceous Alliance (*Stipa pulchra*) [Purple or Valley Needlegrass Grassland][3] [41.150.00]**	G4S3?	0.63
Non-Native Herbaceous	Non-Native Grasses and Forbs Mapping Unit	Not ranked	5.27
Other	Individual Native Trees/Shrubs[4]	n/a	--
	Ornamental Landscaping	n/a	0.21
	Paved Road	n/a	0.83
	Barren/Sparsely Vegetated	n/a	0.06
		TOTAL ACREAGE	**9.85**

* "Project site" includes all properties as well as adjacent road improvement areas, as shown on Figure 2.
** CDFW Natural Community of Special Concern (Sensitive Plant Community)
"?" - Denotes an inexact numeric rank due to insufficient samples over the full, expected range of the vegetation type, but existing information points to the rank given.

[1] Numbers in brackets are unique codes for each plant community, as provided in *List of Vegetation Alliances and Associations (Natural Communities List)* (CDFW, September 2010). Conservation status ranks are also from the *Natural Communities List.*
[2] *Cercocarpus betuloides* is synonymous with *Cercocarpus montanus. Cercocarpus montanas* is used in place of *Cercocarpus betuloides* in the *Manual of California, 2nd ed.* and the *List of Vegetation Alliances and Associations (Natural Communities List).*
[3] *Stipa pulchra* was formerly named *Nassella pulchra.*
[4] Acreages of individual native trees/shrubs are included as a part of the surrounding plant community.

have been destroyed by urbanization and intensive land conversion (Sawyer, J.O., T. Keeler-Wolf, J. Evens, 2009). The Santa Monica Mountains and environs contain the southernmost stands of valley oak in the State.

Based on the December 2013 field survey, approximately 19 valley oaks and 7 coast live oaks are present on the site. The majority of these trees comprise the oak woodland community at the site, while a few others have been mapped as "individual trees," particularly those in landscaped or highly modified areas along the north side of Agoura Road or the west side of Cornell Road.

Valley oak and coast live oak trees meeting certain size requirements are protected pursuant to the City's oak tree ordinance. Although the presence of protected valley oak and coast live oak trees was confirmed during field surveys conducted to prepare this report, documentation of the species, location, and condition of protected oak trees that would require protection pursuant to the City's ordinance was outside the scope of this study. Refer to the oak tree report by James Dean Design, dated January 2, 2009, for a study of the trees on the property with respect to their protection under the City's oak tree protection ordinance. Although the oak trees at the site are shown on Figure 2, the map may not be comprehensive in this regard. Also, the oak trees mapped on Figure 2 do not necessarily meet the size requirements for protection under the City ordinance.

Chaparral

The chaparral within the site (1.80 acres) includes stands dominated by scrub oak (*Quercus berberidifolia*), birch-leaf mountain mahogany (*Cercocarpus betuloides*), and/or toyon (*Heteromeles arbutifolia*), which occur on the steeper north facing slope within the southern section of the property and on more gradual slopes in the eastern section of the property. As shown on Table 1, only the toyon community is considered sensitive by the CDFW. Chaparral honeysuckle (*Lonicera subspicata denudata*), holly-leaf redberry (*Rhamnus ilicifolia*), and wedge-leaf ceanothus (*Ceanothus cuneatus*) are common or occasional associates of the scrub oak chaparral. The understory supports abundant native perennial grasses, especially, coast melic (*Melica imperfecta*) and one-sided bluegrass. A few ferns including California maidenhair (*Adiantum jordanii*), coffee fern (*Pellaea andromedifolia*), and goldenback fern (*Pentagramma triangularis*) occur in the shade of the chaparral. Numerous native annual and perennial herbs were observed including Pacific sanicle (*Sanicula crassicaulis*), yabea (*Yabea microcarpa*), sacapellote (*Acourtia microcephala*), fleabane-aster (*Erigeron foliosus*), golden-yarrow (*Eriophyllum confertiflorum*), cliff-aster (*Malacothrix saxatilis tenuifolia*), common eucrypta (*Eucrypta chrysanthemifolia*), blue fiesta flower (*Pholistoma auritum*), wild cucumber (*Marah macrocarpus*), California peony (*Paeonia californica*), orange bush monkeyflower (*Mimulus aurantiacus*), heart-leaf penstemon (*Keckiella cordifolia*), hairy-fruited buttercup (*Ranunculus hebecarpus*), thread-stem (*Pterostegia drymarioides*), miner's-lettuce (*Claytonia perfoliata*), blue dicks (*Dichelostemma c. capitatum*), goldfields (*Lasthenia californica*), and caterpillar phacelia (*Phacelia cicutaria hispida*).

Individual scrub oaks meeting certain size requirements are protected by the City's oak tree ordinance. Individual scrub oaks are found within scrub oak chaparral but may also occur in other plant communities at the site. The oak tree report by James Dean Design provides a study of the scrub oaks on the property with respect to their protection under the City's oak tree ordinance.

Coastal Scrub

Coastal scrub is not extensive on the property, amounting to an estimated 0.43 acres. It occurs primarily as California buckwheat (*Eriogonum fasciculatum foliolosum*) scrub with California sagebrush (*Artemisia*

californica) and spikemoss mats (*Selaginella bigelovii*) on the exposed eroded and rocky slopes in Zone G surrounding the ephemeral drainage in the southwest portion of the site. As shown on Table 1, this community is considered sensitive by the CDFW. Also, two small areas dominated by purple sage (*Salvia leucophylla*) occur just north of the most northern extent of mixed chaparral, on the west side of the property. One of these patches is entirely within Zone G, while the second patch is within Zone G and Zone E. AVSP Mitigation Monitoring and Reporting Program mitigation measure BIO 6(a) requires the identification of "high-value" coastal sage scrub for mitigation purposes, which was performed during the December 2013 field survey. The California buckwheat and bushy spikemoss stand in Zone G surrounding the ephemeral drainage is "high-value," as this community contains a population of the federally Threatened Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*) and the federally and state Endangered Lyon's pentachaeta (*Pentachaeta lyonii*), as well as the several individuals of the locally rare linear goldenbush (*Ericameria linearifolia*). The two patches of purple sage are substantially intact, but are "moderate-value" due to their small size and relatively low species diversity. Furthermore, the patches of purple sage scrub do not support special-status plant species.

Non-Native Herbaceous Communities

The majority of the site (5.27 acres) is annual grassland, which is mapped on Figure 2 as Non-Native Grasses and Forbs. Much of the lower elevation areas of the site are routinely disced or mowed; these areas support few native species. However, much of the herbaceous community on-site is not routinely disturbed or has recovered substantially to an annual grassland community comprised of various non-native and native grasses and forbs, and in some areas supports substantial native plant diversity. Dominant non-native annual grasses in these areas include slender wild oats (*Avena barbata*), soft chess (*Bromus hordeaceus*), red brome (*B. madritensis rubens*), ripgut grass (*B. diandrus*), foxtail barley (*Hordeum murinum*), and rattail fescue (*Festuca myuros*). The native annual fescue grass (*Festuca microstachys*) is also very abundant throughout these grasslands. In areas where soils are especially thin, or around exposed rocks, native perennial grasses including one-sided bluegrass (*Poa secunda*), and California melic (*Melica californica*) are moderately abundant. The annual grassland also contains a diversity of native annual and perennial herbs, especially hog-fennel (*Lomatium dasycarpum*), goldfields (*Lasthenia californica*), slender cottonweed (*Micropus californicus*), brown microseris (*Stebbinsoseris heterocarpa*), silver-puffs (*Uropappus lindleyi*), blow-wives (*Achyrachaena mollis*), California-aster (*Corethrogyne filaginifolia*), common fiddleneck (*Amsinckia intermedia*), valley popcorn flower (*Plagiobothrys nothofulvus*), shining peppergrass (*Lepidium nitidum*), fringe-pod (*Thysanocarpus curvipes*), pygmy crassula (*Crassula connata*), miniature lupine (*Lupinus bicolor*), several species of clarkia (*Clarkia* spp.), California plantain (*Plantago erecta*), Angel's gilia (*Gilia angelensis*), slender phlox (*Microsteris gracilis*), red-maids (*Calandrinia ciliata*), miner's-lettuce (*Claytonia perfoliata*), Padre's shooting-stars (*Primula clevelandii*), Parry's larkspur (*Delphinium parryi*), and annual bedstraw (*Galium aparine*). Native, perennial bulbs and corm-producing plants (geophytes), especially blue dicks (*Dichelostemma c. capitatum*), golden-stars (*Bloomeria crocea*), and blue-eyed-grass (*Sisyrinchium bellum*) occur throughout the annual grassland, and Catalina mariposa lily (*Calochortus catalinae*), and chocolate lily (*Fritillaria biflora*) occur in moderate numbers, albeit more localized. Alien annuals, biennials and perennials also abound, especially, Italian thistle (*Carduus pycnocephalus*), tocalote (*Centauria melitensis*), smooth cat's-ear (*Hypochaeris glabra*), common groundsel (*Senecio vulgaris*), common sow thistle (*Sonchus oleraceus*), black mustard (*Brassica nigra*), bur-clover (*Medicago polymorpha*), red- and white-stemmed filarees (*Erodium cicutarium, E. moschatum*), and scarlet pimpernel (*Anagallis arvensis*). A relatively new alien introduction to the Santa Monica Mountains, namely, wand mullein (*Verbascum virgatum*) is spreading locally on this site. Yellow star-thistle (*Centauria solstitialis*), a very noxious weed that has been spreading rapidly in recent years along Agoura Road and Kanan-Dume was not observed.

Native Herbaceous Communities

A portion of the grassland area supports, in addition to the species mentioned above, moderate densities of the native perennial purple needlegrass (*Stipa pulchra*). These areas have been classified and mapped as the sensitive Purple Needlegrass Herbaceous Alliance, or Purple Needlegrass Grassland, which is also known as Valley Needlegrass Grassland. The extent of this area was determined on December 13, 2013 by placing flags along the perimeter and using a Trimble GPS to geo-reference their locations, and thereby, the extent of the native grassland area. There are a total of 0.63 acres of sensitive Purple Needlegrass Grassland at the site.

3.3 WILDLIFE

Fishes

Due to the lack of intermittent to permanent water and aquatic habitats on-site fish species are precluded from occurring on the site.

Amphibians

Due to the lack of intermittent to permanent water/aquatic habitats on-site, most amphibians are not expected, with the exception of Pacific chorus frog (*Pseudacris regilla*) and black-bellied slender salamander (*Batrachoseps nigriventris*). There is low potential for occurrence of Monterey ensatina (*Ensatina e. eschscholtzi*), which is able to reproduce by laying eggs on moist surfaces under or within decaying logs, under bark, or moist rock fissures, but such conditions are very limited on-site. Similarly, arboreal salamanders (*Aneides lugubris*) can lay eggs under surface objects, in fissures and crevices, or in tree cavities, and are more tolerant of dessication than *Ensatina*. These species do not wander widely from their home territories, as does California newt (*Taricha torosa*), which may migrate in late fall from aquatic breeding sites as much as 1000m. Western toad (*Anaxyrus boreas halophilus*) requires standing water for egg-laying, but they are sometimes found up to 1000m from their breeding sites (Zeiner et al. 1988).

Reptiles

All four generalized habitats at the site, grassland, coastal scrub, chaparral, and woodland provide suitable habitat for a variety of reptile species of the Santa Monica Mountains. Species observed are limited to California side-blotched lizard (*Uta stansburiana elegans*) and Great Basin [western] fence lizard (*Sceloporus occidentalis longipes*). Other lizards expected include San Diego alligator lizard (*Elgaria multicarinata webbii*), and western skink (*Plestiodon s. skiltonianus*). Coast horned lizard (*Phrynosoma blainvillii*) may occur, although the site is not preferred habitat given the lack of substantial leaf litter or sandy soils. Silvery legless lizard (*Anniella p. pulchra*) prefers slightly damp sandy soil, and is probably absent. Coastal whiptail (*Aspidoscelis tigris stejnegeri*) may be present in areas of the site dominated by chaparral or coastal scrub. Snakes with high potential to occur include California striped racer (*Coluber l. lateralis*), red coachwhip (*C. flagellum piceus*), western racer (*Coluber constrictor mormon*), San Bernardino ringneck snake (*Diadophis punctatus modestus*), spotted night snake (*Hypsiglena torquata ochrorhynchus*), San Diego gopher snake (*Pituophis catenifer annectens*), common kingsnake (*Lampropeltis getula californiae*), and Southern Pacific rattlesnake (*Crotalus oreganus helleri*). Southwestern blind snake (*Rena h. humilis*) is known only from the [central] Malibu Creek drainage (De Lisle et al. 1986) and is probably absent. California [San Diego] mountain kingsnake (*Lampropeltis zonata* [*pulchra*]) is very rare in these mountains, preferring canyons, and probably absent. Other seldom seen snake species with potential to occur include coast patchnose snake (*Salvadora hexalepis virgultea*), western blackhead snake (*Tantilla planiceps*), and Baja California lyre snake (*Trimorphodon biscutatus*

lyrophanes). Two-striped garter snake (*Thamnophis hammondii*) relies on aquatic habitats and is probably absent. South coast garter snake (*T. sirtalis* ssp.[5]) also prefers permanent water, and is "probably extinct" in the Santa Monica Mountains (De Lisle et al. 1986).

Birds[6]

Birds are the most diverse vertebrate wildlife at the project site. Species observed include red-tailed hawk, mourning dove, turkey vulture, Anna's hummingbirds, Nuttall's woodpecker, acorn woodpecker, western scrub-jay, common raven, bushtit, wrentit, oak titmouse, northern mockingbird, song sparrow, California towhee, California thrasher, yellow-rumped warbler, Say's phoebe, black phoebe, ash-throated flycatcher, Cassin's kingbird, house finch, and lesser goldfinch. The grassland community, with the abundance of small mammals, open habitat, and presence of large trees provides excellent foraging habitat for raptors.

Mammals

All the communities on-site provide excellent habitat for small mammal species, particularly rodent species. The project site includes a combination of habitats and a connection to larger open space that supports a diverse mammal fauna. Mammals observed included California ground squirrel (*Spermophilus beecheyi*), and desert cottontail (*Sylvilagus audubonii*), whereas mammals inferred by sign include big-eared woodrat (*Neotoma macrotis*), coyote (*Canis latrans*), Botta's pocket gopher (*Thomomys bottae*), and mule deer (*Odocoileus hemionus*). Additional mammals with high expectation of occurrence include Virginia opossum (*Didelphis virginiana*), brush rabbit (*Sylvilagus bachmani*), eastern fox squirrel (*Sciurus niger*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), striped skunk (*Mephitis mephitis holzneri*), domestic dog (*Canis familiaris*), house cat (*Felis catus*), and bobcat (*Felis rufus*). Also expected are desert shrew (*Notiosorex c. crawfordi*), ornate shrew (*Sorex ornatus californicus*), and broad-handed mole (*Scapanus latimanus occultus*). As many as 21 species of bats are potentially occurring, based upon the ranges reported by Zeiner et al. (1990a), and Constantine (1998). Also expected are California pocket mouse (*Chaetodipus californicus*), Pacific kangaroo rat (*Dipodomys a. agilis*), western harvest mouse (*Reithrodontomys megalotis*), brush mouse (*Peromyscus boylii*), parasitic mouse (*P. californicus*), cactus mouse (*P. eremicus*), deer mouse (*P. maniculatus*), pinyon mouse (*P. truei*), and California vole (*Microtus californicus*). Occasional visitants to the site could include San Diego black-tailed jackrabbit (*Lepus californicus*), western gray squirrel (*Sciurus griseus*), ringtail (*Bassariscus astutus octavus*), western spotted skunk (*Spilogale gracilis microrhina*), American badger (*Taxidea taxus neglecta*), and mountain lion (*Puma concolor*).

3.4 WILDLIFE MOVEMENT

Wildlife must to be able to access suitable habitat for water, foraging, breeding, and cover. Examples of barriers or impediments to movement, i.e., access, include housing and other urban development, roads, fencing, unsuitable habitat, or open areas with little vegetative cover. Wildlife movement corridors are physical connections that allow wildlife to move between areas of suitable habitat in both undisturbed and fragmented landscapes. These can be critical at both the local and regional level. Wildlife movement corridors are necessary not only to access essential resources, but for dispersal and migration, to ensure the mixing of genes between populations, and so wildlife can respond and adapt to environmental stress,

[5] Treated as California red-sided garter snake (*T. sirtalis infernalis*) by De Lisle et al. (1986).
[6] Scientific names of birds are omitted, since common names are well standardized.

and thus are necessary to maintain healthy ecological and evolutionary processes. The term habitat linkage typically refers to larger corridors or regions of connectivity that are important for movement of multiple species and maintenance of ecological processes at a regional scale. Wildlife crossings are generally small, narrow areas allowing wildlife to pass through an obstacle or barrier, such as a roadway to reach another patch of habitat. Wildlife crossings include culverts, drainage pipes, underpasses, tunnels, and, more recently, crossings created specifically for wildlife movement over highways.

Based on a review of the following documents the project site is not within an area that has been identified as important to wildlife movement, such as a regional-scale habitat linkage or a wildlife movement corridor:

- City of Agoura Hills General Plan (March 2010)
- Agoura Village Specific Plan Updated Revised and Recirculated EIR (August 2008)
- Santa Monica Mountains National Recreation Area Land Protection Plan (NPS, March 1998)
- South Coast Missing Linkages Project: A Linkage Design for the Santa Monica Mountains-Sierra Madre Connection (Penrod, K. et. al., 2006)

The potential importance of the project site to wildlife movement was also evaluated both in the field and by reviewing recent aerial photographs of the site and the surrounding area. Although a diversity of wildlife species could potentially move through the project site, as it contains vegetative cover and suitable habitat for many species, the site is not of particular importance to wildlife for movement. For example, the site is not situated within a bottleneck of habitat between larger areas of core suitable habitat, it does not contain an important riparian corridor or wildlife crossing, and it is not necessary for wildlife to pass through the site to access essential resources for water, foraging, breeding, or cover. The project site is situated at the edge of urban development and therefore would not fragment existing natural habitats. Also, development of the project would not impede wildlife movement through the area, given the amount of intact habitat that would remain as open space areas in the vicinity of the site. Substantial suitable lands for movement will continue to exist within protected lands in the surrounding area, including those adjacent to the southern boundary of the project site.

4.0 SPECIAL-STATUS BIOLOGICAL RESOURCES

An analysis of the potential for occurrence of special-status species at the project site was undertaken through research of the California Department of Fish and Wildlife's Natural Diversity Data Base (CDFW) (December 2013), using the Rarefind 5 application for sensitive "elements" on the USGS Thousand Oaks quadrangle and eight surrounding quadrangles, the California Native Plant Society (CNPS) Electronic Inventory for the USGS Thousand Oaks quadrangle and eight surrounding quadrangles, the California Department of Fish and Wildlife's Special Animals List (January 2011), and the AVSP-FEIR Potentially Occurring Special Status Plant and Wildlife Species. Appendix 3 provides a comprehensive listing of vertebrate wildlife species including additional special-status species with the potential to occur.

4.1 Designated Special-Status Plant Species[7]

Special-status plant species either have unique biological significance, limited distribution, restricted habitat requirements, particular susceptibility to human disturbance, or a combination of these factors. For the purposes of this report, special-status plant species are those plants listed, proposed for listing, or candidates for listing as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); those listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA); and plants on the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants with a California Rare Plant Rank (CRPR) 1A (plants presumed extirpated in California and either rare or extinct elsewhere), 1B (which includes plants considered to be rare, threatened, or endangered species in California and elsewhere), 2A (plants presumed extirpated in California, but more common elsewhere), 2B (plants rare, threatened, or endangered in California, but more common elsewhere), and CRPR 4 (a watch list for plants that are of limited distribution in California).

Among plant species designated by state and federal trustee resource agencies, three and potentially four are found on the site. There is a substantial population of the Federally-listed Threatened Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*). The type location of this taxon is the roadcut along Cornell Road, on the exposed volcanic breccia substrate. The individuals at this location are at the extreme edge

[7] The following status codes are applicable to special-status plants:

Federally Protected Species

FE (Federal Endangered): A species that is in danger of extinction throughout all or a significant portion of its range.

FT (Federal Threatened): A species that is likely to become endangered in the foreseeable future.

FC (Federal Candidate): A species for which USFWS has sufficient information on its biological status and threats to propose it as Endangered or Threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

State Protected Species

CE (California Endangered): A native species or subspecies which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

CT (California Threatened): A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "Rare" on or before January 1, 1985, is a "Threatened species."

CR (California Rare): A species, subspecies, or variety of plant is Rare under the Native Plant Protection Act when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens. Animals are no longer listed as Rare; all animals listed as Rare before 1985 have been listed as Threatened.

California Native Plant Society (CNPS) Rare Plant Rank

CRPR 1A: Plants presumed extinct in California and either rare or extinct elsewhere.

CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.

CRPR 2A: Plants presumed extirpated in California, but more common elsewhere.

CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.

CRPR 3: A review list for plants for which there is inadequate information to assign them to one of the other lists or to reject them.

CRPR 4: A watch list for plants that are of limited distribution in California.

CNPS Threat Rank

The CNPS Threat Rank is an extension added onto the California Rare Plant Rank and designates the level of endangerment, as follow:

- 0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat).
- 0.2-Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat).
- 0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

of the limited distribution extending from here westward to near Westlake, at Triunfo Canyon Road and Lindero Road. The locations of the Agoura Hills dudleyas on the site were geo-referenced by Mr. Wishner in April 2008 and Mr. Anderson in December 2013 using a Trimble GPS. The locations of the Agoura Hills dudleyas are shown on Figure 2. All of these individuals are south of the designated Zone G boundary, which would preclude development in the area of their occurrence, although fuel modification would extend into this area.

Another plant species designated by state and federal trustee agecies that has been identified on-site is the federally and state listed Endangered Lyon's pentachaeta (*Pentachaeta lyonii*). A population of this species is reported in the AVSP-FEIR on-site to the south of the Zone G boundary near the drainage outlet to Cornell Road. This population was identified by Rincon Consultants, Inc. biologists during surveys of the AVSP area in 2007. The extent of this reported occurrence is shown on Figure 2 based on mapped information provided in the AVSP-FEIR. Mr. Wishner surveyed the subject properties in April 2008 and Lyon's pentachaeta was not found. Envicom will conduct a botanical survey in spring 2014 to attempt to confirm its presence at the site.

Catalina mariposa lily (*Calochortus catalinae*) occurs on-site at locations shown on Figure 2. These plants were identified and geo-referenced using a Trimble GPS in April 2008. This species has a California Rare Plant Rank 4. As such, this species does not meet criteria for listing as Threatened or Endangered pursuant to the California Endangered Species Act (CESA). Plants with a CRPR of 4 are not rare, but rather are included on a "watch list" of species with limited distribution. While plants in this category cannot be called "rare" from a statewide perspective, and very few, if any, are eligible for state listing, many of them are significant locally. For this reason, CNPS strongly recommends that CRPR 4 plants be evaluated for consideration during preparation of environmental documents, which may be particularly appropriate for the type locality of a CRPR 4 plant; populations at the periphery of a species' range; areas where the taxon is especially uncommon; areas where the taxon has sustained heavy losses; or populations exhibiting unusual morphology or occurring on unusual substrates. The Catalina mariposa lily is not rare in the Santa Monica Mountains, and in this case is not otherwise locally rare based on these criteria.

Three small populations of an undetermined species in the *Navarretia* genus were detected in annual grassland habitats on-site during the biological survey conducted in December 2013. Two of the populations where observed on-site within Zone G and one was observed in Zone E. The locations of the *Navarretia* populations are shown on Figure 2. The plants could not be identified to the species level due to their senesced condition. These plants may be the Ojai navarretia (*Navarretia ojaiensis*) [CRPR 1B.1], a rare plant that would require protection pursuant to CEQA. Positive identification of the *Navarretia* to the species level and confirmation of its distribution at the site can only be accomplished during the species' blooming period, which is from May to July.

The National Park Service expressed concern in a letter to the City of Agoura Hills, dated February 26, 2009, that the globally rare woven-spored lichen (*Texosporium sancti-jacobi*) could potentially be present in suitable habitats at the project site. To address this concern, a focused survey for the lichen was conducted on December 13, 2013. Prior to the survey, a reference population of woven-spored lichens located on an unnamed ridgeline in the vicinity of a water tank approximately 0.75 miles to the east of the project site was inspected.[8] The entire project site was thoroughly searched for the species and it was not found. The woven spored lichen is therefore considered to be absent from the site.

[8] This population of woven-spored lichen is described in *Lichens of the Santa Monica Mountains, Part One* (Kundsen, K., 2005).

4.2 Local Interest Plant Species

In 1976, the County of Los Angeles designated the present site and surrounding area as the Las Virgenes Significant Ecological Area (SEA #6). Figure 4.3-6 of the AVSP-FEIR and Figure NR-2 of the City of Agoura Hills General Plan (March 2010) show the extent of SEA #6 within the City limits.[9] As shown on Figure 4.3-6 of the AVSP-EIR, two parcels in the eastern portion of the project site that are outside of the AVSP area are within SEA #6. Although the SEA boundary on Figure NR-2 is more coarsely mapped, Figure NR-2 also appears to include these parcels within the SEA. Although Los Angeles County regulations regarding SEAs are only applicable to unincorporated county area and not to land within the City's jurisdiction, the City's General Plan and Zoning Ordinance protect Los Angeles County SEAs located within the City's boundaries from incompatible development.

According to the technical supplement to the current County of Los Angeles General Plan, the principal priority of SEA #6 are the "biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or they represent an unusual variation in a population."[10] Among the resources of SEA #6 are "several disjunct desert plant species found nowhere else in the Santa Monica Mountains" (Los Angeles County Museum of Natural History Foundation, 1982). Among the disjunct species cited, linear-leaf goldenbush (*Ericameria linearifolia*) was found to be present on the project site, represented by a few individuals at the higher elevations, and in the ravine area in the southwest quadrant, roughly coincident with the occurrence of Agoura Hills dudleya. Linear-leaf goldenbush is a small shrub that is rather common in the Mojave Desert, and substantially disjunct at the present location in Agoura Hills. Envicom has observed the species to be limited to rocky areas from the vicinity of Agoura Road at Lewis Road, westward to the east slope of Ladyface [mountain] and the Cornell area, and nowhere else in the range. The locations of the linear-leaf goldenbushes are shown, as surveyed with a GPS, on Figure 2. All of these plants are south of the designated Zone G boundary, which precludes development in the area of their occurrence, although fuel modification would extend into these areas based on the project Fuel Modification Plan/Landscaping Plan and standard Los Angeles County Fire Department (LACFD) requirements. The linear-leaf goldenbush appears to have factored significantly along with other locally rare species in the designation of SEA #6, but it is not designated as special-status by state or federal trustee resource agencies.

Another noteworthy observation includes the moderately abundant occurrence of slender phlox (*Microsteris g. gracilis*) observed in April 2008 throughout the grassland areas of the site. Raven et al. (1986) in their *Flora of the Santa Monica Mountains, California* comment that this species is "rare in rocky grassland at low elevations along the northern edge of the mountains." Of local interest, the species is not considered sensitive by the California Native Plant Society or trustee resource agencies. This investigator has also observed this species at several locations to the west, on the same volcanic breccia substrate, along with Agoura Hills dudleya, to near the western limit of the latter species' distribution, at the intersection of Triunfo Canyon Road and Lindero Canyon Road in Westlake.

[9] A presumed error on Figure NR-2 labels SEA No. 6 as "Existing SEA #26 (Santa Monica Mountains)."

[10] The technical supplement elaborates further on the principal priority of SEA #6 with the following statement: "Often scientists learn the most about a biological phenomenon by studying it at an extreme in its distribution. This reveals what the extremes are under which it can survive. In addition, isolated populations and communities are often relics of what was present in an area at some previous time, and often show genetic traits not found elsewhere in the species. These characteristics may be useful in determining taxonomic relationships" (County of Los Angeles General Plan Technical Supplement, November 1980).

Finally, and also of local interest is the occurrence observed in April 2008 of a small population of five (5) individuals of fascicled broomrape (*Orobanche fasciculata*), growing as a parasite on California buckwheat at a location determined using a GPS, essentially on the designated Zone G boundary. Raven et al. (1986) comment this species is "rare, Cornell Corners."

4.3 Special-Status Wildlife Species[11]

For the purposes of this report, special-status wildlife species are those species included on the CDFW "Special Animals" list (CDFW, January 2011). "Special Animal" is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special-status species". The CDFW considers the taxa on this list to be those of greatest conservation need. The species on this list generally fall into one or more of the following categories:

- Officially listed or proposed for listing under the State and/or Federal Endangered Species Acts.
- State or Federal candidate for possible listing.
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa considered by the Department to be a Species of Special Concern.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or

[11] The following status codes are applicable to special-status animals:
Federally Protected Species
FE (Federal Endangered): A species that is in danger of extinction throughout all or a significant portion of its range.
FT (Federal Threatened): A species that is likely to become endangered in the foreseeable future.
FC (Federal Candidate): A species for which USFWS has sufficient information on its biological status and threats to propose it as Endangered or Threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.
FSC (Federal Species of Concern): A species under consideration for listing, for which there is insufficient information to support listing at this time. These species may or may not be listed in the future, and many of these species were formerly recognized as "Category-2 Candidate" species.
State Protected Species
CE (California Endangered): A native species or subspecies which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.
CT (California Threatened): A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "Rare" on or before January 1, 1985, is a "Threatened species."
CSC (California Species of Special Concern): Animals that are not listed under the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.
CFP (California Fully Protected): This designation originated from the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians, reptiles, and birds. Most fully protected species have also been listed as Threatened or Endangered species under the more recent endangered species laws and regulations. California Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
SA (Special Animal): "SA" is used herein if the animal is included on the CDFW's Special Animals List but does not fall under any of the categories listed above. "Special Animals" is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. The CDFW considers these taxa on the Special Animals List to be those of greatest conservation need.

have a critical vulnerable stage in their life cycle that warrants monitoring.

- Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California.

Appendix 3 provides an assessment of the habitat needs and potential for occurrence of special-status wildlife species at the subject property. The results of that assessment are summarized as follows:

Invertebrates

According to the CDFW CNDDB Rarefind 5 application, no special-status species of invertebrates are known to occur on-site. However, special-status species are known to exist in the Santa Monica Mountains, and by extension, must be considered. The monarch butterfly (*Danaus plexippus*)[SA] is expected to occur, but not as a winter roosting species. Too little is known of the distribution and habitat preferences of four other special-status insect species that are known to occur in the Santa Monica Mountains to make an objective assessment of their potential to occur at the subject property. These include Santa Monica shieldback katydid (*Neduba longipennis*)[SA] and Santa Monica grasshopper (*Trimerotropis occidentaloides*)[SA]. Due to lack of vernal pool habitat, the federally listed Endangered Riverside fairy shrimp (*Streptocephalus woottoni*)[FE] is considered absent.

Amphibians and Reptiles

Based on habitat available on-site, special-status amphibian species are not expected to occur on the site. The California red-legged frog (*Rana aurora draytonii*)[FT. CSC] is probably extinct from the Santa Monica Mountains, persisting locally only in the Simi Hills, in East Las Virgenes Creek on the former Ahmanson Ranch, now the Upper Las Virgenes Canyon Open Space Preserve. There are no historic or extant records of arroyo toad (*Bufo californicus*)[FE, CSC] having occurred in the Santa Monica Mountains. Similarly, there are no records of western spadefoot (*Spea hammondii*)[CSC] for the Santa Monica Mountains. Suitable habitat was not found on-site to support these species.

Four (4) species of special-status reptiles are expected to occur as residents, including coastal whiptail (*Cnemidophorus tigris stejnegeri*)[SA], San Bernardino ringneck snake (*Diadophis punctatus modestus*) [SA], coast horned lizard (*Phrynosoma blainvillii*)[CSC], and coast patch-nosed snake (*Salvadora hexalepis virgultea*)[CSC]. The silvery legless lizard (*Anniella p. pulchra*)[CSC], two-striped garter snake (*Thamnophis hammondii*)[CSC], and the San Diego Mountain kingsnake (*Lampropeltis zonata pulchra*)[CSC] are considered absent. Please refer to Appendix 3 for a full description of habitat requirements for each special-status species.

Birds

Special-status bird species[12] observed within the project vicinity that are resident include oak titmouse [SA] and Nuttall's woodpecker [SA]. Additional, potentially occurring residents include loggerhead shrike [CSC], Costa's hummingbird [SA], Allen's hummingbird [SA], Cooper's hawk [SA], Lawrence's goldfinch [SA], great blue heron [SA], snowy egret [SA], great egret [SA], golden eagle [CFP], and prairie falcon [SA]. Potentially occurring winter visitant or transient birds (listed) could include least Bell's vireo [FE, CE], southwestern willow flycatcher [FE. CE], bank swallow [CT], and (unlisted) northern harrier [CSC], sharp-shinned hawk [SA], ferruginous hawk [SA], merlin [SA], California gull [SA], long-eared owl [CSC], short-eared owl [CSC], burrowing owl [CSC], black swift [CSC], Vaux's swift [CSC], rufous hummingbird [SA], Lewis' woodpecker [SA], red-breasted sapsucker [SA], olive-

[12] Scientific names of birds are omitted, since common names are standardized.

sided flycatcher [CSC], purple martin [CSC], Virginia's warbler [SA], hermit warbler [SA], yellow warbler [CSC], yellow-breasted chat [CSC], summer tanager [CSC], chipping sparrow [SA], Brewer's sparrow [SA], lark sparrow [SA], and California gray-headed junco [SA]. The listed coastal California gnatcatcher [FT, CSC], and not-listed tricolored blackbird [CSC] are not expected.

Mammals

Up to as many as fourteen species of special-status bats are potentially occurring on the project site, and these are enumerated in Appendix 3. Too little is known of their distribution and habitat requirements to make an objective assessment of the level and type of use of the property, but all might be expected to forage over the site, and some may roost in trees thereon, or adjacent. One other special-status mammal species, the San Diego desert woodrat (*Neotoma lepida intermedia*) [CSC] could potentially occur within the rocklands in the extreme south portion of the project site. Additional special mammals listed by the CDFW have potential to occur on-site, these include San Diego black-tailed hare (*Lepus californicus bennettii*) [CSC] and American badger (*Taxidea taxus neglecta*) [CSC].

5.0 SUMMARY OF BIOLOGICAL CONSTRAINTS

AVSP Zone E (the northern zone) is predominantly covered with annual grassland, coast live and valley oaks, and includes a patch of scrub oak chaparral in the southeastern corner, and patches of chaparral and coastal scrub along the southern boundary. Oak trees and scrub oaks meeting certain size requirements are protected by the City's oak tree ordinance. Two plant communities considered sensitive by the CDFW were also identified in this area, including valley oak – coast live oak / grass woodland and purple needlegrass grassland. Also within Zone E are a few occurrences of the Catalina mariposa lily, a watch-list species, and a small pocket of an unidentified *Navarretia*, which may be the rare Ojai navarretia, pending its identification during its blooming period.

Within the southern extent of the property defined as AVSP Zone G, the site supports a combination of chaparral, coastal scrub, and annual grassland. Special-status species located within Zone G include the federally listed Threatened Agoura Hills dudleya, the federally and state listed Endangered Lyon's pentacheata, and the Catalina mariposa lily. Also occurring in Zone G is the unidentified *Navarretia* and the linear-leaf goldenbush, a substantially disjunct species of local importance that appears to have factored significantly along with other locally rare species in the designation of SEA #6. Two sensitive plant communities were identified within Zone G, including toyon chaparral and a bushy spikemoss–California buckwheat community, which qualifies as "high-value" coastal sage scrub.

6.0 PROJECT IMPACTS AND MITIGATION

The proposed project would consist of office space, retail, and residential uses, including associated structures, driveways, parking spaces, and landscaping, as well as improvements to adjacent sections of Cornell Road and Agoura Road. Sewer and water lines to serve the project would be extended from existing lines beneath Agoura Road and Cornell Road. Storm drains would be extended from the project to Cornell Road and beneath Agoura Road to the Cheseboro Channel. Fuel modification involving clearance or thinning of naturally occurring native and non-native vegetation would be conducted to 200 feet from structures.

The project site is located within Land Use Zones E and G of the City's Agoura Village Specific Plan, except for two of the parcels, which are located outside of the AVSP area. The proposed project would

be developed within Zone E, although fuel modification and native landscaping would also extend into Zone G, which is designated as Open Space.

The proposed project consists of 24 existing lots, which would be consolidated into two lots. Lot 1 would be 6.23 acres and would include the portion of the site within Zone E, while Lot 2 would be 1.98 acres and would be entirely within Zone G. The project includes a partial street vacation of Cornell Road and Agoura Road, as well as the vacation of an existing unimproved public road that currently traverses the site, which is named Cleveland Drive. A right-of-way dedication is proposed along Cornell Road and Agoura Road for sidewalk purposes. The current and proposed property boundaries before and after the street vacations and right-of-way dedications are shown on Figure 2. The proposed project also includes a proposed 26' access easement and 20' utility easement to be created for the use of any future development.

As shown on Figure 4.3-6 of the AVSP-FEIR, APNs 2061-029-017 & 029 are within Los Angeles County Las Virgenes Significant Ecological Area (SEA #6). According to City of Agoura Hills staff, these parcels are zoned open space-reserved (OS-R). The City's General Plan and the City's Zoning Ordinance protect L.A. County SEAs within the City limits from incompatible development. According to the AVSP, projects within the AVSP shall comply with the City's Hillside and Significant Ecological Area provisions in the City of Agoura Hills Zoning Ordinance, except for Sections 9652.13 A and B, which pertain to dwelling density and allowable percentage of development area. The southeastern portion of the project footprint would extend into SEA #6, and would include part of the access road and slope cuts, landscaping, and fuel modification. However, no biological resources that constitute the basis for classification of SEA #6 are present in this area.

The proposed Project is shown overlaid on the site' biological resources on Figure 2. The limits of grading/construction, landscaping, and fuel modification are inclusive of all proposed ground and vegetation disturbance associated with development of the project. Construction of storm drains, water lines, and sewer lines would involve excavating an estimated three-foot wide trench and burying the pipes, which would result in temporary impacts to vegetation where the pipes would be installed outside of the limits of permanent development. In these areas, a ten-foot wide limit of temporary disturbance is assumed to be necessary to operate the machinery to dig the trench and install the lines.

This impact analysis relies on a Preliminary Grading and Drainage Plan prepared by DTR Engineering (November 2008) and a Fuel Modification Plan/Landscaping Plan prepared by James Dean Designs, dated January 15, 2014. The impact analysis is based upon standard CEQA thresholds of significance for biological resources, as provided in CEQA Guidelines Appendix G as well as the impact analysis in the AVSP-FEIR, where applicable. The AVSP includes a number of land use and development standards that are designed to reduce impacts to biological resources. In addition to these standards, the AVSP Mitigation Monitoring and Reporting Program contains mitigation measures/conditions of approval that are required to reduce impacts to biological resources to a less than significant level. Where relevant, these measures/conditions have been incorporated directly as mitigation for impacts that would result from this project, or the measures have been modified to better address the given situation, if necessary.

The project site contains several oak trees and numerous scrub oaks that are protected by the City's oak tree ordinance. Oak trees and scrub oaks are found within the proposed development footprint, as well as landscaping and fuel modification zones. Preparation of an impact analysis for oak trees and scrub oaks

protected by the City ordinance was outside the scope of this report. Refer to the project's oak tree report by James Dean Design for an analysis of impacts to individual oak trees and scrub oaks on the property.

AVSP Mitigation and Monitoring Program measure BIO 2(a) requires the project to maintain a minimum 50 to 100 foot buffer zone of native vegetation between urban development and sensitive riparian habitats along unchannelized portions of Medea and Lindero Canyon Creeks within the AVSP boundaries. The project would meet this condition, as Medea Creek and Lindero Creek are located several hundred feet and approximately 0.3 miles to the west of the project.

The project would maintain the following minimum distances between improvements and special-status species populations. Fuel modification would be required in areas occupied by these species, based on the standard LACFD distance of 200 feet from structures.

Table 2
Distances Between Project Improvements and Special-Status Species Populations

	Development Limits	Road Improvements	Landscaping
Agoura Hills dudleya	135 ft	90 ft	95 ft
Lyon's pentachaeta	115 ft	10 ft	35 ft
Navarretia (Potential Ojai navarretia)	45 ft	275 ft	35 ft

The following significant or potentially significant impacts to biological resources would result from development of the project:

6.1 IMPACTS TO SPECIAL-STATUS PLANT SPECIES

This evaluation of impacts to special-status plants considers those species that require mandatory special consideration and/or protection pursuant to the Federal Endangered Species Act, the State Endangered Species Act, and/or CEQA, and does not consider CRPR 4 species unless they meet criteria to be considered locally significant. The federally Threatened Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*) and the federally and state Endangered Lyon's pentachaeta (*Pentachaeta lyonii*) would be potentially impacted by fuel modification in Zone C, the Native Brush Thinning Zone. Also, there is an undetermined species of *Navarretia* at the site, which may be the special-status Ojai navarretia (*Navarretia ojaiensis*), as Ojai navarretia has been found at other locations along the lower northern slope of Ladyface. If present, the special-status Ojai navarretia would also potentially be impacted by fuel modification in Zone C. Although all three of these species are small and low growing, each would be susceptible to direct impacts during fuel modification such as trampling, mowing, and, in the case of the Agoura Hills dudleya, being dislodged from its rock substrate. Fuel modification would potentially impact up to 93 Agoura Hills dudleya plants, an undetermined number of Lyon's pentachaeta plants within a 0.10-acre area, and an undetermined number of *Navarretia* plants at four locations totaling 0.03 acres. Impacts of fuel modification on the Agoura Hills dudleya, Lyon's pentacheata, and Ojai navarretia would be potentially significant. No other special-status plant species are known to occur or are expected to occur at the project site, based on a potential for occurrence analysis and the results of botanical surveys conducted by Envicom in April 2008 and December 2013, as well as surveys conducted in 2007 during preparation of the AVSP-EIR.

The *Navarretia* may also potentially occur in non-native and native grassland habitats that would be directly impacted by grading or installation of landscaping. A survey to determine the species and distribution of the *Navarretia* at the project site has not been conducted to date. Until the species and distribution of the *Navarretia* is determined, impacts of grading or landscaping on the potentially occurring Ojai navarretia would be potentially significant.

In addition to direct impacts that could result from fuel modification and/or grading and landscaping, special-status plant species at the site could be directly or indirectly impacted by what are commonly referred to as edge effects during the construction and operational phases of the project. The project as proposed would maintain the distances shown on Table 2 between project improvements and special-status species populations. AVSP measure BIO 1(a) requires preparation and implementation of an active maintenance plan and management program for Lyon's pentachaeta and Agoura Hills dudleya located within 200 feet of the project, as well as establishment of an appropriate buffer between the project and the Lyon's pentachaeta and Agoura Hills dudleya populations. The plan and setback distances are subject to the review and approval of the jurisdictional agencies (USFWS and/or CDFW). For non-listed special-status species including the Ojai navarretia, AVSP measure BIO 1(a) requires the necessary setback to be determined by the City of Agoura Hills with the recommendation of a qualified plant ecologist. In this case, preparation of a maintenance plan and implemention of an active maintenance and management program would be necessary to avoid impacts to the Ojai navarretia, as fuel modification would be conducted within occupied areas. Compliance with AVSP measure BIO 1(a) would ensure that direct and indirect impacts to Lyon's pentachaeta, Agoura Hills dudleya, and the potentially occurring Ojai navarretia would be less than significant.

The locally rare linear-leaf goldenbush (*Ericameria linearifolia*) also occurs in fuel modification Zone C. The linear-leaf goldenbush isn't designated as special-status by state or federal agencies, but its presence in the Agoura Hills area appears to have factored significantly in the designation of the Las Virgenes Significant Ecological Area (SEA#6). A total of twenty-two individuals of this species would also be potentially impacted by fuel modification in Zone C, the Native Brush Thinning Zone. Although it does not receive special consideration or protection outside of Significant Ecological Area boundaries, it is strongly recommended that this species be preserved on-site, as feasible. This could be accomplished by including measures to protect linear-leaf goldenbush in the active maintenance plan and management program to be prepared for the special-status species at the site.

Mitigation for Impacts to Special-Status Plant Species

Mitigation measure BIO 1(a) of the AVSP Mitigation Monitoring and Reporting Program is incorporated herein to address impacts to special-status plant species.

BIO 1(a) Sensitive Plant Survey and Protection Plan. Prior to approval of an individual development application for the project within residual natural areas within Zones A south, B, E, and F, surveys for sensitive plant species, including but not limited to Agoura Hills dudleya and Lyon's pentacheata should be performed by a qualified plant ecologist. These surveys shall be performed during the blooming period (April – June). If a sensitive species is found, avoidance shall be required unless the applicant provides substantial documentation that avoidance would not be feasible or would compromise the objectives of the Specific Plan. For Lyon's pentachaeta and Agoura Hills dudleya, avoidance is defined as a minimum 200-foot setback unless an active maintenance plan is implemented for the known occurrence. With implementation of an active maintenance and management program, the buffer width may be reduced further based on review and approval by the jurisdictional agencies (USFWS and/or CDFW). For other sensitive species avoidance shall be

determined based on the specific plant pursuant with the recommendations of a qualified plant ecologist, and with the coordination of USFWS and/or CDFW for state and federally listed plants. The maintenance and management plan must be approved by the appropriate jurisdictional agencies prior to issuance of a grading permit.

If avoidance is not feasible, on-site mitigation is preferred if suitable, unoccupied habitat is present that can be isolated from human disturbance. Otherwise, an off-site location would be considered; the Ladyface Mountain Specific Plan area may contain appropriate habitat and may be a preferred location. A mitigation restoration plan shall be prepared by a qualified plant ecologist that identifies the number of plants to be replanted and the methods that will be used to preserve this species in the on- or off-site mitigation location. The plan shall also include a monitoring program so that the success of the effort can be measured. Restoration efforts shall be coordinated with applicable federal, state, and local agencies. The required level of success for Agoura Hills dudleya and Lyon's pentachaeta shall be defined at a minimum as a demonstration of five consecutive years, or a period as deemed appropriate by the permitting agencies (USFWS and/or CDFW), of growth of a population equal to or greater than that which would be lost due to the project. This level of success shall be achieved prior to removal of the impacted population. Success criteria for other sensitive species will be determined on an individual basis pursuant with the recommendations of a qualified plant ecologist, and with the coordination of USFWS and/or CDFW for state and federally listed plants. When applicable, the mitigation restoration plan shall be submitted to the appropriate regulatory agencies for review and approval, with the approved plan then submitted to the City of Agoura Hills prior to issuance of a grading permit for the area of concern.

6.2 IMPACTS TO SPECIAL-STATUS WILDLIFE SPECIES

This assessment of impacts to special-status wildlife considers those species that are listed, proposed for listing, or that meet the criteria for listing as Endangered or Threatened under the FESA or CESA; and those with a designation of CSC (California Species of Special Concern) or CFP (California Fully Protected), as mandatory special consideration and/or protection of these species is required pursuant to the Federal Endangered Species Act, the State Endangered Species Act, and/or CEQA. Most of the special-status wildlife species that may potentially occur at the site are capable of escaping harm during project development, including grading and construction, landscaping, or fuel modification, while others are potentially vulnerable to direct impacts, including injury and mortality. In this case, the special-status species that could be directly impacted include potentially occurring land dwelling animals, including the coast horned lizard (*Phrynosoma blainvillii*) [CSC], coast patch-nosed snake (*Salvadora hexalepis virgultea*)[CSC], San Diego desert woodrat (*Neotoma lepida*) [CSC], San Diego black-tailed hare (*Lepus californicus bennettii*)[CSC], and American badger (*Taxidea taxus neglecta*)[CSC]; one ground-dwelling bird, the burrowing owl (*Athene cunicularia*)[CSC]; and a few species of special-status bats, which could potentially roost in tree cavities or in tree foliage at the site. Habitat loss associated with the project is not expected to significantly impact a population of a potentially occurring special-status wildlife species, given the relatively low acreage of habitat that would be affected and the amount of remaining suitable habitat in the surrounding area. Direct loss or injury to a special-status wildlife species would be a significant impact. Also, glare from artificial night lighting associated with the project has the potential to adversely affect special-status wildlife species within riparian corridors within the AVSP area, which would be a significant impact.

Mitigation for Impacts to Special-Status Wildlife Species

The following mitigation measure to address impacts to special-status wildlife is adapted from mitigation measure BIO 1(b) of the AVSP Mitgation Monitoring and Reporting Program.

Special-Status Wildlife Survey. Beginning no more than two weeks prior and ending no more than three (3) days prior to ground disturbing construction at the project site, three pre-construction surveys for the coast horned lizard, coast patch-nosed snake, burrowing owl, San Diego desert woodrat, San Diego black-tailed hare, and roosting special-status bats, as well as any other potentially occurring special-status species shall be conducted by a qualified biologist and submitted to the City Planning and Community Development Department prior to beginning construction and/or commencement of any disturbance. The pre-construction surveys shall incorporate appropriate methods and timing to detect the special-status wildlife species that could potentially occur at the site. If a special-status species is found, avoidance is the preferred mitigation option. If avoidance is not feasible, these species shall be captured, when possible, and transferred to adjacent appropriate habitat within the open space areas either on-site or directly adjacent to the project area. This shall be performed only by a CDFW approved biologist. The CDFW and the City Planning and Community Development Department shall be formally notified and consulted regarding the presence of these species on-site. If a federally listed species is found prior to grading of the site, the USFWS shall also be notified. Only a USFWS approved biologist would be allowed to capture and relocate these animals.

Mitigation measure BIO 4(f) of the AVSP Mitigation Monitoring and Reporting Program is incorporated herein to address potential impacts of artificial night lighting on special-status wildlife species:

BIO 4(f) Corridor Lighting. The following low-light design features shall be implemented throughout the Specific Plan area, and shown on the individual project plans submitted as part of the application.

- Streetlight poles shall be of an appropriate height to reduce the glare and pooling of light into open space and corridor areas,
- Street light elements shall be recessed or hoods shall be used to reduce glare impacts on open space and corridor areas, and,
- All exterior lighting shall be low sodium lights, low intensity, shielded, and directed away from the drainage/wildlife corridors.

6.3 IMPACTS TO NESTING BIRDS

Ground and vegetation disturbing activities if conducted during the nesting bird season (February 1 to August 31) would have the potential to result in removal or disturbance to trees and shrubs that could contain active bird nests. In addition, these activities would also affect herbaceous vegetation that could support and conceal ground-nesting species. Project activities that result in the loss of bird nests, eggs, and young, would be in violation of one or more of California Fish and Game Code sections 3503 (any bird nest), 3503.5 (birds-of-prey), or 3511 (Fully Protected birds). In addition, removal or destruction of one or more active nests of any other birds listed by the federal Migratory Bird Treaty Act of 1918 (MBTA), whether nest damage was due to vegetation removal or to other construction activities, would be considered a violation of the MBTA and California Fish and Game Code Section 3511. The loss of protected bird nests, eggs, or young due to project activities would be a significant impact.

Mitigation for Impacts to Nesting Birds

Mitigation measure BIO 1(c) of the AVSP Mitigation Monitoring and Reporting Program is incorporated herein to address potential impacts to nesting birds.

BIO 1(c) Bird Nesting Surveys. If vegetation clearing (including tree pruning and removal) or other project construction is to be initiated during the bird breeding season (February 1 through August 31), preconstruction/grading surveys shall be conducted by a qualified ornithologist (a person with a biology degree and/or established skills in bird recognition). Surveys shall begin 30 days prior to initial disturbance activities and shall continue weekly, with the last survey being conducted no more than three days prior to the initiation of clearance/construction work. If bird species are observed nesting within 500 feet of construction/grading areas, all construction or grading activities will be postponed or halted at the discretion of the biologist until the nest is vacated and the juveniles have fledged.

Limits of construction to avoid a nest should be established in the field with flagging and stakes or construction fencing. This distance shall be at least 300 feet for raptors and at least 100 feet for all other bird species. Construction personnel should be instructed on the sensitivity of the area. The applicant should record the results of the recommended protective measures described above to document compliance with applicable State and federal laws pertaining to the protection of native birds.

6.4 IMPACTS TO PURPLE NEEDLEGRASS GRASSLAND

As required by AVSP Mitigation Monitoring and Reporting Program measure BIO 2(b), a survey for native grasslands was conducted at the project site by Envicom Corporation in December 2013. Based on the results of this survey, a total of 0.63 acres of the Purple Needlegrass Herbaceous Alliance, or Purple Needlegrass Grassland, which is also known as Valley Needlegrass Grassland, would be removed by development of the proposed project. Purple Needlegrass Grassland is a CDFW Natural Community of Special Concern. Removal of Purple Needlegrass Grassland would be a significant impact.

Mitigation for Impacts to Purple Needlegrass Grassland

Mitigation measure BIO 2(b) of the AVSP Mitigation Monitoring and Reporting Program is incorporated herein to address impacts to purple needlegrass grassland.

BIO 2(b) Native Grassland Protection. Prior to approval of individual development applications within the southern portion of the Specific Plan area, surveys for native grasslands shall be performed by a qualified biologist (with acceptance by the City Planning and Community Development Department Staff). If native grasslands are found, avoidance shall be required unless the applicant provides substantial documentation that avoidance would not be feasible or would compromise the objectives of the Specific Plan. Avoidance shall be planned and enforced with a Native Grassland Protection Program. If the applicant demonstrates that avoidance would not be feasible or would compromise the objectives of the Specific Plan, on-site mitigation would be required if suitable habitat is present and can be isolated from human disturbance. In this event, a Native Grassland Restoration Plan shall be prepared and implemented.

Native Grassland Protection Program. If native grasslands are found on-site and avoidance is feasible, a native grassland protection program shall be prepared by a qualified biologist. The protection program shall be submitted for review as part of the application process with the City

Planning and Development Department. In addition, final plans shall be subject to review and approval by the City Planning and Community Development Department. The protection program shall include, but not be limited to, the following components:

- A qualified biologist shall map the current extent of habitat; and,
- The location of native grassland habitat outside of the construction footprint shall be fenced in the field. Fencing shall be depicted on final grading and building plans. The location of the habitat and fencing shall be done under the direction of a qualified biologist (with acceptance by the City Planning and Community Development Department Staff); and,
- All ground disturbances, including grading for buildings, accessways, easements, subsurface grading, and utilities shall be prohibited within the fenced native grassland area.

Native Grassland Restoration Plan. If avoidance is not feasible, on-site mitigation is preferred if suitable habitat is present that can be isolated from human disturbance. In this event, a restoration plan shall be prepared by a qualified plant ecologist that identifies the location and acreage to be replanted and the methods that will be used to preserve this community in that location. The plan shall also include a monitoring program so that the success of the effort can be measured. The required level of success, at a minimum, shall be defined as a demonstration of three consecutive years of at least 50% native grass dominance within the mitigation area. If off-site mitigation is proposed, the Ladyface Mountain Specific Plan area may contain appropriate habitat and may be a preferred location. Restoration efforts shall be coordinated with applicable federal, state, and local agencies (including the LA County Fire Department). The restoration plan shall be submitted for review as part of the application process with the City Planning and Development Department. In addition, final plans shall be subject to review and approval by the City Planning and Development Department prior to issuance of a Grading Permit.

Native grassland habitat shall be replaced at a minimum ratio of three to one for native grassland lost and shall utlize native species from on-site habitats. Target sites for mitigation plots shall be sampled for soil type and habitat criteria sufficient for the establishment and growth of the native grassland lost. No species identified as invasive on the CNPS, Channel Islands Chapter Invasive Plants List (1997) shall be utilized in the landscape plans. The plan shall include, but not be limited to, the following components:

- Performance criteria (i.e., what is an acceptable success level of revegetation to mitigate past impacts);
- Monitoring effort (i.e., who is to check on the success of the revegetation plan, and how frequently);
- Contingency planning (i.e., if the effort fails to reach the performance criteria, what remediation steps need to be taken);
- Irrigation method/schedule (i.e., how much water is needed, where, and for how long); and,
- Plant species, seed mixes, weed suppression and planting methodology.

From preliminary observations, it appears that potential target areas to perform mitigation for the loss of native grassland exist on the northern slopes of Ladyface Mountain, within the open space of Zone G (the area formerly identified in the 1996 Creekside EIR as valley needlegrass grassland and located south of Lindero Canyon Creek) in the southwest corner of the Specific Plan boundary. These areas

need testing to confirm that they meet the soil and habitat requirements for native grassland species. If sufficient mitigation area does not exist on-site, off-site mitigation or in-lieu fees to an off-site local or regional mitigation bank acceptable to the City of Agoura Hills shall be done.

6.5 IMPACTS TO VALLEY OAK – COAST LIVE OAK / GRASS WOODLAND

Development of the proposed project would result in removal and encroachment into the canopies or root protection zones of several oak trees within a Valley Oak – Coast Live Oak / Grass Woodland Association plant community at the site. The Valley Oak – Coast Live Oak / Grass Woodland Association is considered a natural community of special concern by the CDFW. The understory of the woodland is of low value, being highly disturbed and comprised of non-native species, but loss or disturbance to individual oak trees that comprise the oak woodland would be a significant impact. The oak tree report for the project by James Dean Design provides an analysis of project impacts to individual oak trees on the property, which should be used to evaluate the precise impacts to oak trees within the valley oak – coast live oak / grass woodland at the site.

Mitigation for Impacts to Valley Oak – Coast Live Oak / Grass Woodland

Mitigation for impacts to the sensitive woodland community shall consist of the protection of oak trees during construction and replacement of oak trees lost to development pursuant to the City of Agoura Hills oak tree ordinance and AVSP Mitigation Monitoring and Reporting Program measures BIO 3(a), Oak Tree Protection and Preservation, BIO 3(b), Grading Plan, BIO 3(c), Oak Tree Replacement, and BIO 3(d), Oak Planting Arrangements. Trees planted for mitigation shall be clustered and planted at an appropriate site such that the trees planted will provide natural habitat and replace the oak woodland habitat removed by the project. The trees shall be planted in an area to be preserved as permanent open space. BIO 3(a), BIO 3(b), BIO 3(c), and BIO 3(d) are copied below:

BIO 3(a) Oak Tree Protection and Preservation. Individual project applicants shall submit the results of an oak tree survey and an Oak Tree Report, including an Oak Tree Preservation Program, for review and approval by the City's oak tree consultant as part of the project application. Individual projects shall be developed and operated in compliance with the approved Oak Tree Preservation Program and any other conditions determined to be necessary by the City oak tree consultant. The program shall include, but not be limited to, the following components:

- No grading or development shall occur within 5 feet from the driplines of oak trees that occur in the construction area.
- All specimen oak trees within 25 feet of proposed ground disturbances shall be temporarily fenced with chain-link or other material satisfactory to the City throughout all grading and construction activities. The fencing shall be installed six feet outside the dripline of each specimen oak tree, and shall be staked every six feet.
- No construction equipment shall be parked, stored, or operated within six feet of any specimen oak tree dripline.
- No fill soil, rocks, or construction materials shall be stored or placed within six feet of the dripline of a specimen oak tree (pervious paving and other materials are allowed, as approved by the City).
- No artificial surface, pervious or impervious, shall be placed within six feet of the dripline of any specimen oak tree, except for project access roads.

- Any roots encountered that are one inch in diameter or greater shall be cleanly cut. This shall be done under the direction of a City approved arborist/oak tree consultant.
- Any trenching required within the dripline or sensitive root zone of any specimen tree shall be done by hand. In addition, trenching in the protected zone needs to preserve roots over 1 inch by tunneling.
- No permanent irrigation shall occur within the dripline of any existing oak tree.
- Any construction activity required within three feet of a specimen oak tree's dripline shall be done with hand tools.

BIO 3(b) Grading Plan. The number of oak trees requiring removal and the number of trees that will be encroached upon by grading and project development shall be confirmed by the City's oak tree consultant with the final grading plan. The plan shall also indicate requirements for retaining walls, tree wells, tree drainage requirements, and pruning as part of the plan.

BIO 3(c) Oak Tree Replacement. For impacts involving 10 percent of less of oak tree removal resulting from grading and project development, each oak tree shall be replaced with specimen oak trees of the same species as the tree that was removed at a ratio and dimension specified in the City's Zoning Ordinance. This mitigation is to occur onsite. For impacts involving greater than 10 percent of oak tree removal resulting from grading and project development, mitigation shall either be onsite with the requirements as listed above or an in-lieu fee may be paid to the City to be used to acquire land and/or install oak trees on another site, preferably in as close proximity to the area of removal as possible. The sum of the calipers of all oak trees planted must be at least equal to that removed. The locations of the replanted trees shall be indicated on the project plans submitted to the City for review by the City's oak tree consultant. Trees shall be planted so that mature trees will have a continuous canopy. Every attempt shall be made to plant oak trees according to species-specific habitat requirements: valley oaks at lower elevations in alluvial soils; and coast live oaks on mesic north facing slope locations. Each oak tree removed by grading and project development shall be replaced with two 36-inch box and two 24-inch box specimen oak trees of the same species as the tree that was removed. Additonally, all naturally occurring native vegetation in the areas proposed for oak tree mitigation shall be identified. This includes surveys for ephemeral plants and bulbs. Oak tree planting shall not cause the removal or destruction of existing native vegetation without replacement in the same locations.

BIO 3(d) Oak Planting Arrangements. Where appropriate pursuant to the recommendations of the City's oak tree consultant, replacement oaks for the removal of individual oak trees shall be clustered in an attempt to replace oak woodland habitat removed. Trees shall be planted so that mature trees will have a continuous canopy. Every attempt shall be made to plant oak trees according to species-specific habitat requirements: valley oaks at lower elevations in alluvial soils and coast live oaks on mesic north facing slope locations.

6.6 IMPACTS TO BUSHY SPIKEMOSS – CALIFORNIA BUCKWHEAT SCRUB / HIGH-VALUE COASTAL SAGE SCRUB

Fuel modification would impact a total of 0.26 acres of the Bushy Spikemoss – California Buckwheat Association plant community. The Bushy Spikemoss – California Buckwheat Association is a CDFW natural community of special concern. In addition to its status as a natural community of special concern, the Bushy Spikemoss – California Buckwheat Association is high-value coastal sage scrub, as it supports threatened and endangered species including the Agoura Hills dudleya and Lyon's pentachaeta, as well as

the non-special-status but locally rare linear-leaf goldenbush. AVSP Mitigation Monitoring and Reporting Program measure BIO 6(a) requires mitigation at a minimum 2:1 ratio for disturbance to high-value coastal sage scrub containing endangered or threatened species, including disturbance resulting from fuel modification. For areas of high-value coastal sage scrub, the project proposes to remove deadwood and the lower 1/3 of established shrubs annually prior to the fire season with the amount of material removed reduced as the distance from structures increases. Also, accumulated plant litter, dead material, and weeds present beneath shrubs and within canopy gaps would be removed routinely and dispersed off-site. Disturbance that would result from fuel modification to the Bushy Spikemoss – California Buckwheat Association plant community / high-value coastal sage scrub would be a significant impact.

Mitigation for Impacts to Bushy Spikemoss – California Buckwheat Scrub / High-Value Coastal Sage Scrub

The acreage of high-value Bushy Spikemoss – California Buckwheat Association that is disturbed by fuel modification shall be enhanced at a 2:1 ratio in an area(s) to be preserved as permanent open space. To the extent possible, this shall be accomplished by on-site enhancement of disturbed in-kind habitat. If on-site enhancement is not possible, compensation for disturbance to the high-value Bushy Spikemoss – California Buckwheat Association may be accomplished by off-site enhancement of in-kind habitat, preservation of intact habitat of equivalent type at a 2:1 ratio, or by a contribution to an in-lieu fee program approved by the City Community Development and Planning Department and the CDFW.

A Mitigation and Monitoring Plan shall be developed by a qualified biologist, restoration ecologist, or resource specialist, and approved by the Director of Planning prior to issuance of the grading permit for the project. In broad terms, the plan shall at a minimum include:

- Description of the project/impact and mitigation sites
- Specific objectives
- Success criteria
- Plant palette
- Implementation plan
- Maintenance activities
- Monitoring plan
- Contingency measures

Success criteria shall at a minimum be based on appropriate survival rates and percent cover of planted native species and control of invasive plant species within the mitigation area. The Mitigation and Monitoring Plan shall be initiated prior to development of the project, and shall be implemented over a five-year period. The mitigation project shall incorporate an iterative process of annual monitoring and evaluation of progress, and allow for adjustments to the mitigation project, as necessary, to achieve desired outcomes and meet success criteria. Annual reports discussing the implementation, monitoring, and management of the mitigation project shall be submitted to the City Planning and Community Development Department and the CDFW. Five years after Project start, a final report shall be submitted to the City Planning and Community Development Department and the CDFW, which shall at a minimum discuss the implementation, monitoring and management of the mitigation project over the five-year period, and indicate whether the mitigation project has, in part, or in whole, been successful based on established success criteria. The mitigation project shall be

extended if success criteria have not been met at the end of the five-year period to the satisfaction of the City of Planning and Community Development Department and the CDFW.

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Appendix 1
Vascular Plant Species Observed at Agoura Cornerstone, by Envicom in April 2008 and December 2013

* Denotes non-native or introduced species

GROUP Family *Scientific Name*	Common Name	April 2008	December 2013
FLOWERING PLANTS - DICOTS			
Pteridaceae			
Adiantum jordanii	California maidenhair fern	✓	✓
Pellaea andromedifolia	coffee fern	✓	✓
Pentagramma t. triangularis	goldenback fern	✓	✓
Selaginellaceae			
Selaginella bigelovii	Bigelow's spike-moss	✓	✓
Adoxaceae			
Sambucus nigra caerulea	blue elderberry	✓	✓
Anacardiaceae			
Rhus ovata	sugar bush		✓
Toxicodendron diversilobum	poison-oak	✓	✓
Apiaceae			
Lomatium dasycarpum	hog-fennel	✓	✓
Sanicula crassicaulis	Pacific sanicle	✓	✓
Yabea microcarpa	yabea	✓	
Apocynaceae			
Asclepias fascicularis	narrow-leaf milkweed	✓	✓
Asteraceae			
Achyrachaena mollis	blow-wives	✓	
Acourtia microcephala	sacapellote	✓	✓
Artemisia californica	California sagebrush	✓	✓
Baccharis pilularis	coyote bush	✓	✓
Baccharis salicifolia	mulefat	✓	✓
**Carduus pycnocephalus*	Italian thistle	✓	✓
**Centauria melitensis*	tocalote	✓	✓
Chaenactis g. glabriuscula	yellow pincushion	✓	
Corethrogyne f. filaginifolia	cudweed aster	✓	✓
Deinandra fasciculata	fascicled tarweed	✓	✓
Ericameria linearifolia	linear-leaf goldenbush	✓	✓
Ericameria palmeri pachylepis	Palmer's goldenbush	✓	
Erigeron f. foliosus	fleabane-aster	✓	✓
Eriophyllum c. confertiflorum	golden-yarrow	✓	✓
Hazardia squarrosa grindelioides	saw-toothed goldenbush	✓	
**Hypochaeris glabra*	smooth cat's-ear	✓	
Isocoma menziesii vernonioides	coastal goldenbush	✓	
**Lactuca serriola*	prickly lettuce	✓	
Lasthenia californica	Goldfields	✓	
Madia elegans	common madia	✓	
Malacothrix saxatilis tenuifolia	cliff-aster	✓	
Micropus californicus	slender cottonweed	✓	
Pseudognaphalium californicum	green everlasting	✓	✓

GROUP Family *Scientific Name*	Common Name	April 2008	December 2013
Rafinesquia californica	California-chicory	✓	
**Senecio vulgaris*	common groundsel	✓	
**Sonchus asper*	prickly sow thistle	✓	
**Sonchus oleraceus*	common sow thistle	✓	
Stebbinsoseris heterocarpa	brown microseris	✓	
Stephanomeria v. virgata	wand chicory	✓	
Uropappus lindleyi	silver-puffs	✓	
Boraginaceae[13]			
Amsinckia intermedia	fiddleneck	✓	
Cryptantha clevelandii	common cryptantha	✓	
Cryptantha intermedia	popcorn flower	✓	
Eucrypta c. chrysanthemifolia	common eucrypta	✓	
Pectocarya linearis ferocula	popcorn flower	✓	
Phacelia cicutaria hispida	caterpillar phacelia	✓	✓
Phacelia ramosissima[14]	branching phacelia	✓	
Pholistoma a. auritum[2]	blue fiesta flower	✓	
Plagiobothrys nothofulvus	valley popcorn flower	✓	
Brassicaceae			
Athysanus pusillus	athysanus	✓	
**Brassica nigra*	black mustard	✓	✓
**Hirschfeldia incana*	hoary mustard	✓	✓
Lepidium nitidum	shining peppergrass	✓	
Thysanocarpus curvipes	fringe pod	✓	
Caprifoliaceae			
Lonicera subspicata	chaparral honeysuckle	✓	✓
Caryophyllaceae			
**Silene gallica*	windmill pink	✓	
**Stellaria media*	common chickweed	✓	
Stellaria nitens	chickweed	✓	
Chenopodiaceae			
Chenopodium californicum	California goosefoot	✓	
Crassulaceae			
Crassula connata	pygmy crassula	✓	
Dudleya cymosa agourensis	Agoura Hills dudleya	✓	✓
Dudleya lanceolata	lance-leaf dudleya	✓	✓
Cucurbitaceae			
Marah macrocarpus	wild cucumber	✓	✓
Euphorbiaceae			
Croton setigerus	doveweed	✓	✓

[13] Includes genera formerly placed in Hydrophyllaceae.
Phacelia and *Pholistoma*, formerly placed in Hydrophyllaceae, have been transferred to Boraginaceae.

GROUP Family *Scientific Name*	Common Name	April 2008	December 2013
Fabaceae			
Acmispon a. americanus	Spanish clover	✓	
Acmispon g. glaber	deer weed	✓	
Acmispon strigosus	strigose lotus	✓	
Acmispon wrangelianus	Wrangel's lotus	✓	
Lupinus bicolor	miniature lupine	✓	
Lupinus concinnus	bajada lupine	✓	
Lupinus sparsiflorus	Coulter's lupine	✓	
**Medicago polymorpha*	burclover	✓	
Trifolium ciliolatum	ciliate-sepaled clover	✓	
Trifolium willdenovii	tomcat clover	✓	
Fagaceae			
Quercus a. agrifolia	coast live oak	✓	✓
Quercus berberidifolia	scrub oak	✓	✓
Quercus lobata	valley oak	✓	✓
Geraniaceae			
**Erodium botrys*	large-beaked filaree	✓	
**Erodium cicutarium*	red-stem filaree	✓	✓
**Erodium moschatum*	white-stem filaree	✓	✓
Grossulariaceae			
Ribes malvaceum	chaparral currant		✓
Ribes speciosum	Fuchsia-flowered gooseberry	✓	✓
Juglandaceae			
Juglans californica	Southern California black walnut	✓	✓
Lamiaceae			
**Marrubium vulgare*	horehound	✓	✓
Salvia columbariae	chia	✓	✓
Salvia leucophylla	purple sage	✓	✓
Salvia mellifera	black sage	✓	
Scutellaria tuberosa	skullcap	✓	
Trichostema lanceolatum	vinegar weed		✓
Malvaceae			
Malacothamnus fasciculatus	bush mallow		✓
Montiaceae			
Calandrinia ciliata	red-maids	✓	
Claytonia p. perfoliata	miner's-lettuce	✓	
Myrsinaceae			
**Anagallis arvensis*	scarlet pimpernel	✓	
Nyctaginaceae			
Mirabilis laevis crassifolia	wishbone bush	✓	
Onagraceae			
Camissoniopsis bistorta	Sun cup	✓	

GROUP Family *Scientific Name*	Common Name	April 2008	December 2013
Clarkia sp.	clarkia		✓
Clarkia cylindrica	cylindric clarkia	✓	
Clarkia epilobioides	white clarkia	✓	
Clarkia purpurea quadrivulnera	four-spot	✓	
Clarkia unguiculata	elegant clarkia	✓	
Epilobium c. canum	hoary California-Fuchsia	✓	✓
Eulobus californicus	California sun cup	✓	
Orobanchaceae			
Orobanche fasciculata	fascicled broomrape	✓	
Paeoniaceae			
Paeonia californica	California peony	✓	✓
Phrymaceae			
Mimulus aurantiacus pubescens	orange bush monkeyflower	✓	✓
Mimulus guttatus	common yellow monkeyflower	✓	
Plantaginaceae			
Collinsia heterophylla	Chinese-houses	✓	
Keckiella cordifolia	heart-leaf penstemon	✓	
Penstemon heterophyllus	foothill penstemon		✓
Plantago erecta	California plantain	✓	
Polygonaceae			
Eriogonum elongatum	long-stem buckwheat	✓	✓
Eriogonum fasciculatum foliolosum	California wild buckwheat	✓	✓
Pterostegia drymarioides	thread-stem	✓	
**Rumex crispus*	Curly dock	✓	
Polemoniaceae			
Allophyllum glutinosum	skunk gilia	✓	
Gilia angelensis	Angel's gilia	✓	
Microsteris gracilis	slender phlox	✓	
Navarretia sp.	navarretia	✓	✓
Primulaceae			
Primula clevelandii gracilis	shooting-star	✓	
Ranunculaceae			
Delphinium p. parryi	Parry's larkspur	✓	
Ranunculus hebecarpus	hairy-fruited buttercup	✓	
Rhamnaceae			
Ceanothus c. cuneatus	wedge-leaf ceanothus	✓	✓
Ceanothus oliganthus	hairy-leaved ceanothus		✓
Rhamnus ilicifolia	Holly-leaf red berry	✓	✓
Rosaceae			
Adenostoma fasciculatum	chamise	✓	✓
Aphanes occidentalis	alchemilla	✓	
Cercocarpus b. betuloides	birch-leaf mountain-mahogany	✓	✓
Heteromeles arbutifolia	toyon	✓	✓

GROUP Family *Scientific Name*	Common Name	April 2008	December 2013
Rubiaceae			
Galium a. angustifolium	narrow-leaved bedstraw	✓	✓
Galium aparine	annual bedstraw	✓	
Galium nuttallii	climbing bedstraw	✓	✓
Scrophulariaceae			
**Verbascum virgatum*	wand mullein	✓	✓
Solanaceae			
Solanum xanti	purple nightshade	✓	✓
FLOWERING PLANTS - MONOCOTS			
Agavaceae			
Hesperoyucca whipplei	Whipple's yucca	✓	✓
Iridaceae			
Sisyrinchium bellum	blue-eyed-grass	✓	✓
Liliaceae			
Calochortus catalinae	Catalina mariposa lily	✓	✓
Fritillaria biflora	Chocolate lily	✓	
Poaceae			
**Avena barbata*	slender wild oats	✓	✓
**Avena fatua*	wild oats		✓
Bromus c. carinatus	California brome	✓	
**Bromus diandrus*	ripgut brome	✓	✓
**Bromus hordeaceus*	smooth brome	✓	✓
**Bromus madritensis rubens*	red brom	✓	✓
**Hordeum murinum* ssp.	foxtail barley	✓	
**Lamarckia aurea*	goldentop	✓	
Elymus condensatus	giant wildrye	✓	
Festuca microstachys	fescue	✓	✓
**Festuca myuros*	rattail fescue	✓	
**Festuca perennis*	Italian ryegrass	✓	
Melica californica	California melic	✓	✓
Melica imperfecta	coast melic	✓	✓
**Phalaris paradoxa*	paradox canary grass	✓	
Poa s. secunda	one-sided bluegrass	✓	
Stipa lepida	foothill needlegrass	✓	✓
**Stipa miliacea*	smilo grass	✓	
Stipa pulchra	purple needlegrass	✓	✓
Themidaceae			
Bloomeria crocea	golden-stars	✓	✓
Dichelostemma c. capitatum	blue dicks	✓	

Appendix 2
Vertebrate Wildlife Species Observed or Expected at Agoura Cornerstone Mixed-Use Project Site

(Species observed in April 2008 and December 2013 indicated in bold letters)

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
AMPHIBIANS			
CAUDATA			
PLETHODONTIDAE - Lungless Salamanders			
Batrachoseps nigriventris	black-bellied slender salamander	U	U
ANURA			
BUFONIDAE - True Toads			
Anaxyrus boreas halophilus	California (western) toad	C	C
HYLIDAE - Treefrogs			
Pseudacris regilla	Pacific chorus frog	C	C
REPTILES			
SQUAMATA			
IGUANIDAE - Iguanid Lizards			
Sceloporus occidentalis longipes	**Great Basin (western) fence lizard**	A	A
Uta stansburiana elegans	**California side-blotched lizard**	A	A
Phrynosoma blainvillii	coast horned lizard	U	U
SCINCIDAE - Skinks			
Plestiodon s. skiltonianus	western skink	U	U
TEIIDAE - Whiptail Lizards			
Aspidoscelis tigris stejnegeri	coastal (western) whiptail	U	U
ANGUIDAE - Alligator Lizards			
Elgaria multicarinata webbii	San Diego (southern) alligator lizard	U	U
ANNIELLIDAE - Legless Lizards			
Anniella p. pulchra	silvery legless lizard [CSC]	R	R
LEPTOTYPHLOPIDAE - Slender Blind Snakes			
Rena h. humilis	southwestern blind snake	R	R
COLUBRIDAE - Colubrid Snakes			
Diadophis punctatus modestus	San Bernardino ringneck snake	U	U
Coluber constrictor mormon	western (yellow-bellied) racer	R	R
Coluber l. lateralis	(California striped racer) chaparral whipsnake	U	U
Coluber flagellum piceus	red coachwip (red racer)	U	U
Salvadora hexalepis virgultea	coast (western) patch-nosed snake	R	R
Pituophis catenifir annectens	San Diego gopher snake	C	C
Lampropeltis getula californiae	California (common) kingsnake	U	U
Lampropeltis zonata pulchra	San Diego (California) mountain kingsnake	R	R
Tantilla planiceps	western black-headed snake	R	R
Trimorphodon lyrophanes	California lyre snake	R	R
Hypsiglena ochrorhynchus klauberi	San Diego night snake	U	U

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
VIPERIDAE - Vipers			
Crotalus oreganus helleri[15]	southern Pacific (western) rattlesnake	U	U
BIRDS		season[16] WSSF	season WSSF
CICONIIFORMES			
ARDEIDAE – Bitterns and Herons			
Ardea herodias	great blue heron	CUUC	CUUC
Ardea alba	great egret	UCUU	UCUU
Egretta thula	snowy egret	CUCU	CUCU
Bubulcus ibis	cattle egret	R--U	R--U
CATHARTIDAE - New World Vultures			
Cathartes aura	**turkey vulture**	CCCC	CCCC
FALCONIFORMES			
ACCIPITRIDAE - Hawks, Old World Vultures, Eagles, and Harriers			
Elanus leucurus	white-tailed kite	UUUU	UUUU
Circus cyaneus	northern harrier	UUcU	UUcU
Accipiter striatus	sharp-shinned hawk	CU-C	CU-C
Accipiter cooperii	Cooper's hawk	CCUC	CCUC
Buteo lineatus	red-shouldered hawk	UUUU	UUUU
Buteo jamaicensis	**red-tailed hawk**	ACCA	ACCA
Buteo regalis	ferruginous hawk	R--R	R--R
Aquila chrysaetos	golden eagle	UUUU	UUUU
FALCONIDAE - Falcons			
Falco sparverius	American kestrel	AAAA	AAAA
Falco columbarius	merlin	Rc-R	Rc-R
Falco mexicanus	prairie falcon	RRRR	RRRR
Falco peregrinus	peregrine falcon	URRR	URRR
GALLIFORMES			
ODONTOPHORIDAE - New World Quail			
Callipepla californica	California quail	AAAA	AAAA
CHARADRIIFORMES			
CHARADRIIDAE - Plovers and relatives		CCCC	CCCC
Charadrius vociferus	killdeer		
LARIDAE - Gulls and Terns			
Larus californicus	California gull	AACC	AACC
Larus occidentalis	western gull	CUUC	CUUC
COLUMBIFORMES			
COLUMBIDAE - Doves and Pigeons			
**Columba livia*	rock dove	CCCC	CCCC

[15] Douglas, Douglas, Schuett, Porras, & Holycross [2002. Phylogeography of the Western Rattlesnake *(Crotalus viridis)* Complex, With Emphasis on the Colorado Plateau]. Pp. 11-50. *In* Biology of the Vipers [Schuett, Höggren, Douglas, and Greene (editors). Eagle Mountain Publishing, Eagle Mountain, Utah. xii + 580 pp. + 16 color plates] recognized this taxon as a distinct species, *C. helleri.* Standard common name remains the same.

[16] Seasonal abundance for Birds given Winter, Spring, Summer, Fall (WSSF).

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
Columba fasciata	band-tailed pigeon	CUUC	CUUC
Streptopelia chinensis	spotted dove	UUUU	UUUU
Zenaida macroura	**mourning dove**	ACCA	ACCA
Columbina passerina	common ground-dove	c--c	c--c
CUCULIFORMES			
CUCULIDAE - Cuckoos			
Geococcyx americanus	greater roadrunner	UUUU	UUUU
STRIGIFORMES			
TYTONIDAE - Barn Owls			
Tyto alba	barn owl	CCCC	CCCC
STRIGIDAE - Typical Owls			
Megascops kennicottii	western screech-owl	UUUU	UUUU
Bubo virginianus	great horned owl	CCCC	CCCC
Asio otus	long-eared owl	RRcR	RRcR
Asio flammeus	short-eared owl	UR-R	UR-R
CAPRIMULGIFORMES			
CAPRIMULGIDAE - Goatsuckers (Nightjars)			
Chordeiles acutipennis	lesser nighthawk	-RRR	-RRR
Phalaenoptilus nuttallii	common poorwill	UCCC	UCCC
APODIFORMES			
APODIDAE - Swifts			
Cypseloides niger	black swift	-R-R	-R-R
Chaetura pelagica	chimney swift	-cc-	-cc-
Chaetura vauxi	Vaux's swift	-U-U	-U-U
Aeronautes saxatalis	white-throated swift	CAAC	CAAC
TROCHILIDAE - Hummingbirds			
Archilochus alexandri	black-chinned hummingbird	cCCR	cCCR
Calypte anna	**Anna's hummingbird**	AAAA	AAAA
Calypte costae	Costa's hummingbird	RUCR	RUCR
Selasphorus rufus	rufous hummingbird	cUUc	cUUc
Selasphorus sasin	Allen's hummingbird	CCCC	CCCC
PICIFORMES			
PICIDAE - Woodpeckers			
Melanerpes lewis	Lewis' woodpecker	UURc	UURc
Melanerpes formicivorus	**acorn woodpecker**	AAAA	AAAA
Sphyrapicus nuchalis	red-naped sapsucker	RR-R	RR-R
Sphyrapicus ruber	red-breasted sapsucker	RR-R	RR-R
Picoides nuttallii	**Nuttall's woodpecker**	AAAA	AAAA
Picoides pubescens	downy woodpecker	UUUU	UUUU
Picoides villosus	hairy woodpecker	UR-U	UR-U
Colaptes auratus	**northern flicker (red-shafted)**	AACA	AACA
PASSERIFORMES			
TYRANNIDAE - Tyrant Flycatchers			
Contopus cooperi	olive-sided flycatcher	-URU	-URU
Contopus sordidulus	western wood-pewee	-CCU	-CCU
Empidonax traillii extimus	southwestern willow flycatcher	-UcU	-UcU

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
Empidonax hammondii	Hammond's flycatcher	-R-R	-R-R
Empidonax oberholseri	dusky flycatcher	-c-c	-c-c
Empidonax difficilis	Pacific-slope flycatcher	cCCC	cCCC
Sayornis nigricans	**black phoebe**	ACCA	ACCA
Sayornis saya	**Say's phoebe**	CRRU	CRRU
Myiarchus cinerascens	**ash-throated flycatcher**	-CCU	-CCU
Tyrannus melancholicus	tropical kingbird	c--c	c--c
Tyrannus vociferans	**Cassin's kingbird**	URUU	URUU
Tyrannus verticalis	western kingbird	-UCU	-UCU
LANIIDAE - Shrikes			
Lanius ludovicianus	loggerhead shrike	UUUU	UUUU
VIREONIDAE - Vireos			
Vireo bellii pusillus	least Bell's vireo	-ccc	-ccc
Vireo cassinii	Cassin's (solitary) vireo	cRRR	cRRR
Vireo huttoni	Hutton's vireo	CCCC	CCCC
Vireo gilvus	warbling vireo	-CUC	-CUC
CORVIDAE - Crows, Jays, and Magpies			
Cyanocitta stelleri	Steller's jay	cccc	cccc
Apehelocoma californica	**western scrub-jay**	AAAA	AAAA
Corvus brachyrhynchos	**American crow**	CCCC	CCCC
Corvus corax	**common raven**	AAAA	AAAA
ALAUDIDAE - Larks			
Eremophila alpestris actia	California horned lark	UUUU	UUUU
HIRUNDINIDAE - Swallows			
Progne subis	purple martin	-ccc	-ccc
Tachycineta bicolor	tree swallow	CCRC	CCRC
Tachycineta thalassina	violet-green swallow	RACU	RACU
Stelgidopteryx serripennis	northern rough-winged swallow	RCCR	RCCR
Petrochelidon pyrrohnota	cliff swallow	cAAU	cAAU
Riparia riparia	bank swallow	-Rcc	-Rcc
Hirundo rustica	barn swallow	RCUC	RCUC
PARIDAE - Chickadees and Titmice			
Poecile gambeli	mountain chickadee	RRRR	RRRR
Baeolophus inornatus	**oak titmouse**	AAAA	AAAA
AEGITHALIDAE - Bushtits			
Psaltriparus minimus	**bushtit**	AAAA	AAAA
SITTIDAE - Nuthatches			
Sitta canadensis	red-breasted nuthatch	U-cU	U-cU
Sitta carolinensis	white-breasted nuthatch	CCCC	CCCC
CERTHIIDAE - Creepers			
Certhia americana	brown creeper	RR-R	RR-R
TROGLODYTIDAE - Wrens			
Salpinctes obsoletus	rock wren	UUUU	UUUU
Catherptes mexicanus	canyon wren	UUUU	UUUU
Thryomanes bewickii	Bewick's wren	AAAA	AAAA
Troglodytes aedon	house wren	CAAC	CAAC

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
Troglodytes troglodytes	winter wren	Rc-c	Rc-c
Cistothorus palustris	marsh wren	CCUC	CCUC
REGULIDAE - Kinglets			
Regulus satrapa	golden-crowned kinglet	Uc-R	Uc-R
Regulus calendula	ruby-crowned kinglet	ACcC	ACcC
SYLVIIDAE - Gnatcatchers			
Polioptila caerulea	blue-gray gnatcatcher	UUUC	UUUC
TURDIDAE - Thrushes			
Sialia mexicana	western bluebird	CCCC	CCCC
Myadestes townsendi	Townsend's solitaire	RR-R	RR-R
Catharus ustulatus	Swainson's thrush	-UUU	-UUU
Catharus guttatus	**hermit thrush**	CC-C	CC-C
Turdus migratorius	American robin	CCUU	CCUU
Ixoreus naevius	varied thrush	U--U	U--U
TIMALIIDAE - Wrentit			
Chamaea fasciata	**wrentit**	AAAA	AAAA
MIMIDAE - Mimic Thrushes			
Mimus polyglottos	**northern mockingbird**	AAAA	AAAA
Toxostoma redivivum	**California thrasher**	AAAA	AAAA
STURNIDAE - Starlings and Mynas			
**Sturnus vulgaris*	European starling	AAAA	AAAA
MOTACILLIDAE - Wagtails and Pipits			
Anthus rubescens	American pipit	CU-C	CU-C
BOMBYCILLIDAE- Waxwings			
Bombycilla cedrorum	cedar waxwing	CU-U	CU-U
PTILOGONATIDAE- Silky Flycatchers			
Phainopepla nitens	phainopepla	UCCU	UCCU
PARULIDAE - Warblers			
Oreothlypis peregrina	Tennessee warbler	cccR	cccR
Oreothlypis celata	orange-crowned warbler	AACA	AACA
Oreothlypis ruficapilla	Nashville warbler	RR-R	RR-R
Oreothlypis virginiae	Virginia's warbler	---R	---R
Setophaga petechia brewsteri	yellow warbler	RCUC	RCUC
Setophaga coronata	**(Audubon's) yellow-rumped warbler**	AC-C	AC-C
Setophaga coronata	(myrtle) yellow-rumped warbler	UR-U	UR-U
Setophaga nigrescens	black-throated gray warbler	RC-U	RC-U
Setophaga townsendi	Townsend's warbler	CU-R	CU-R
Setophaga occidentalis	hermit warbler	RU-U	RU-U
Mniotilta varia	black and white warbler	cc-R	cc-R
Setophaga ruticilla	American redstart	-c-R	-c-R
Parkesia noveboracensis	northern waterthrush	R--R	R--R
Geothlypis tolmiei	McGillivray's warbler	cR-U	cR-U
Geothlypis trichas	common yellowthroat	CCCC	CCCC
Cardellina pusilla	Wilson's warbler	RCcC	RCcC
Icteria virens	yellow-breasted chat	-URR	-URR

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
EMBERIZIDAE - Sparrows			
Pipilo chlorurus	green-tailed towhee	R--R	R--R
Pipilo maculatus	**spotted towhee**	ACCA	ACCA
Melozone crissalis	**California towhee**	AAAA	AAAA
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	UUUU	UUUU
Spizella passerina	chipping sparrow	RRRR	RRRR
Spizella breweri	Brewer's sparrow	---R	---R
Spizella atrogularis	black-chinned sparrow	-U-c	-U-c
Pooecetes gramineus	vesper sparrow	R--R	R--R
Chondestes grammacus	lark sparrow	CCUC	CCUC
Amphispiza bilineata	black-throated sparrow	c--c	c--c
Amphispiza belli belli	Bell's sage sparrow	UUUU	UUUU
Passerella sandwichensis nevadensis	savannah sparrow	AU-C	AU-C
Ammodramus savannarum	grasshopper sparrow	cUUR	cUUR
Passerella iliaca	fox sparrow	UU-U	UU-U
Melospiza melodia	**song sparrow**	AAAA	AAAA
Melospiza lincolnii	Lincoln's sparrow	UU-C	UU-C
Zonotrichia albicollis	white-throated sparrow	R--R	R--R
Zonotrichia leucophrys	white-crowned sparrow	AU-C	AU-C
Zonotrichia atricapilla	golden-crowned sparrow	CC-C	CC-C
Junco hyemalis caniceps	California gray-headed junco (Oregon)	?	?
Junco hyemalis oreganus	dark-eyed junco (Oregon)	ACRC	ACRC
CARDINALIDAE - Tanagers, Cardinals, and Grosbeaks			
Piranga rubra	summer tanager	cccc	cccc
Piranga ludoviciana	western tanager	-RcR	-RcR
Pheucticus ludovicianus	rose-breasted grosbeak	cccR	cccR
Pheucticus melanocephalus	black-headed grosbeak	-CAU	-CAU
Passerina caerulea	blue grosbeak	-RUR	-RUR
Passerina amoena	Lazuli bunting	-CCU	-CCU
Passerina cyanea	indigo bunting	RRRR	RRRR
ICTERIDAE – Meadowlarks, Blackbirds, and Orioles			
Agelais phoeniceus	red-winged blackbird	AACA	AACA
Agelais tricolor	tricolored blackbird	URRU	URRU
Sturnella neglecta	western meadowlark	CCCC	CCCC
Euphagus cyanocephalus	Brewer's blackbird	UCCU	UCCU
Quiscalis mexicanus	great-tailed grackle	?	?
Molothrus ater	brown-headed cowbird	UCCU	UCCU
Icterus cucullatus	hooded oriole	-CCU	-CCU
Icterus bullockii	Bullock's oriole	RCCR	RCCR
Icterus parisorum	Scott's oriole	R--c	R--c
FRINGILIDAE - Finches			
Haemorhous purpureus	purple finch	CRRU	CRRU
Haemorhous mexicanus	**house finch**	AAAA	AAAA

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
Loxia curvirostra	red crossbill	Rc-R	Rc-R
Spinus pinus	pine siskin	UU-U	UU-U
Spinus psaltria	**lesser goldfinch**	AACC	AACC
Spinus lawrencei	Lawrence's goldfinch	UCUU	UCUU
Spinus tristis	American goldfinch	CCCC	CCCC
PASSERIDAE - Weaver Finches			
**Passer domesticus*	house sparrow	AAAA	AAAA
MAMMALS			
DIDELPHIMORPHIA			
DIDELPHIIDAE - Opossums			
Didelphis virginiana	Virginia opossum	C	C
INSECTIVORA			
SORICIDAE - Shrews			
Notiosorex c. crawfordi	desert shrew	R	R
Sorex ornatus californicus	ornate shrew	R	R
Scapanus latimanus occultus	broad-handed mole	U	C
CHIROPTERA			
PHYLLOSTOMIDAE - Leaf-nosed Bats			
Choeronycteris mexicana	Mexican long-tonged bat	?	U
VESPERTILIONIDAE - Mouse-eared Bats			
Myotis thysanodes	fringed myotis	?	U
Myotis evotis	long-eared myotis	?	U
Myotis californicus	California myotis	?	C
Myotis ciliolabrum (subulatus, leibii)	small-footed myotis	?	U
Myotis yumanensis	Yuma myotis	?	?
Myotis v. velifer	cave myotis	?	
Myotis volans	hairy-winged (long-legged) myotis	?	U
Lasionycteris noctivagans	silver-haired bat		
Lasiurus cinereus	hoary bat	?	C
Lasiurus blossevillii	western red bat	?	U
Lasiurus xanthinus	western yellow bat	?	?
Pipistrellus hesperus	western pipistrelle	?	?
Eptesicus fuscus	big brown bat	?	C
Euderma maculatum	spotted bat	?	?
Corynorhinus townsendi intermedius	Townsends big-eared bat	?	?
Corynorhinus townsendii pallescens	pale big-eared	?	?
Antrozous pallidus pacificus	pallid bat	?	?
MOLOSSIDAE - Free-tailed Bats			
Eumops perotis californicus	California (western) mastiff bat	?	?
Tadarida brasiliensis	Brazilian (Mexican) free-tailed bat	?	?
Nyctinimops femorosaccus	pocketed free-tailed bat	?	?
Nyctinimops macrotis	big free-tailed bat	?	?
LAGOMORPHA			
LEPORIDAE - Hares and Rabbits			
Lepus californicus bennettii	San Diego black-tailed jackrabbit	R	U
Sylvilagus audubonii	**desert cottontail**	C	A

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area
Sylvilagus bachmani	brush rabbit	R	U
RODENTIA			
SCIURIDAE - Squirrels			
Spermophilus beecheyi	**California ground squirrel**	C	A
Sciurus griseus	western gray squirrel	U	U
Sciurus niger	eastern fox squirrel	C	A
GEOMYIDAE - Pocket Gophers			
Thomomys bottae	**Botta's pocket gopher**	C	C
HETEROMYIDAE - Pocket and Kangaroo Mice and Rats			
Chaetodipus californicus	California pocket mouse	U	U
Dipodomys a. agilis	Pacific kangaroo rat	U	C
MURIDAE - Mice, Rats, Voles			
Reithrodontomys megalotis	western harvest mouse	U	C
Peromyscus boylii	brush mouse	C	C
Peromyscus californicus	parasitic (California) mouse	U	U
Peromyscus eremicus	cactus mouse	R	R
Peromyscus maniculatus	deer mouse	U	C
Peromyscus truei	piñon mouse	R	R
Neotoma macrotis	**big-eared woodrat**	C	C
Neotoma lepida intermedia	San Diego desert woodrat	U	U
Microtus californicus	(California) vole	U	U
CARNIVORA			
CANIDAE - Dogs, Wolves, Foxes			
Canis latrans	**coyote**	C	C
Canis familiaris	domestic dog	U	U
Urocyon cinereoargenteus	gray fox	U	U
PROCYONIDAE - Racoons, Coatis, Ringtail			
Procyon lotor	raccoon	C	C
Bassariscus astutus octavus	ringtail	R	R
MUSTELIDAE - Weasels, Otters, Badgers			
Mustela frenata	long-tailed weasel	U	U
Taxidea taxus neglecta	American badger	R	U
MEPHITIDAE - Skunks			
Mephitis mephitis holzneri	striped skunk	C	C
Spilogale gracilis microrhina	western spotted skunk	R	R
FELIDAE - Cats			
Puma concolor	mountain lion	R	R
Felis rufus	bobcat	U	U
Felis catus	house cat	U	R
PERISSODACTYLA			
EQUIIDAE - Horses			
Equus caballus	horse	C	C
ARTIODACTYLA			
CERVIDAE - Deer			
Odocoileus hemionus	**mule deer**	C	C

ORDER FAMILY *Scientific Name*	Common Name	Pop. Size Site	Pop. Size Area

Population Size

R = Rare - observed or expected rarely; may be observed if site is visited frequently at appropriate season and in suitable habitat; usually individual observations, rarely more than one present at a given time.

U = Uncommon - observed or expected in low numbers in a portion or all of the site or area; may be seen on a few site visits.

C = Common - observed or expected throughout the area in high numbers; should be easily seen on most site visits in appropriate habitat and season.

c = casual – (birds only) occurring out of normal range or season. Not found every year during this season.

A = Abundant - observed or expected in substantial numbers at appropriate season and in suitable habitat.

Appendix 3
Special-Status Plant & Wildlife Species of the Santa Monica Mountains: Assessment of Potential to Occur at Agoura Cornerstone Mixed-Use Project Site

An evaluation of the potential for occurrence of sensitive species on the property was undertaken through research of the California Department of Fish and Wildlife's Natural Diversity Data Base (CDFW 2013), using the Rarefind 5 application for sensitive "elements" on the Thousand Oaks quadrangle, and five others that surround it, namely Triunfo Pass, Newbury Park, Calabasas, Point Dume, and Malibu Beach. A number of elements not reported on these quadrangles are also anticipated to occur in the region and vicinity of the property. For plants, we have not speculated about the potential for occurrence for those species included on the list of Special Vascular Plants, Bryophytes and Lichens (CDFW, October 2013). If they have not been observed, we have considered that they are absent. For animals, there is room for considerable speculation about the potential for their occurrence on the property on the basis of known distribution and their habitat requirements, but little actual observation. A number of special-status species are known to occur in the Santa Monica Mountains, but are herein considered not to have any potential to occur on the subject property, based on habitat considerations alone. These latter species, listed at the end of this appendix, were excluded from additional analysis and consideration. All other Special Animals (CDFW, January 2011) known to occur in the range, and which could not be so excluded, and therefore might reasonably be anticipated to occur on the property are included in the following list:

Lichens

Not Listed:

Woven-spored lichen (*Texosporium sancti-jacobi*) [Status: G3S1] Reported from 20 locations by in California, of which 18 reports are from the Southwestern Geographic Province, mainly in San Diego, Riverside and Los Angeles [San Clemente Id] Counties, with one in Ventura, and one in Santa Barbara [Aliso Canyon Campground]. Two other occurrences are rather disjunct in San Benito County in the Central Coast Province. Based upon this, the species possibly occurs throughout the southern and central coastal region of California, being largely undetected. The Global Rank is G3, and State Rank S1. Habitat "Chaparral, open sites in California, with *Adenostoma fasciculatum*, *Eriogonum* [spp.], *Selaginella* [spp.], at Pinnacles, on small mammal pellets, 290-660m." This published description is geographically outdated, however. In the Santa Monica Mountains of Ventura County near Conejo Mountain [Long Grade Canyon], Reifner (2003) describes its occurrence as "rare, on [volcanic] soil with cryptogrammic crust, on rabbit dung and old twigs [in coastal sage scrub]." In the Gavilan Hills of Riverside County, Reifner noted the species "rare, on old twigs and rabbit dung [on decomposed granitic soils in chamise chaparral]." Thus, this species with wide distribution from coastal southern and central California has potential to occur at the project site, on specialized substrates, especially on mammal dung and twigs. Locations: Pinnacles National Monument (San Benito Co.); Del Mar, Kearney Mesa, Shepherd Canyon and Tierra Santa, Mission Gorge, La Jolla, Soledad Canyon (San Diego County); San Clemente Id. (Los Angeles Co.); Shipley Muli-Species Preserve, Wilson Valley, Gavilan Hills, (Riverside Co.); Long Grade Canyon (Ventura Co.) (2008). In personal communication (April 2008) with Mr. Kerry Knudsen, a lichen specialist and Curator of Lichens at UC Riverside, he indicated that woven-spored lichen was observed recently by him at a nearby location on the Kanan-Agoura Specific Plan Area, just to the west on the slope of Ladyface (mountain). A focused survey for this species was conducted over the entire project site by Envicom Corporation on December 13, 2013 and it was not found. **Presumed absent.**

Splitting yarn lichen (*Sulcaria isidiifera*) [S1] The Global Rank is G1, and State Rank S1. Reported from "Chaparral, cismontane woodland, on branches of oaks and shrubs, 20-30m." [of course this elevation reflects only known occurrences]. Near Morro Bay in San Luis Obispo County, Bratt (2002) reports occurrence and Los Osos State Oaks Reserve "on branches of *Quercus agrifolia* [coast live oak], *Adenostoma fasciculatum* [chamise], and *Ceanothus ramulosus* ,in sandy areas [this is also type locality for *hypogymnia mollis*]." Locations: Los Osos State Preserve, and Baywood (San Luis Obispo County) (CDFW 2008). **Presumed absent.**

Solorina spongiosa (*Solorina spongiosa*) [S1] "Alpine areas and subalpine coniferous forest, on moss mats in areas with calcareous seepage, generally in high altitude sites with north or east exposure." One reported occurrence in Inyo Co., near South Lake at ca. 9,500 ft., Mt Thompson quadrangle (CDFW 2008). **Presumed absent.**

Light-gray lichen (*Mobergia californica*) [S1] An endemic genus for North America (Mayerhoffer) is reported by CNDDB from one location, in "coastal scrub?, abundant on cobbles in right habitat, only known from on-site in Baja and one in San Diego area" (CDFW 2008). **Presumed absent.**

Long-beard lichen (*Usnea longissima*) [S4.2] Reported from "North Coast coniferous forest, broadleaf upland forest, grow[ing] in the redwood zone on a variety of trees including big-leaf maple, oaks, ash, Douglas-fir, and [California] bay, 0-2,000 ft." All records are coastal from San Mateo to Del Norte County (CDFW 2008). **Presumed absent.**

Baja rock lichen (*Graphis saxorum*) [S1S3] Reported "only from Santa Catalina Id on rocky substrates, volcanic rocks, moderately shaded, usually north-facing, [near] vertical, and on underhangs, recesses, etc., 20-100m" (CDFW 2013). **Presumed absent.**

Thamniola lichen (*Thamniola vermicularis*) [S1] Reported from "chaparral, valley and foothill grassland, on rocks derived from Wilson Ranch Sandstone formation" in Marin County (CDFW 2008). **Presumed absent.**

Bryophytes

Not Listed:

Three-ranked hump moss (*Meesia triquetra*) [Status: CRPR 4.2] "Rich fens in arctic and boreal areas and disjunct in a few locations farther south; Greenland; Alta., B.C., Man., Nfld. and Labr (Nfld.), N.W.T., Nunavut, Ont., Que., Yukon; Alaska, Calif., Mich., Minn., Mont., Nebr., N.J., N.Y., Oreg., S. Dak., Vt.; boreal and Arctic Eurasia" (Vitt [in Flora of North America Editorial Committee 2007]). Bogs and fens, meadows and seeps, upper montane coniferous forest, mesic soil, 1300-2500m. Locations: all are in Sierra Nevada and Cascade Range (CDFW 2013). **Presumed absent.**

Broad-nerved hump moss (*M. uliginosa*) [CRPR 2B.2] "Rich fens, moist calcareous soil banks, and soil covered rock crevices; Greenland; Alta., B.C., Man., Nfld. and Labr. (Nfld), Nunavut, N.W.T., N.S., Ont., Que., Sask., Yukon; Alaska, Calif., Colo., Mich., Mont., N.Y., Wis., Wyo.; boreal and Arctic Eurasia" (Vitt [in Flora of North America Editorial Committee 2007]). Meadows and seeps, upper montane coniferous forest, mesic soil, 1300-2500m. Locations: all are in Sierra Nevada and Cascade Range, and one in the San Jacinto Mountains (CDFW 2008). **Presumed absent.**

Shevock's copper moss (*Schizmenium shevockii*) [CRPR 1B.2] A recently described species (Shaw 2000) reported at (Santa Margarita Ecological Reserve, Riverside Co.)], from [cismontane woodland at mesic sites, on metamorphic rocks (in same habitat as *Meilichoferia elongata*)] (Jessup et al. 2001). Known from the Sierra Nevada (Fresno, Mariposa, Tulare cos.) and Southwestern California (Riverside Co.) (Norris and Shevock 2004b). "*Schizymenium shevockii* has recently been found in soutghern California on metamorphic rocks litke those occupied by *Mielichhoferia*." "Most of our collections of *Mielichhoferia elongata* come from seasonally wet metamorphic rocks, mostly ones with a high concentration of heavey metal ores, especially copper. It is often there associated with *Schizymenium shevockii* " (Norris and Shevock 2004a). Cismontane woodland, on metamorphic rocks, mesic sites, along roads, 750-1400m. Locations: all reported in central and southern Sierra Nevada, except one at Santa Margarita Ecological Reserve, Riverside Co. (CDFW 2008). **Presumed absent.**

California screw moss (*Tortula californica*) [CRPR 1B.2] "Has been reported from several counties in southern California (Norris & Shevock 2004), and is characterized by obovate leaves with smooth awns, plane margins, and smooth laminal cells" (Zander & Eckel [in Flora of North America Editorial Committee 2007]). Chenopod scrub, valley and foothill grassland, on sandy soil, 10-1460m. Locations: Elsinore Mountains (Riverside Co.); Temecula (Riverside Co.); east of Bakersfield (Kern Co.); 9 miles east of Cedarville (Modoc Co.); Garrapata State Park (Monterey Co.); Santa Rosa Id (Santa Barbara Co.) (CDFW 2008). Sagar (personal communication January 15,

2007) reports that this species occurs in the Santa Monica Mountains at Circle X Ranch, on moist soil over rocks, citing a recent collection by Wilson. **Potentially present.**

Coastal triquetrella (*Triquetrella californica*) [CRPR 1B.2] "Roadsides, hillsides, rocky slopes, fields, chaparral, low to moderate elevations (50-500m), California, Oregon." "This rare species is easily confused with *Didymodon ferrugineus*." (Zander [in Flora of North America Editorial Committee 2007]). Coastal bluff scrub, coastal scrub, on soil, 10-100m. Locations: San Vicente Reservoir (San Diego Co.); Mount Diablo (Contra Costa Co.); San Francisco (San Francisco Co.); Point Reyes National Seashore (Marin Co.); Mackerricher State Park (Mendocino Co.); Requa (Del Norte Co.) (CDFW 2008). **Potentially present.**

Bottle liverwort (*Sphaerocarpos drewei*) [CRPR 1B.1] "Soil; low elevations; known only from Calif. (San Diego County)." "This and the following species (*S. hians*) are the rarest of the North American *Sphaerocarpos*. (Timme [in Flora of North America Editorial Committee 2007]). "This is a rare and endangered species endemic to the Peninsular Ranges and coastal hills and mesas of southern California. In Riverside County, small populations occur in the San Jacinto, Santa Margarita, and Santa Rosa Mountains. In San Diego County, small populations occur on the Kearney and Otay Mesas, Soledad Mountain, and the hills and mesas between the coast and the Laguna Mountains. Habitat: Exposed and easily disturbed gravelly soil under and near chaparral, near vernal pools, margins of drainages, along dirt paths, and on road cuts. Elevation between 25 and 1450m, but mostly from 100 and 650. Distribution: endemic to southern California. Geographic Regions: South Coast." (Doyle and Stottler 2006). Chaparral, coastal scrub, on soil, 90-600m. Locations: Balboa Park, Kearney Mesa (San Diego Co.); Santa Rosa Plateau Ecological Reserve (Riverside Co.) (CDFW 2008). **Presumed absent.**

Campbell's liverwort (*Geothallus tuberosus*) [CRPR 1B.1] "*Geothallus* is a rare and endangered monotypic genus endemic to the Peninsular Ranges, and coastal hills and mesas of San Diego and Riverside counties. In San Diego County, it has been found in small, isolations from the coast, east to the northwestern slope of Cowles Mountain, and south to the border with Mexico. Many of the early collection sites in San Diego Co. have been compromised with development. In Riverside County, small populations occur in the Santa Rosa Plateau Ecological Reserve, Santa Ana Mountains. Plants should be searched for in Orange Co., as well as in northern Baja California, because populations located on the slope of the Otay Mesa and ravine slope overlooking the Tijuana River are just north of the border with Mexico. Habitat: Gravelly soil; margins of vernal pools; flat and gently sloping areas in and near chaparral, elevation from 25 to 550m. Distribution: California. Geographic Regions: South Coast." (Doyle and Stottler 2006). Coastal Scrub, vernal pools, mesic soil 10-600m. Locations: Balboa Park, Kearney Mesa (San Diego Co.); Santa Rosa Plateau Ecological Reserve (Riverside Co.) (CDFW 2008). **Presumed absent.**

Plants -- Vascular

Listed:

Lyon's Pentachaeta (*Pentachaeta lyonii*) [Status: FE/CE, CRPR 1B.1] Found in chaparral, valley and foothill grassland on edges of clearings in chaparral, usually at the ecotone between grassland and chaparral, or edges of firebreaks, 30-630m (CDFW 2013). "Endangered, coastal habitats <150m, central South Coast, (Los Angeles Co), south Channel Islands (Santa Catalina Id)" (Lane [in Hickman, ed.] 1993). "Rare, hills near lower Malibu Creek, Stunt Ranch, to Saddle rock, Otherwise known only from Wildwood Park, just north of our area. [Formerly,] Palos Verdes Hills and Santa Catalina Island" (Raven et al. 1986). Several nearby locations at Cornell, east flank of Ladyface, and westward to Triunfo Canyon Road at Lindero Road. Suitable habitat present. This species was identified at the site and adjacent to site in Zone G by Rincon Consulsants in 2007, as reported in the Agoura Village Specific Plan Updated Revised and Recirculated FEIR (August 2008). It should be noted that the subject properties were also surveyed Mr. Carl Wishner of Envicom for this species on April 17 and 18, 2008, and it was not found. **Present,** based on reported and mapped occurrence provided in the AVSP-FEIR.

Santa Susana tarplant (*Deinandra minthornii* [<=*Hemizonia m.*]) [CR, CRPR 1B.2] Found in chaparral, and coastal scrub. Generally located on sandstone outcrops and crevices, in shrubland, 280-760m. "Rare, chaparral,

300-500m, southern Western Transverse Range (Santa Susana, Santa Monica Mountains)" (Keil [in Hickman, ed.] 1993). "Rare in chaparral, Calabasas Peak, Castro Crest, Charmlee County Park, known elsewhere only in Simi Hills" (Raven et al. 1986). Nearest recorded location southwest of Cornell Road, northwest of Latigo Canyon, Santa Monica Mountains (CDFW 2007). Other location: north of Lake Sherwood, the only location on volcanic rock, and not on sandstone (Wishner collection). **Presumed absent.**

Beach spectaclepod (*Dithyrea maritima*) [CT, CRPR 1B.1] Coastal dunes, coastal scrub, seashores, on sand dunes, and sandy places near the shore, 3-50m. Nearest location: "dunes of coast near Santa Monica" (CDFW 2008). **Presumed absent.**

Marcescent dudleya (*Dudleya cymosa* ssp. *marcescens*) [FT/CR, CRPR 1B.2] Found in chaparral, generally on sheer rock surfaces and rocky volcanic cliffs, 180-520m. "Rare, shaded rocky slopes, 150-500m, south Western Transverse Ranges (western Santa Monica Mountains, Ventura Co.)" (Bartel [in Hickman, ed.] 1993). "Little Sycamore Form: Little Sycamore Canyon and upper Malibu Creek" (Raven et al. 1986). Nearest recorded location: along banks of ephemeral stream, about 1.0 mi above Seminole Hot Springs, off Cornell Road (CDFW 2007). **Presumed absent.**

Santa Monica Mountains Dudleya (*Dudleya cymosa* ssp. *ovatifolia*) (includes **Agoura Hills dudleya** (*D. c.* ssp. *agourensis*) [FT, CRPR 1B.2] Found in chaparral, coastal scrub, generally in canyons on sedimentary conglomerates; primarily on north-facing slopes, 210-500m. "Rare, shaded rocky slopes, 150-500m, south Western Transverse Ranges (western Santa Monica Mountains, Ventura Co.)" (Bartel [in Hickman, ed.] 1993). "Topanga Form: Topanga and Malibu Canyons;" "Hidden Valley Form: Old Topanga Canyon to Hidden Valley;" "Agoura Form: Agoura west to near Lake Sherwood" (Raven et al. 1986). Nearest reported location Upper Arroyo Sequit and Malibu Canyon along Malibu Canyon Road about 1.9 miles north of Highway 1, Santa Monica Mountains (CDFW 2007). *Dudleya cymosa spp. agourensis* is **Present.**

Conejo dudleya (*Dudleya parva* [<=*D. abramsii* ssp. *parva*]) [FT, CRPR 1B.2] "Rare, clay grassland, 60-450m, south Western Transverse Ranges (western Santa Monica Mountains, Ventura Co." (Bartel [in Hickman, ed.] 1993). "In rocky clay grassland near and north of Conejo Grade, the type locality. Also found in the vicinity of Arroyo Santa Rosa and Wildwood Park, just to the north" (Raven et al. 1986). Records in California Consortium of Herbaria are *all* in Ventura County, *all* north of US 101 and none are in the Santa Monica Mountains. **Presumed absent.**

Verity's dudleya (*Dudleya verityi*) [FT, CRPR 1B.2] "Rare, north-facing volcanic outcrops, 60-120m, south Western Transverse Ranges (western Santa Monica Mountains, Ventura Co." (Bartel [in Hickman, ed.] 1993). "North-facing volcanic rocky slopes from Mt. Conejo to Long Grade Canyon, the type locality. Endemic" (Raven et al. 1986). Records in California Consortium of Herbaria are *all* in Ventura County, *all* south of US 101 and *all* are in the Santa Monica Mountains. **Presumed absent.**

Braunton's Milk-vetch (*Astragalus brauntonii*) [FE, CRPR 1B.1] Generally found in chaparral, coastal scrub, valley and foothill grassland on recent burns or disturbed areas; in stiff gravelly clay soils overlying granite or limestone, 4-640m. "Rare, disturbed areas in chaparral, <450m, central South Coast, northern Peninsular Range (Los Angeles Basin)" (Spellenberg [in Hickman, ed.] 1993). "Very rare, above firebreaks, in disturbed soil, or on burns, vicinity of Temescal, Topanga and Malibu Canyons, the type locality is above Sherman Oaks" [erroneous; Sherman is the power station for the Red Car Line, located in West Los angeles?] (Raven et al., 1986). Nearest location reported on Zuma ridgeline, Zuma Canyon, Santa Monica Mountains Recreation Area (CDFW 2007). **Presumed absent.**

Ventura marsh milkvetch (*Astragalus pycnostachyus* var. *lanosissimus*) [FE, CE, CRPR 1B.1] Coastal salt marsh, within reach of high tide or protected by barrier beaches, more rarely near seeps on sandy bluffs, 1-35m. Nearest location: "meadow near seashore, Santa Monica [extirpated]. **Presumed absent.**

Coastal dunes milkvetch (*Astragalus tener* var. *titi*) [FE/CE, CRPR 1B.1] "Endangered, seasonal depressions near coast, coastal bluffs, dunes, <20m, central Central Coast, South Coast (where possibly extirpated)" (Spellenberg [in Hickman, ed.] 1993). "On vernally moist clay flats near Santa Monica, Hasse (1891) (DS)" (Raven et al. 1986). Historic records in California Consortium of Herbaria include "Santa Monica;" "near Hyde Park." **Presumed absent.**

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) [FCE, CE, CRPR 1B.1] "Sandy places, generally in coastal or desert scrub, 200-1200m, South Coast, eastern western Transverse Range, San Gabriel Mountains, extirpated from Los Angeles Basin" (Hickman [in Hickman, ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. Recently rediscovered on Laskey Mesa in the Simi Hills, and Newhall Ranch. No records in California Consortium of Herbaria for Santa Monica Mountains. **Presumed absent.**

Conejo buckwheat (*Eriogonum crocatum*) [CR, CRPR 1B.2] Found in chaparral, coastal scrub, valley and foothill grassland on Conejo volcanic outcrops; rocky sites, 50-580m. "Rare, dry rocky slopes, 50-150m, southern Western Transverse Range (northwestern Santa Monica Mountains)" (Hickman [in Hickman, ed.] 1993). Nearest location reported about 10,000 ft southwest of Lake Sherwood (fire station) on unnamed peak in upper Carlisle Canyon (CDFW 2007). **Presumed absent.**

Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*) [FE/CE, CRPR 1B.1] Coastal salt marsh, coastal dunes, limited to the higher zones of the salt marsh habitat, 0-30m. Nearest location: "near Santa Monica [extirpated]; Point Mugu (CDFW 2008). **Presumed absent.**

California Orcutt grass (*Orcuttia californica*) [FE/CE, CRPR 1B.1] "Vernal pools, <625m, Southwest (Los Angeles, Riverside, San Diego cos.), northern Baja California" (Reeder [in Hickman ed.] 1993). Not included in Raven et al. (1986). No records for Santa Monica Mountains. California Consortium of Herbaria: Moorpark, northwest corner Highway 23 and Tierra Rejada Road (*Lindsey s.n.*, July 31, 1992 [RSA554731]). Nearest location: Thousand Oaks (CDFW 2008). **Presumed absent.**

Not Listed:

Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*) [CRPR 2B.2] "Uncommon, along streams, seepage areas, 50-550m, South Coast and western Transverse ranges, San Gabriel and San Jacinto Mountains, to Arizona, southern Mexico" (Smith & Lemieux [in Hickman, ed.] 1993). "Rare, in clumps along streams, Encinal Canyon" (referring to *Kiefer 1778*, March 26, 1966 [UC1440270]) (Raven et al. 1986). Meadows and seeps, along streams, seepage areas. 50-550m. Nearest locations: Encinal canyon, about 0.5 mile from mouth; Encinal canyon, about 2 miles from coast; Lachusa canyon, about 2.5 miles from mouth (CDFW 2007). Other location: Rustic Canyon [extirpated] (Wishner observation). **Presumed absent.**

Coulter's saltbush (*Atriplex coulteri*) [CRPR 1B.2] Generally found in coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places, 10-440m. "Rare, alkaline or clay soils, open sites, coastal shrubland, <50m, South Coast, Channel Islands, Baja California" (Taylor & Wilken [in Hickman, ed.] 1993). "Rare on coastal bluffs near Point Dume (Raven et al. 1986). Nearest location: coastal bluffs at Point Dume (CDFW 2007). Other location: Malibu Bluff (Wishner, personal observation 2004). **Presumed absent.**

Davidson's saltscale (*Atriplex serenana* var. *davidsonii*) [CRPR 1B.2] Coastal bluff scrub, coastal scrub, alkaline soil, 3-250m. "Rare, bluffs, <200m, south South Coast" (Taylor & Wilken [in Hickman, ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. One record for Santa Monica Mountains in California Consortium of Herbaria: "Malibu Canyon, Las Virg[e]nes Road, 1.5 mi north of junction of Highway 1 (*Mayer & Mayer 142*, April 6, 1974 [CHSC14042)]. Nearest location: Hollywood [extirpated] (CDFW 2008). **Presumed absent.**

Estuary sea-blite (*Suaeda esteroa*) [CRPR 1B.2] "Uncommon, coastal salt marshes, <5m, South Coast, northern Mexico" (Ferren [in Hickman, ed.] 1993). "Irregularly flooded, coastal salt marsh, Mugu Lagoon, type locality" (Raven et al. 1986). Several records for Santa Monica Mountains in California Consortium of Herbaria: Mugu Lagoon, Point Mugu. **Presumed absent.**

Woolly sea-blite (*Suaeda taxifolia*) [CRPR 4.2] "Coastal bluffs, margins of salt marshes, <15m, south South Coast, Channel Islands, Baja California" (Ferren [in Hickman, ed.] 1993). "Occasional in coastal salt marshes along beaches, usually in clayey soil, along the entire coast (Raven et al. 1986). Several records for Santa Monica Mountains in California Consortium of Herbaria: "Sierra Santa Monica;" Topanga Canyon; Escondido Canyon' "northwest of Santa Monica;" Mugu Lagoon, Point Mugu. No records in CNDDB (CDFW 2013). **Presumed absent.**

Malibu baccharis (*Baccharis malibuensis*) [CRPR 1B.1] Found in coastal scrub, chaparral, cismontane woodland, in conejo volcanic substrates, often on exposed roadcuts. Sometimes occupies oak woodland habitat, 150-260m. Not included in Raven et al. (1986), or Hickman [ed.] (1993), described subsequently as a new taxon. Nearest reported location: 1/2 mile northwest of west end of lake Malibu (CDFW 2007). Site examined extensively by Mr. Wishner on April 17-18, 2008, species not found: **Presumed absent.**

Plummer's baccharis (*Baccharis plummerae* ssp. *plummerae*) [CRPR 4.3] "Uncommon, rocky slopes, woodlands, 0-425m, Central Coast, outer South Coast, South Coast, northern Channel islands, western Transverse Ranges" (Sundberg [in Hickman ed.] 1993). "Local in shaded canyons usually near the coast from the west end of the mountains to Cahuenga Pass." "A local plant that ranges north to the Santa Ynez Range and is also on Santa Cruz Island" (Raven et al. 1986). Several records in California Consortium of Herbaria for Santa Monica Mountains of Los Angeles County (Topanga, Tuna, Solstice Canyons), but none for Ventura Co? No records in CNDDB (CDFW 2013). Site examined extensively by Mr. Wishner on April 17-18, 2008, species not found: **Presumed absent.**

Southern tarplant (*Centromadia parryi* ssp. *australis* [<=*Hemizonia parryi* ssp. *a.*]) [CRPR 1B.1] Marshes and swamps (margins), valley and foothill grassland. Often disturbed sites near the coasst at marsh edges, also in alkaline soils sometimes with saltgrass. "Rare, seasonally moist slaine grasslands, <200m, South Coast, northern Baja California" (Keil [in Hickman ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. No records in California Consortium of Herbaria for Santa Monica Mountains of Los Angeles or Ventura County. Nearest location: Santa Monica; Laurel Canyon; UCLA campus (CDFW 2008). Other location: Newbury Park, north side of US 101, west of Borchard Road (Wishner collection). **Presumed absent.**

Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*) [CRPR 1B.1] "Coastal dunes, bluffs, <100m, South Coast, northwestern Baja California" (Morefield [in Hickman ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. No records in California Consortium of Herbaria for Santa Monica Mountains of Los Angeles or Ventura County. Nearest location: South Beach (1898 collection by Barber [UC57420]) (CDFW 2008). **Presumed absent.**

Coulter's goldfields (*Lasthenia glabrata* var. *coulteri*) [CRPR 1B.1] "Rare, saline places, vernal pools, <1000m, inner North Coast, Tehachapi, Sacramento Valley, northern San Joaquin Valley, San Francisco Bay, outer South Coast, South Coast, northern Channel Islands, Peninsular Range, western Mojave Desert" (Ornduff [in Hickman, ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. One record in California Consortium of Herbaria for Santa Monica Mountains: "Near Malibu, along Rosevelt (sic) Highway near the beach" (*Bauer 17532* April 30, 1933 [RSA361569]). Nearest location: Mugu Lagoon (CDFW 2008). **Presumed absent.**

Rayless ragwort (*Senecio aphanactis*) [CRPR 2B.2] Found in cismontane woodland, coastal scrub, drying alkaline flats, 20-575m. "Drying alkaline flats <400m, Central Western, South Coast, Channel Islands, Baja California" (Barkley [in Hickman, ed.] 1993). Included in Raven et al. (1986), without habitat or location information. Nearest locations: "hills near Newberry Park and Conejo grade;" "hillside on long Grade Rd., Guadalasca Ranch" (CDFW

2007). Very closely resembling, and easily mistaken for the common introduced *Senecio vulgaris*. Site examined extensively by Mr. Wishner on April 17-18, 2008, species not found: **Presumed absent.**

Suffrutescent wallflower (*Erysimum suffrutescens*) [CRPR 4.2] "Uncommon, coastal dunes, 0-150m, south Central Coast, north South Coast " (Price [in Hickman, ed.] 1993). "Rare, Point Mugu" (Raven et al. 1986). Several records for Santa Monica Mountains in California Consortium of Herbaria, at Point Mugu. No records in CNDDB (CDFW 2013). **Presumed absent.**

Small-flowered morning glory (*Convolvulus simulans*) [CRPR 4.2] "Wet clay, serpentine ridges, 30-700m, San Joaquin Valley, Central and South Coast, southern Channel Islands, Baja California" (Dempster [in Hickman, ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. One record for Santa Monica Mountains in California Consortium of Herbaria: "Brumholly Hill, Hollywood" *Davidson 2337* no date [RSA398346]). Other known location: Montclef Ridge, north of Thousand Oaks, with *California macrophylla* (Wishner collection). No records in CNDDB (CDFW 2013). Site examined extensively by Mr. Wishner on April 17-18, 2008, species not found: **Presumed absent.**

Western dichondra (*Dichondra occidentalis*) [CRPR 4.2] "Uncommon, slopes, headlands, generally under shrubs, 50-500m, South Coast, southern Channel Islands, Baja California" (Dempster [in Hickman, ed.] 1993). "Locally abundant but quite conspicuous, on bare slopes after fires, La Jolla Valley, slopes above Mugu Lagoon, lower Big Sycamore Canyon" (Raven et al. 1986). No records in CNDDB (CDFW 2013). No records for Santa Monica Mountains in California Consortium of Herbaria. **Presumed absent.**

Blochman's Dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) [CRPR 1B.1] Found in coastal scrub, coastal bluff scrub, valley and foothill grassland, open, rocky slopes; often in shallow clays over serpentine or in rocky areas w/little soil, 5-450m. "Open, rocky slopes, often serpentine or clay-dominated, <450m, south Central Coast, South Coast, northern Baja California" (Bartel [in Hickman, ed.] 1993). "Stony, open slopes, often in clay, common from near Cinejo Grade south to Long Grade Canyon, rare at Point Dume, formerly at Malibu Beach and Santa Monica Canyon; Conejo Grade is type locality of *Hasseanthus kesslerī*" (Raven et al. 1986). Nearest reported location: Point Dume, herbarium collection did not give more precise location. Common on clayey slopes in coastal sage (CDFW 2013); west slope of Conejo Mountain (Wishner, personal observation). Site examined extensively by Mr. Wishner on April 17-18, 2008, species not found: **Presumed absent.**

Round-leaf filaree (*California macrophylla* [<= *Erodium macrophyllum*]) [CRPR 1B.1] Found in chaparral, coastal scrub, cismontane woodland, valley and foothill grassland, clay soils, 15-1200m. "Open sites, grassland, shrubland, <1200m, Sacramento Valley, northern San Joaquin Valley, Central Western, South coast, northern Channel Islands (Santa Cruz Id), to southern Utah, northern Mexico" (Taylor [in Hickman, ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. Nearest reported location: Malibu Creek State Park, exact location unknown; in duff and in shade of *Quercus agrifolia,* 2001 documentation by Reiser included in this location. Described in source as a "handful of individuals." A 1918 collection by Peirson from "along road to Brents on the Malibu" also attributed here. (CDFW 2007). Other location: Montclef Ridge, north of Thousand Oaks, with *Convolvulus simulans* (Wishner collection). Site examined extensively by Mr. Wishner on April 17-18, 2008, species not found: **Presumed absent.**

Mud nama (*Nama stenocarpum*) [CRPR 2B.2] "Intermittently wet areas, <500m, Southwest, to Texas" (Bacon [in Hickman, ed.] 1993). "Rare, on wet heavy soil, Sawtelle, Santa Monica" (Raven et al. 1986), probably referring to "Soldiers Home" records in California Consortium of Herbaria. Nearest locations: Sawtelle; Santa Monica (CDFW 2008). **Presumed absent.**

California walnut (*Juglans californica*) [CRPR 4.2] "Uncommon, slopes, canyons, 50-900m, South Coast, southern Transverse Ranges, northern Peninsular Ranges (Santa Ana Mountains)" (Wilken [in Hickman, ed.] 1993. "Throughout the area in southern oak woodland or in chaparral, on north slopes or otherwise moist situations"

(Raven et al. 1986). No records in CNDDB (CDFW 2013), except those associated with Walnut Woodlands. **Present**, one individual along Agoura Road.

Fragrant pitcher sage (*Lepechina fragrans*) [CRPR 4.2] "Uncommon, chaparral, <1100m, South Coast, Northern Channel Islands (Averett [in Hickman, ed.] 1993). "On moist, higher slopes and in canyons leading to the sea in the western portion of the range and north-facing slope of Boney Mountain (Raven et al. 1986). Two records in California Consortium of Herbaria for Santa Monica Mountains of Los Angeles County; Los Alisos Canyon (*Epling s.n.* May 30, 1931 [UD457317]); "Santa Monica Mountains" (*Howe 2229* June 15, 1952 [SD44965]), (all others are restricted to Santa Catalina Id, and San Gabriel Mountains. Several California Consortium of Herbaria records for western Santa Monica Mountains of Ventura Co. Other nearby location: Along Yerba Buena Road, 0.25 mi east of Ventura Co line in Los Angeles Co (Wishner, observation). No records in CNDDB (CDFW 2013). **Presumed absent.**

Red sand-verbena (*Abronia maritima*) [CRPR 4.2] "Coastal dunes, <1000m, south South Coast, South Coast, Baja California" (Spellenberg [in Hickman, ed.] 1993). "Local colonies along the coast, coastal strand, from Point Dume west" (Raven et al. (1986). No records in CNDDB (CDFW 2013). California Consortium of Herbaria: "Santa Monica" (*Crawford & Hiatt s.n.,* March 30, 1916 [POM737]); "Topango Canyon" (*Crawford & Hiatt s.n.,* March 28, 1916 [POM744]); "Malibu Lagoon State Park" (*Keys 83,* May 25, 1981 [RSA651287]); "South Santa Monica" (*Barber 25,* January 25, 1907 [UC7607]); "Point Mugu" (*Zembal s.n.,* May 21, 1977 [RSA678659]). **Presumed absent.**

Lewis' evening-primrose (*Camissoniopsis lewisii*) [CRPR 3] Valley and foothill grassland, coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, sandy or clay soil, 0-300m. "Rare, grassland, sandy or clay soils, coastal 0-300m, South Coast, western Peninsular Range, northern Baja California, related to *C. bistorta*; *C. micrantha* misapplied" (Wagner [in Hickman, ed.] 1993). "Rare, Point Dume" (Raven et al. 1986). No records in CNDDB (CDFW 2013). No records in California Consortium of Herbaria for Santa Monica Mountains of Los Angeles or Ventura Counties. **Potentially present.**

Fish's milkwort (*Polygala cornuta* var. *fishiae*) [CRPR 4.3] "Uncommon, chaparral, oak woodland, 100-1100m, south outer South Coast, Transverse, Peninsular ranges, northern Baja California (Wilken [in Hickman, ed.] 1993). "Rare, on shaded slopes, chaparral or dense southern oak woodland; Triunfo Canyon, Topanga Canyon, Cold Creek Canyon, Tapia Park, Crater Camp" (Raven et al. 1986). Several records in California Consortium of Herbaria for Santa Monica Mountains. No records in CNDDB (CDFW 2013). **Presumed absent.**

Ojai navarretia (*Navarretia ojaiensis*) [proposed addition to CRPR 1B.1] In late 2007, this new annual species in the Phlox family was described by Leigh Johnson (*Novon* 17(4):454-461). It is currently known from approximately 10 occurrences, with only two having been documented in the last 37 years (specimens previously were unrecognized as a distinct taxon, being assigned to *N. jaredii*). All of the ten documented occurrences are located in Ventura County in the Santa Clara River Valley, Santa Clarita Valley, and Santa Susana Mountains, but there are three "undocumented/unconfirmed" reports from the Santa Monica Mountains of Los Angeles County. Johnson reports the habitat as "dry clay soils on native perennial grassland in openings of chaparral." At least one occurrence is found in grassy openings within dense, coastal sage scrub habitat dominated by purple sage. Elevations are reported from 275-620m. These types of habitat are generally present at the project site, and the potential presence of this species, considered remote, cannot be discounted. An unidentified navarretia was found at the site in December 2013. **Potentially present.**

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) [CRPR 1B.1] Found in coastal scrub, chaparral, generally on dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland; dry, sandy soils, 40-1705m. "Sandy places, generally in coastal or desert scrub, 300-1200m, central and eastern South Coast, eastern Transverse Range, northwestern edge of Sonoran Desert" (Hickman [in Hickman, ed.] 1993). Not included in Raven et al. (1986) flora of Santa Monica Mountains. No records in California Consortium of Herbaria for Santa

Monica Mountains of Los Angeles County, and none anywhere in Ventura County, Nearest location: west side of mouth of Latigo Canyon, 3 miles northeast of Point Dume. Collection by Thomas, 1957 (herb), in an article by Reveal and Hardman. **Presumed absent.**

Wheeler's spineflower (*Chorizanthe wheeleri*) [CRPR 4.3] "Uncommon, non-serpentine chaparral, <600m, northern Channel Islands (Santa Cruz, Santa Rosa ids)" (Hickman [in Hickman, ed.] 1993). "A plant of dry chaparral, reported in the Santa Monica Mountains by Munz (1974)" (Raven et al. 1986). "Uncommon, non-serpentine chaparral, <600m, closely related to *C. staticoides*, stamen number (6) is unique in the complex" (Hickman [in Hickman, ed.] 1993). No records in CNDDB (CDFW 2013). No records in California Consortium of Herbaria for Los Angeles or Ventura Counties. **Presumed absent.**

California spineflower (*Mucronea californica*) [CRPR 4.2] "Coastal scrub, chaparral, in sandy soils below <1400m, south Central Western and Southwest California" (Hickman [in Hickman, ed.] 1993). "Sandy flats behind Point Dume" (Raven et al. 1986), probably referring to *Thompson 14318* June 4, 1959 (RSA127919). Other known locations: Tierra Rejada Hills, Moorpark, northeast corner of New Los Angeles Ave and SR 23, Ventura Co. [extirpated] (Wishner collection); Santa Susana Mountains, Grimes Canyon (Wishner collection). No records in CNDDB (CDFW 2013). **Probably absent.**

Brewer's calandrinia (*Calandrinia breweri*) [CRPR 4.2] " Uncommon, sandy to loamy soil, disturbed places, burns, <1200m, North Coast, central Sierra Nevada foothills, San Francisco Bay area, Outer South Coast, South Coast, western Transverse, Baja California. Like *C. ciliata*" (Kelley [in Hickman ed.] 1993). "Burned or disturbed areas in chaparral, scattered throughout (Raven et al. 1986)." Several records in Consortium of California Herbaria for Santa Monica Mountains of Los Angeles County, as at Mandeville Canyon, Los Alisos Canyon, and Zuma Canyon (but none for Ventura Co.). Also, north of Lake Sherwood (Ventura Co.) (Wishner collection). Easily mistaken as *C. ciliata.* **Presumed absent.**

Seaside cistanthe (*Cistanthe maritima*) [CRPR 4.2] "Uncommon, sandy soil, sea bluffs, <300m, South coast, Channel Islands, Baja California" (Kelley [in Hickman ed.] 1993). "Rare, Santa Monica, *Parry 713* (DS)" (Raven et al. 1986). No records in CNDDB (CDFW 2013). No records in Consortium of California Herbaria for Santa Monica Mountains of Los Angeles or Ventura counties. **Presumed absent.**

Dune larkspur (*Delphinium parryi* ssp. *blochmaniae*) [CRPR 1B.2] Found in chaparral, coastal dunes (maritime), generally on rocky areas and dunes. 30-375m. "Rare, coastal chaparral, sand, 0-200m, south Central Coast" (Warnock [in Hickman ed.] 1993). "Subspecies *blochmaniae* occurs in Long Grade Canyon-formerly known only from the area between Nipomo Mesa, San Luis Obispo Co., and Lompoc, Santa Barbara Co." (Raven et al. 1986). East side of Highway 23 just south of Lake Eleanor, south of Thousand Oaks, east side of road. Mapped within oak woodland. Only source of information for this site is map from Lake Eleanor Open Space area by Westec Services, Inc. provided by Burgess (CDFW 2007). All Delphinium parryi observed are blue flowered, hence the nominate subspecies. **Presumed absent.**

Island mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*) [CRPR 4.3] "Uncommon, chaparral, <600m, Channel Islands (except San Clemente Id), and Western Transverse Ranges." (Lis [in Hickman, ed.] 1993). No records in CNDDB (CDFW 2013). "Plants with leaves more than 3cm long and with 6-10 lateral veins on each side of the midrib, thus like the Channel Island var. *blanchaea* (sic) occur above 1800 ft in the Saddle Rock area" (Raven et al. 1986). Four collections, two each from two locations were collected by Brian Vanden Huevel on May 8, 2003, and these are on deposit at UCD. One location is Santa Monica Mountains, in gulch at northwest corner of Mulholland Hwy. and Little Sycamore Canyon Rd (UCD22488, UCD22489); Santa Monica Mountains. On Decker Rd., 1 mile north of junction of Mulholland Hwy. and Decker Rd (UCD22490, UCD22491). According to Lis, var. *betuloides* has "leaf blade with 4-7 lateral veins, 1-4cm long," whereas, var. *blancheae* has "6-12 lateral veins, and blades 2-8cm." Thus, there is some overlap in diagnostic characters for plants with 6-7 lateral veins and leaves 2-

7cm long. The only other mainland collections are from La Purissima Hills near Lompoc, by same collector. **Presumed absent.**

Southern mountain misery (*Chamaebatia australis*) [CRPR 4.2] "Dry slopes in chaparral, 300-700m, southern Peninsular Ranges, northern Baja California" (Rosatti [in Hickman ed.] 1993). Santa Monica Mountains are outside of this reported range, although Raven et al. (1986) report "rare on north-facing slopes in volcanic substrate; Rocky Oaks, *Thomas 441* (LA)."[17] No records in CNDDB (CDFW 2013). **Presumed absent.**

Mesa horkelia (*Horkelia cuneata* var. *puberula*) [CRPR 1B.1] Chaparral, cismontane woodland, coastal scrub, sany or gravelly sites, 70-810m. Nearest location: "Sepulveda Blvd, nw of Sunset Blvd [extirpated]; Griffith Park (CDFW 2008). **Presumed absent.**

Santa Barbara bedstraw (*Galium cliftonsmithii*) [CRPR 4.3] "Uncommon, light shade, upper parts of canyons, to ocean, 200-1220m, outer South Coast and Western Transverse Ranges (Dempster [in Hickman ed.] 1993). Reported from light shade under coast live oak (Munz 1974) Raven et al. (1986), probably citing *Munz & Harwood 4013*, May 15, 1920 (POM9650), from "Sepulveda Canyon." Also, from "Los Flores Canyon", *Ewan 1251*, May 18, 1929 (POM183470). No records in CNDDB (CDFW 2013). **Presumed absent**; all plants observed on-site are *G. nuttallii.*

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) [CRPR 4.2] "Moist saline places (saltmarshes, alkaline seeps), generally <300m, Central Coast, South Coast, southern Channel Islands, Sonoran Desert, to Arizona, Baja California, South America, South Africa" (Swab [in Hickman, ed.] 1993). "Frequent about seepages and by coastal salt marshes along the entire coast" (Raven et al. 1986). Records reported in Consortium of California Herbaria for Santa Monica Mountains: "coast highway opposite Canfield's, Pacific Palisades" (*Raven & Thompson 14556*, October 4, 1959, [RSA126744]); "west of Point Mugu" (*Raven & Thompson 14570*, October 4, 1959, [RSA133792]); "Point Mugu" (*Zembal s.n.*, May 25, 1977 [RSA 678683]. No records in CNDDB (CDFW 2013). **Presumed absent.**

Ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) [CRPR 4.2] "Uncommon, yellow pine forest and openings, <1800m, outer South Coast, Southwest California (Skinner [in Hickman, ed.] 1993)." ("Locally common along more or less shaded streams in southern oak woodland, away from the immediate coast, vicinity of Rustic Canyon and westward" (Raven et al. 1986). Only two records reported in Consortium of California Herbaria for Santa Monica Mountains: *Hiatt s.n.*, June 3, 1916, [POM1732] location not specific); Circle X Ranch *Gorelick s.n.* June 18, 1966 [RSA337145]. More common than limited collections would suggest. Nearest locations: Mouth of Arroyo Sequit (Wishner observation); Yerba Buena Road at Cotharin Road (Wishner observation); Leo Carrillo State Beach (Wishner observation). No records in CNDDB (CDFW 2013). **Presumed absent.**

Catalina mariposa lily (*Calochortus catalinae*) [CRPR 4.2] "Uncommon, heavy soil, open grassland or shrubland, <700m, south Central Coast, west South Coast, especially Channel Islands" (Fiedler & Ness [in Hickman, ed.] 1993)." "Very common, especially in grassland and coastal sage scrub, and especially conspicuous after fires, at low elevations throughout" (Raven et al. 1986). No records in CNDDB (CDFW 2013). **Present.**

Slender mariposa-lily (*Calochortus clavatus* var. *gracilis*) [CRPR 1B.2] Found in shaded foothill canyons; often on grassy slopes within other habitat. 420-760. Interestingly, this taxon has not previously been reported from the Santa Monica Mountains. In the Jepson Manual (Fiedler & Ness [in Hickman (ed.) 1993]), it is reported as "uncommon, shaded foothill canyons, <100m, [only from the] San Gabriel Mountains." Over the last several years, Wishner has observed plants referable to this variety in the Santa Susana Mountains from the vicinity of Rocky Peak, and westward to Grimes Canyon, and in the Topatopa Range north of Santa Paula. Nearest location: northeast of entrance to Stokes Canyon, exact location unknown, mapped by CNDDB as best guess in general vicinity of

[17] This record is not included in Consortium of California Herbaria, since UCLA is not yet a participant.

Stokes Canyon. Elevation given as 600-800 feet. Only source of information for this occurrence is a 1959 collection by Everett & Balls (CDFW 2007). **Presumed absent.**

Plummer's mariposa-lily (*Calochortus plummerae*) [CRPR 4.2] Found in coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Generally occurs on rocky and sandy sites, usually of granitic or alluvial material. It can be very common after fire. 90-1610m (CDFW 2013). "Rare, dry rocky chaparral, yellow pine forest, <1700m, South Coast, Peninsular Range" (Fiedler & Ness [in Hickman (ed.) 1993]). "Scattered and local on rocky slopes at low elevations away from the coast, throughout" (Raven et al. 1986). Nearest reported location: Mandeville Canyon; Stokes Canyon; Decker Canyon, Lake Sherwood; Willow Creek (Leo Carrillo State Beach); Topanga Canyon; Triunfo Pass (CDFW 2008). **Presumed absent.**

Chaparral nolina (*Nolina cismontana*) [CRPR 1B.2] Chaparral, coastal scrub, primarily on sandstone and shale substrates, also known from gabbro, 140-1275m. Not included in Raven et al. (1986), or Hickman [ed.] (1993), described subsequently as a new taxon. All records in California Consortium of Herbaria for Ventura County are in Simi Hills and Santa Susana Mountains, none in Santa Monica Mountains; no record for Los Angeles County. Nearest location: Palo Comado Canyon; North Ranch Open Space; Oak Canyon (CDFW 2008). **Presumed absent.**

Vernal barley (*Hordeum intercedens*) [CRPR 3.2] "Vernal pools, dry saline stream beds, alkaline flats, <1000m, Southwest, northwestern Baja California" (Barkworth [in Hickman ed.] 1993). "Along rill in dry adobe soil, northeast slopes of Conejo Mountain" (Raven et al. 1986). All records in Consortium of California Herbaria for Los Angeles and Ventura Co are located on Channel Islands. No records in CNDDB (CDFW 2013). **Presumed absent.**

Valley Needlegrass Grassland - A midheight (to 2 feet) grassland dominated by perennial, tussock-forming Nassella pulchra. Native and introduced annuals occur between the perennials, often actually exceeding the bunchgrasses in cover. Usually on fine-textured (often clay) soils, moist or even waterlogged during winter, but very dry in summer. Often found with Oak Woodlands on moister, better-drained sites (Holland, 1986). Nearest recorded location with prime example of Valley Needlegrass Grassland located on Laskey Mesa, southeast corner of Ventura County, north facing slopes south of East Las Virgenes Creek, Upper Las Virgenes Open Space Preserve (CDFW 2007). **Present.**

Insects

Not Listed:

Monarch butterfly (*Danaus plexippus*) [Status: SA, winter roost sites sensitive]. Roosting in large trees, primarily *Eucalyptus*, in winter along the coast from northern Mendocino County to Ensenada, Baja California Norte (Hogue 1993). Roost sites reported at several coastal locations, all below 350 feet elevation (data for non-sensitive locations only) (CDFW 2011). The species is **expected to forage** widely throughout the site and area, **but not roosting** in winter at this location, due to cold temperatures at higher elevations in these mountains.

Santa Monica shieldback katydid (*Neduba longipennis*) [SA]. Occurs in the Santa Monica Mountains in chaparral, riparian woodland, and grassy areas. Occurs nocturnally in chaparral and canyon stream bottom vegetation; inhabits introduced iceplant and native chaparral plants. A single record at Big Rock Canyon entrance, 2 mi. west of Topanga (type collection) (CDFW 2007). **Too little is known of the biology of this species to speculate whether it is present.**

Santa Monica grasshopper (*Trimerotropis occidentaloides*) [SA]. Endemic to the Santa Monica Mountains. Frank Hovore (personal communication November 2, 2001) reports the following locations, primarily in grassland or disturbed habitats: 8.8 km south of Thousand Oaks, at the junction of Mulholland Highway and SR 23; junction of Lechusa Rd and Encinal Canyon Rd; Kanan Road, at the pass; and 18.5 km E Oxnard, 5.3 km W Potrero Rd. junction with Reino Rd. Perhaps common along the whole crest of the western one-third of the range. Found only

on bare hillsides and along dirt trails in chaparral (CDFW 2011). **Too little is known of the biology of this species to speculate whether it is present.**

Amphibians

California red-legged frog (*Rana draytonii*) [FT, CSC]. Lowlands and foothills in or near permanent source of deep water with dense, shrubby or emergent vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat. Not seen in the Santa Monica Mountains (proper) since 1975 (De Lisle et al. 1986). Nearest reported location: Simi Hills—Ahmanson Ranch (Now Upper Las Virgenes Open Space Preserve), East Las Virgenes Creek (CDFW 2007). **Absent.**

Coast Range newt (*Taricha t. torosa*) [CSC]. Inhabits in or near streams in valley-foothill hardwood and hardwood-conifer habitats. Requires rainfall in the maintenance of breeding ponds and streams. Not reported in the project area or within the surrounding five USGS topographic quadrangles (roughly 360 sq. miles) (CDFW 2007). Limited by rainfall and discontinuous habitat. **Absent.**

Arroyo toad (*Anaxyrus californicus*) [FE, CSC]. Semi-arid regions near washes or intermittent streams, including valley foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range. Nearest reported location: Chatsworth Creek (drain), Canoga Park, below Chatsworth Reservoir; Santa Clara River, just east of I-5 (CDFW 2007). There are no historic or extant records of arroyo toad in the Santa Monica Mountains (Jennings and Hayes 1994). **Absent.**

Reptiles

Western pond turtle (*Emys marmorata*) [CSC]. Inhabits permanently or nearly permanent bodies of water in many habitat types, below 6,000 ft elev. Requires basking sites such as partial submerged logs, vegetation mats, or open mud banks. Needs suitable nesting sites. Nearest reported location: Malibu Lake; Lake Sherwood; Old Topanga Canyon; Las Virgenes Creek at Malibu Creek State Park; Trancas Canyon; Triunfo Creek; Santa Clara River CDFW 2007). Discontinuous habitat, **Absent.**

Not Listed:

Silvery legless lizard (*Anniella p. pulchra*) [CSC]. Sandy areas within other habitats, also in litter under live oaks. Reported from Malibu Canyon, Point Dume, Triunfo Canyon (De Lisle et al. 1986), and other locations in the Santa Monica Mountains (Jennings and Hayes 1994). **Presumed absent.**

Coast horned lizard (*Phrynosoma blainvilli*) [CSC]. Inhabits coastal scrub and chaparral in arid and semi-arid climates. Prefers friable, rocky, or shallow sandy soils. **Potentially occurring, resident.**

Coastal whiptail (*Aspidoscelis tigris stejnegeri*) [SA]. Open areas in the coastal sage and chaparral, generally where ground may be firm soil, sandy, or rocky. Reported from numerous locations in the Santa Monica Mountains including Triunfo Canyon (De Lisle et al. 1986). The database now gives the name as *Aspidoscelis tigris stejnegeri.* Potential occurrence considered **moderate.**

San Bernardino ringneck snake (*Diadophis punctatus modestus*) [SA]. Found in all habitats throughout the mountains. Reported from Tapia Park, Triunfo Canyon, etc. (De Lisle et al. 1986); Malibu Canyon (CDFW 2007). **Expected, resident.**

Coast patch-nosed snake (*Salvadora hexalepis virgultea*) [CSC]. Found along rocky canyons and the edges of chaparral. Reported from Malibu Canyon, Westlake, etc. (De Lisle et al. 1986). **Expected, resident.**

Two-striped garter snake (*Thamnophis hammondii*) [CSC]. Found in coastal California from vicinity of Salinas to northwest Baja California from sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth. Nearest locations: 1.6 miles nw of the intersection

of Potrero Road and north Potrero Road, se of Conejo Mountain; Triunfo Creek, nw of the intersection of Kanan Road & Triunfo Road, 2 miles nw of Malibu Lake (CDFW 2007). Also reported numerous locations including Trancas Canyon, Zuma Canyon, etc (De Lisle et al. 1986). **Presumed absent.**

San Diego mountain kingsnake (*Lampropeltis zonata pulchra*) [CSC]. Prefers canyon bottoms, but wanders to adjacent coastal sage, valley oak savanna, or southern oak woodland. Reported from Lower Malibu Canyon, Triunfo Canyon, etc. (De Lisle et al. 1986) and other locations in the Santa Monica Mountains (Jennings and Hayes 1994). **Presumed absent.**

Birds

Listed:

Least Bell's vireo (*Vireo belli pusillus*) [FE, CE]. Now a rare and local summer resident in lowland riparian woodlands, breeding in willow thickets and other dense, low riparian growth in lowlands and the lower portions of the canyons, generally along permanent or semi-permanent streams. Casual in winter (Garrett and Dunn 1981). Nesting habitat for this species essentially absent, species **potentially transient**, not nesting.

Willow flycatcher (*Empidonax traillii extimus/brewsteri*) [FE – *extimus* only / CE]. Uncommon spring transient and fairly common fall transient along the coast. Formerly breeding in riparian woodlands, but virtually extirpated from the region (Garrett and Dunn 1981), although successfully nesting in 2000 for the first time in several decades on the Santa Clara River at Fillmore (Jim Greaves pers. comm. August 13, 2000). A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats at 2000-8000 ft. in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows (Zeiner et al. 1990b). **Potential visitant, transient.**

Bank swallow (*Riparia riparia*) [CT]. Very uncommon spring transient and rare fall transient, and casual winter transient along the coast, formerly a fairly common summer resident, now virtually extirpated as a breeder in the region (Garrett and Dunn 1981). Nesting habitat for this species absent, species **potentially transient**, not nesting.

Not Listed:

Great blue heron (*Ardea herodias*) [SA]. Fairly common resident throughout most of the region (Garrett and Dunn 1981). Nearest location: Lake Sherwood (rookery, Wishner, personal observation). **Expected, resident, not nesting.**

Great egret (*Ardea alba*) [SA]. Fairly common winter visitant along the coast (Garrett and Dunn 1981). **Expected, winter visitant.**
Snowy egret (*Egretta thula*) [SA]. Common winter visitant along the coast (Garrett and Dunn 1981). **Expected, winter visitant.**

American bittern (*Botaurus lentiginosus*) [SA]. Primarily a winter visitant, uncommon in coastal district (Garrett and Dunn 1981). **Expected, winter visitant.**
Western least bittern (*Ixobrychus exilis hesperis*) [CSC]. Rather rare throughout the year in coastal district (Garrett and Dunn 1981). **Expected, rare visitant.**

Black-crowned night-heron (*Nycticorax nycticorax*) [SA]. Fairly common but local resident in coastal district (Garrett and Dunn 1981). **Expected, occasional visitant.**

Canvasback (*Aythya valisneria*) [SA]. Fairly common winter visitant in all districts (Garrett and Dunn 1981). **Potential casual visitant, especially winter.**

Northern harrier (*Circus cyaneus*) [CSC]. Fairly common winter visitant to open grasslands, agricultural fields, freshwater and coastal salt marshes, estuaries, open desert and brushlands in all districts (Garrett and Dunn 1981). **Expected, winter visitant.**

Sharp-shinned hawk (*Accipiter striatus*) [SA]. Fairly common winter visitant in all districts, and fall transient moving along coastal ridges and promontories (Garrett and Dunn 1981). Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers, but not restricted to, riparian habitats. North facing slopes, with plucking perches are critical requirements. All habitats except alpine, open prairie, and bare desert used in winter (Zeiner et al. 1990b). **Expected, winter visitant or transient.**

Cooper's hawk (*Accipiter cooperi*) [SA]. Uncommon permanent resident, augmented by fall transients in the coastal district (Garrett and Dunn 1981). Dense stands of live oak, riparian deciduous, or other forest habitats near water used most frequently (Zeiner et al. 1990b). **Expected, resident, potentially nesting.**

Ferruginous hawk (*Buteo regalis*) [SA]. Rare to uncommon along the coast (Garrett and Dunn 1981). Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats (Zeiner et al. 1990b). **Potential visitant, transient.**

Golden eagle (*Aquila chrysaetos*) [CFP]. Uncommon resident, favoring grasslands, brushlands, deserts, oak savannahs, open coniferous forest, and montane valleys, nesting in rugged, mountainous country (Garrett and Dunn 1981). **Expected, resident, not nesting on property.**

Merlin (*Falco columbarius*) [SA]. Uncommon fall transient and rare winter visitant. Fall migrants often pass along the immediate vicinity of the coast (e.g., over coastal estuaries) (Garrett and Dunn 1981). Seldom found in heavily wooded areas, or open deserts. Frequents coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats (Zeiner et al. 1990b). **Potential visitant, transient.**

Prairie falcon (*Falco mexicanus*) [SA]. Rare visitant to the coastal slope. Birds of open regions, shunning heavily wooded areas. Open desert scrub and grasslands are preferred, with some shifting into agricultural areas during winter (Garrett and Dunn 1981). Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas (Zeiner et al. 1990b). **Expected resident, probably not nesting on property.**

White-tailed kite (*Elanus leucurus*) [CFP]. Uncommon to locally fairly common resident in coastal district (Garrett and Dunn 1981). **Expected, occasional visitant.**

California gull (*Larus californicus*) [SA]. Abundant winter visitant throughout the coastal district. An opportunistic bird which occupies a broad range of habitats; a common gull of urban centers in winter (Garrett and Dunn 1981). **Potential visitant, transient.**

Burrowing owl (*Athene cunicularia*) [CSC]. Resident in open areas of the lowlands throughout much of the region, greatly reduced in numbers and now quite local in the coastal district (Garrett and Dunn 1981). Nearest reported location: Simi Hills--Laskey Mesa; Santa Susana Mountains—Dry Canyon. **Potential visitant, transient.**

Long-eared owl (*Asio otus*) [CSC]. Very rare transient and winter visitant along the coast (Garrett and Dunn 1981). Riparian habitat required; also uses live oak thickets and other dense stands of trees (Zeiner et al. 1990b). **Potential visitant, transient.**

Short-eared owl (*Asio flammeus*) [CSC]. Uncommon and local winter visitant along the coast, where it formerly nested. Wintering locations include Point Mugu, Sepulveda basin (Garrett and Dunn 1981). Usually found in open

areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands (Zeiner et al. 1990b). **Potential visitant, transient.**

Black swift (*Cypseloides niger*) [CSC]. Rare and irregular transient through coastal district, nesting at a few steep waterfall locations in the San Gabriel, San Bernardino, and San Jacinto mountains (Garrett and Dunn 1981). Breeds very locally in the Sierra Nevada and Cascade Range, the San Gabriel, San Bernardino, and San Jacinto Mts., and in coastal bluffs and mountains from San Mateo Co. south probably to San Luis Obispo Co. Nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats (Zeiner et al. 1990b). **Potential visitant, transient.**

Vaux's swift (*Chaetura vauxi*) [CSC]. Fairly common spring and fall transient in southern California, and rare and irregular winter visitant, primarily along the coast (Garrett and Dunn 1981). A summer resident of northern California. Breeds fairly commonly in the Coast Ranges from Sonoma Co. north, and very locally south to Santa Cruz Co.; in the Sierra Nevada; and possibly in the Cascade Range. Prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out stubs. Fairly common migrant throughout most of the state in April and May, and August and September. A few winter irregularly in southern coastal lowlands (Zeiner et al. 1990b). **Potential visitant, transient.**

Rufous hummingbird (*Selasphorus rufus*) [SA]. Fairly common to common spring transient, uncommon fall transient, and casual winter visitant[18] along the coast. In spring passage, particularly fond of flowering Eucalyptus trees and other exotic plantings, and native chaparral plants. In fall, birds along the coast are partial to flowering tree tobacco (Garrett and Dunn 1981). **Potential visitant, transient.**

Allen's hummingbird (*Selasphorus sasin*) [SA]. Breeds on the immediate coast south to Ventura County, and on the Palos Verdes peninsula, Los Angeles County. Increasing numbers found in the Los Angeles area, as at Malibu, Marina Del Rey, Newport (Garrett and Dunn 1981). **Expected, resident.**

Costa's hummingbird (*Calypte costae*) [SA]. Fairly common to uncommon breeder in the coastal district (Garrett and Dunn 1981). **Expected, possible resident.**

Lewis' woodpecker (*Melanerpes lewis*) [SA]. Irregularly fairly common winter visitant in the interior portions of the coastal district (Garrett and Dunn 1981). **Potential visitant, transient.**

Nuttall's woodpecker (*Picoides nuttallii*) [SA]. Common resident in woodlands in most of the coastal district (Garrett and Dunn 1981). **Observed resident, possibly nesting.**

Red-breasted sapsucker (*Sphyrapicus ruber*) [SA]. Uncommon to locally fairly common winter visitant in the coastal district (Garrett and Dunn 1981). **Potential visitant, transient.**

Olive-sided flycatcher (*Contopus cooperi*) [CSC]. Uncommon spring and fall transient in lowlands. Breed primarily in open coniferous forests, but also descend wooded canyons well into the foothill portions of the coastal district. Plantings of tall trees of conifers and Eucalyptus form a marginally acceptable breeding habitat locally within the coastal district (Garrett and Dunn 1981). **Potential visitant, transient.**

Loggerhead shrike (*Lanius ludovicianus*) [CSC]. Fairly common resident in open areas throughout the region (Garrett and Dunn 1981). A common resident and winter visitor in lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas, but often

[18] Winter birds indistinguishable in field from Allen's hummingbird (Garrett and Dunn 1981).

found in open cropland. Sometimes uses edges of denser habitats (Zeiner et al. 1990b). **Expected, resident, potentially nesting.**

Purple martin (*Progne subis*) [CSC]. Rather rare and very local summer resident in woodlands of the foothill portions of coastal district; also a rare spring transient. For nesting, they utilize old, tall sycamores, pines, etc., often within oak woodland or open conifer forest (Garrett and Dunn 1981). **Potential visitant, transient.**

Oak titmouse (*Baeolophus inornatus*) [SA]. Common resident in oak and oak-conifer woodlands in coastal district. **Observed, resident, possibly nesting.**

Virginia's warbler (*Oreothlypis virginiae*) [SA]. Rare but regular vagrant or transient in the lowlands, primarily in fall, usually in low brush such as fennel and tree tobacco (Garrett and Dunn 1981). **Potential visitant, transient.**

Hermit warbler (*Setophaga occidentalis*) [SA]. Fairly common transient in spring along coast, and rare winter visitant, preferring tall shaded woodlands of live oaks, and planted conifers (Garrett and Dunn 1981). **Potential visitant, transient.**

Yellow warbler (*Setophaga petechia brewsteri*) [CSC]. Common transient throughout region, and uncommon to locally common summer resident in lowland and foothill riparian woodlands, remaining rarely but regularly in lowlands in winter. Breed in tall riparian growth of cottonwoods, alders, willows, etc. (Garrett and Dunn 1981). **Potential visitant, transient.**

Yellow-breasted chat (*Icteria virens*) [CSC]. Uncommon and local summer resident in riparian thickets and brushy tangles of the lowlands and lower portions of foothill canyons (Garrett and Dunn 1981). **Potential visitant, transient.**

Tricolored blackbird (*Agelaius tricolor*) [CSC]. Local resident in coastal district, common where it occurs (Garrett and Dunn 1981). Nearest reported location: Chatsworth Reservoir, Lake Sherwood (CDFW 2007). **Probably absent.**

California horned lark (*Eremophila alpestris actia*) [SA]. Common transient and winter visitant in coastal district, remaining to nest locally (Garrett and Dunn 1981). **Expected,winter visitant, transient.**

Summer tanager (*Piranga rubra*) [CSC]. Rare, but regular in fall, winter, and late spring along the coast, mostly from Los Angeles Co. southward (Garrett and Dunn 1981). Frequents cottonwood-willow associations of riparian habitats for breeding, feeding, cover, and other activities (Zeiner et al. 1990b). **Potential visitant, transient.**

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) [SA]. Fairly common resident in suitable habitat [coastal sage scrub] through most of the coastal district (but largely absent from the coast north of Point Mugu) (Garrett and Dunn 1981). Frequents relatively steep, often rocky hillsides with grasses and forb patches. **Expected, potential resident, nesting.**

Chipping sparrow (*Spizella passerina*) [SA]. Fairly common transient throughout the lowlands, although rather uncommon on the immediate coast north of Los Angeles Co. (Garrett and Dunn 1981). A common migrant and summer visitor throughout most of California, excluding Central Valley, southern deserts, and alpine areas. Winters less commonly in Central Valley and southern California lowlands. Prefers open wooded habitats with a sparse or low herbaceous layer and few shrubs, if any. Although apparently requires trees for resting and singing, and prefers trees for nesting, often forages in nearby herbaceous and open shrub habitats, including dry margins of wet meadows. Less common in breeding season in southern and interior foothills than in montane habitats, northern coastal ranges, and Great Basin. Fairly common in Imperial and Colorado River valleys in winter, but rare elsewhere. May breed or winter in orchards (Zeiner et al. 1990b). **Potential visitant, transient.**

Brewer's sparrow (*Spizella breweri*) [SA]. Uncommon fall transient and rare spring transient along the coast. Now mostly absent from former breeding grounds in southwestern California (Garrett and Dunn 1981). **Potential visitant, transient.**

Bell's sage sparrow (*Amphispiza belli belli*) [SA]. Uncommon to fairly common but local resident in dense, dry chaparral in foothills of coastal district. Occurs locally close to the coast, as in the coastal ridges of the Santa Barbara area and in the western Santa Monica Mountains. Sage sparrows require vegetation of little complexity. Nominate *belli* breeds in low, dense chamise chaparral and in dry coastal sage scrub, often with stands of cactus (Garrett and Dunn 1981). **Potential resident, nesting.**

Lark sparrow (*Chondestes grammacus*) [SA]. Uncommon to fairly common breeder through much of its range in the coastal district (Garrett and Dunn 1981). **Expected, potentially nesting.**

California gray-headed junco (*Junco hyemalis caniceps*) [SA]. Rare to uncommon winter visitant throughout the region, and fall transient along the coast (Garrett and Dunn 1981). The gray-headed race breeds locally in White and Grapevine Mts., and on Clark Mountain in southeastern California (McCaskie et al. 1979). **Potential visitant, transient.**

Lawrence's goldfinch (*Spinus lawrencei*) [SA]. Fairly common summer resident in the coastal district (Garrett and Dunn 1981). Typical habitat includes valley foothill hardwood and conifer woodland, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Breeds in open oak or other arid woodland and chaparral, near water. Rarely breeds along immediate coast (Zeiner et al. 1990b). **Potential resident, nesting.**

Mammals

Not Listed:

Mexican long-tongued bat (*Choeronycteris mexicana*) [CSC]. Range of the species extends along coastal southern California from western Ventura County southward (Constantine 1998). Primarily nectar feeding species migrates to follow flowering food plants, esp. Agave and Yucca. Winters in Mexico and northern Central America. Uses caves, mines and buildings as day roosts and nursery sites. ***All* of the bat species discussed here are considered potentially present**, primarily foraging above ground, and perhaps roosting in trees thereon or adjacent. No additional speculation is provided below for the bats.

Fringed myotis (*Myotis thysanodes*) [SA]. Occurs in a wide variety of habitats from sea level to 9350 feet. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Long-eared myotis (*Myotis evotis*) [SA]. Has been found in nearly all brush, woodland, and forest habitats from sea level to 9,000 feet. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Small-footed myotis (*Myotis ciliolabrum*) [SA]. Occurs in a wide variety of habitats, especially woodland and brushlands near water from sea level to 8900 feet. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Yuma myotis (*Myotis yumanensis*) [SA]. Found in a wide variety of habitats from sea level to 11,000 feet. Optimal habitats are open forests and woodlands with sources of water over which to feed. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Cave myotis (*Myotis velifer velifer*) [CSC]. Found during warm months in California near the Colorado River. Three specimens from Los Angeles County (Valencia, Florence, Lancaster) extend the range of the species to coastal southern California (Constantine 1998).

Hairy-winged (Long-legged myotis) (*Myotis volans*) [SA]. Woodland, forest, chaparral, coastal sage scrub, desert scrub and grassland habitats from sea level to 11,400 feet. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Western red bat (*Lasiurus blossevillii frantzii*) [CSC]. Roosts in forests and woodlands, and feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a). Foliage-dwelling, migratory bat occurs in California's Central Valley, foothills, and in similar areas of tree growth in southern California (Constantine 1998).

Western yellow bat (*Lasiurus xanthinus*) [CSC]. Occurs in foothill riparian and desert riparian, wash, and oasis habitats (Zeiner et al. 1990a). Range extends to coastal southern California Los Angeles (Azusa, Inglewood, Glendale) and San Bernardino County southward (Constantine 1998).

Spotted bat (*Euderma maculatum*) [CSC]. Mostly in foothills and mountains and desert regions of southern California, in a range of habitats from desert and grasslands through mixed conifer forest. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Pale big-eared bat (*Corynorhinus townsendii pallescens*) [CSC]. Found in a wide variety of habitats except subalpine and alpine. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Pallid bat (*Antrozous pallidus pacificus*) [CSC]. Occurs in a wide variety of habitats including grasslands, shrublands, woodlands and forests from sea level to mixed conifer forests. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Western mastiff bat (*Eumops perotis californicus*) [CSC]. Occurs in many open habitats including woodlands, coastal scrub, grasslands, chaparral, desert, and urban. Range in California includes Santa Monica Mountains (Zeiner et al. 1990a).

Big free-tailed bat (*Nyctinomops macrotis*) [CSC]. Range (scattered records) extends from San Francisco Bay to Morro Bay, Santa Barbara, and coastal southern California from Los Angeles (Azusa, Burbank, Pomona) and San Bernardino counties southward (Constantine 1998).

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) [CSC]. Inhabits desert scrub, coastal scrub and early stages of forest and chaparral habitats (Zeiner et al. 1990a). Potential to occur considered **low, resident.**

San Diego desert woodrat (*Neotoma lepida intermedia*) [CSC]. Occurs in a variety of habitats from sea level to 8500 feet (Zeiner et al. 1990a). West edge of Pepperdine University campus, Malibu (CDFW 2007). **Observed,** (scat on rock outcrops throughout subject property), **Expected, resident.**

Ringtail (*Bassariscus astutus octavus*) [CFP]. Occurs in various riparian habitats, and in brush stands of most forest and shrub habitats (Zeiner et al. 1990a). **Presumed absent.**

American badger (*Taxidea taxus neglecta*) [CSC]. Occurs in a diversity of habitats throughout California, except the extreme northern coast (Williams 1986; Zeiner et al. 1990a). **Expected, resident.**

EXCLUDED SPECIES

The following sensitive species are known to occur in the Santa Monica Mountains, but are considered not to have any potential to occur on the subject property, based on habitat considerations alone (federal or state listed threatened or endangered species indicated by asterisk):

Snails

Mimic tryonia (*Tryonia imitator*)

Spiders

Gertsch's socalchemis spider (*Socalchemis gertschi*)

Insects

Sandy beach tiger beetle (*Cicendela hirticollis gravida*)
Globose dune beetle (*Coelus globosus*)

Fishes

Arroyo chub (*Gila orcutti*)
*Southern steelhead (*Oncorhynchus mykiss irideus*)
*Tidewater goby (*Eucycloglobius newberryi*)

Amphibians

None

Reptiles

None

Birds

California brown pelican (*Pelecanus occidentalis californicus*)
*California black rail (*Laterallus jamaicensis coturniculus*)
*Light-footed clapper rail (*Rallus longirostris levipes*)
*Western snowy plover (*Charadrius alexandrinus nivosus*)
*California least tern (*Sternula antillarum browni*)
Common loon (*Gavia immer*)
American white pelican (*Pelecanus erythrorhynchos*)
Double-crested cormorant (*Phalacrocorax auritus*)
Harlequin duck (*Histrionicus histrionicus*)
Osprey (*Pandion haliaetus*)
*Bald eagle (*Haliaeetus leucocephalus*)
Black oystercatcher (*Haematopus bachmani*)
Long-billed curlew (*Numenius americanus*)
Elegant tern (*Thalasseus elegans*)
Forster's tern (*Sterna forsteri*)
Black tern (*Chlidonia niger*)
Black skimmer (*Rhynchops niger*)
Rhinoceros auklet (*Cerorhinca monocerata*)
*Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)
Large-billed savanna sparrow (*Passerculus sandwichensis rostratus*)
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)

Mammals

Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)
Southern marsh harvest mouse (*Reithrodontomys megalotis limicola*)

Appendix 4
Preliminary Grading and Drainage Plan, DTR Engineering, November 2008

envicom
CORPORATION

July 14, 2014

Rosenheim and Associates
21550 Oxnard Street, Suite 780
Woodland Hills, CA 91367

Attn: Ms. Erika Iverson

Subj: Spring 2014 Rare Plant Survey
Agoura Cornerstone Mixed-Use Project Site

Dear Ms. Iverson:

This letter provides the results of a springtime rare plant survey conducted by Envicom Corporation for the Agoura Cornerstone Mixed-Use Project site located southeast of the intersection of Agoura Road and Cornell Road in the City of Agoura Hills. In summary, three plant species considered to be rare, threatened, or endangered were found at the site during the survey, namely Agoura Hills dudleya (*Dudleya cymosa* spp. *agourensis*), Lyon's pentachaeta (*Pentachaeta lyonii*), and Ojai navarretia (*Navarretia ojaiensis*). Agoura Hills dudleya is listed as Threatened under the Federal Endangered Species Act, Lyon's pentachaeta is listed as Endangered under the Federal and California Endangered Species Acts, and Ojai navarretia receives a California Rare Plant Rank (CRPR) of 1B.1, indicating it is seriously threatened in California with over 80% of occurrences threatened and a high degree and immediacy of threat. The non-special-status but locally rare linear-leaf goldenbush (*Ericameria linearifolia*) also occurs at the site. This species was mapped during the survey, as it appears to have factored significantly in the designation of Los Angeles County Significant Ecological Area #6, which is adjacent to and also overlaps the southeastern portion of the project site.

METHODS

In preparation for the rare plant survey, a literature review was performed that included relevant lists and databases pertaining to the status and known occurrences of rare plant species. Other sources of information included aerial photographs and biological studies of the project site. The following sources were among those reviewed prior to the survey:

- Biogeographic Information and Observation System (BIOS), California Department of Fish and Wildlife (CDFW), data as of April 24, 2014;
- California Natural Diversity Database (CNDDB) Rarefind 5 report for the 7.5' USGS Thousand Oaks quadrangle and eight surrounding quadrangles, CDFW, data as of April 24, 2014;
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California report for the 7.5' USGS Thousand Oaks quadrangle and eight surrounding quadrangles, CNPS, data as of April 24, 2014; and,

- List of Special Vascular Plants, Bryophytes, and Lichens, CDFW, April 2014.

The rare plant survey was conducted by Jim Anderson, Senior Biologist, on the following dates and times and in the following conditions:

- April 24, 2014 between the hours of 10:15 a.m. and 11:00 a.m. in warm and clear conditions (low to mid-70s °F) with no wind;
- May 1, 2014 between the hours of 9:30 a.m. and 10:30 a.m. in warm and partly cloudy conditions (low-80s °F) with winds of 15 m.p.h.;
- May 30, 2014 between the hours of 9:00 a.m. and 4:30 p.m. in warm to hot and clear conditions (low 70s to high-80s °F) with winds of 0 to 10 m.p.h.; and,
- June 2, 2014 between the hours of 9:30 a.m. and 4:20 p.m. in warm to hot and clear conditions (low 70s to mid-80s °F) with winds of 5 to 10 m.p.h.

The surveys on April 24 and May 1, 2014 consisted of a focused search of the slopes surrounding an ephemeral drainage near the southwestern boundary of the site for the federally Endangered Lyon's pentachaeta, as this species is reported to occur in this area in the *Agoura Village Specific Plan Updated Final Revised and Recirculated EIR* (August 2008). The May 30 and June 2, 2014 surveys together consisted of a comprehensive rare plant survey encompassing the entire property, as well as adjacent areas that would be impacted by the installation of utilities and proposed improvements to Agoura Road and Cornell Road. The surveys were performed by slowly walking transects across the site and by investigating particular areas thoroughly, as necessary. The survey methodology resulted in an investigation of all plant communities and habitats within the survey area, including chaparral, coastal sage scrub, oak woodland, non-native grassland, native grassland, landscaped areas, and disturbed roadsides. An inventory of vascular plants observed was recorded, with all species identified to the taxonomic level necessary to determine their status. Vascular plant species determinations were made using Baldwin et al. (2012).[1]

RESULTS

During the survey, a total of 127 vascular plant species were found, including 96 native species and 31 non-native species. A list of the vascular plant species identified within the survey area is attached to this letter. As stated, three plant species considered to be rare, threatened, or endangered occur at the site, including Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*), Lyon's pentacheata (*Pentacheata lyonii*), and Ojai navarretia (*Navarretia ojaiensis*), as does the non-special-status and locally rare linear-leaf goldenbush (*Ericameria linearifolia*). A site map showing the locations along with the number of individuals of these four species is attached to this letter (**Figure 1**). No other rare, threatened, or endangered plant species are known to occur or are expected to occur at the project site, based on a potential for occurrence analysis provided in the project's *Biological Resources Inventory and Impact Analysis* (Envicom Corporation,

[1] Baldwin, B. G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.

February 28, 2014), as well as the results of this survey and prior botanical surveys of the site conducted by Envicom Corporation in December 2013 and April 2008.

Agoura Hills Dudleya

The Agoura Hills dudleya is a perennial succulent herb in the stonecrop family (Crassulaceae), which grows on rocky, volcanic substrates at a small number of sites in the western Santa Monica Mountains. At the project site, this species is restricted to the rocky and exposed slopes surrounding a steep ephemeral drainage near the southwestern property boundary. Some of the species associated with the Agoura Hills dudleya at the site include Bigelow's spikemoss (*Selaginella bigelovii*), California buckwheat (*Eriogonum fasciculatum*), and crowned goldfields (*Lasthenia coronaria*). Representative photos of the Agoura Hills dudleya at the site and its habitat are attached to this letter **(Plate 1)**.

Lyon's Pentachaeta

Lyon's pentachaeta is a small annual in the sunflower family (Asteraceae), which occupies grassland sites that are ecotonal (transitional) to shrublands such as openings in chaparral, coastal sage scrub, and the edges of roads and trails. Undisturbed natural habitat of Lyon's pentachaeta is characterized by clay soils of volcanic origin with a low proportion of total vegetative cover and exposed soils with a microbiotic crust. Only one (1) Lyon's pentacheata plant was found at the site during the survey. Photos of this plant and its habitat are provided on Plate 1. The plant was found on a north-facing slope in non-native grassland in an opening in scrub oak chaparral in the southern portion of the site. This area was thoroughly searched (as was the entire site) for other live or senesced plants but none were found. The plant appears to be a solitary individual. Although speculative, the presence of a single plant likely indicates that there is a Lyon's pentachaeta population in the vicinity of the project site, as seeds of this species are generally not dispersed very far from their source.[2] Envicom has observed individual Lyon's pentachaeta plants growing up to a few hundred feet from Lyon's pentachaeta populations at other sites.

As discussed in the *Agoura Village Specific Plan Updated Final Revised and Recirculated EIR* (August 2008), Lyon's pentachaeta was reportedly found on-site in 2007 and/or 2008 "near the drainage outlet to Cornell Road," which is along the site's southwestern boundary. The mapped extent of this reported occurrence can be found in the EIR as well as on Figure 2 of the project's *Biological Resources Inventory and Impact Analysis* (Envicom Corporation, February 28, 2014). This area including the vicinity of the drainage outlet and the steep gully surrounding the drainage was thoroughly searched for Lyon's pentacheata on three occasions (April 24, May 1, and June 2, 2014), but it was not found. Prior to these surveys, two Lyon's pentachaeta reference populations in Agoura Hills were inspected to ensure that the surveys would be conducted around the peak of Lyon's pentachaeta's blooming period. Also, visits to reference populations in Agoura Hills and Thousand Oaks showed that despite general drought conditions 2014 was not a poor year for germination and growth of Lyon's pentachaeta. Therefore, survey timing and growing conditions are expected to have been adequate for detecting Lyon's pentachaeta, if

[2] Lyon's pentachaeta seeds have a deciduous pappus, which limits the potential for long-distance dispersal. The pappus is a flower structure in plants in the sunflower family (Asteraceae) that consists of bristles, awns, or scales at the apex of the achene (seed), which assist in the dispersal of the seed by the wind.

present. Furthermore, Lyon's pentachaeta was not found in this area during a botanical survey of the site conducted in April 2008 by C. Wishner, former Principal Biologist at Envicom Corporation. It is noteworthy that a population of crowned goldfields (*Lasthenia coronaria*) occurs in the gully, which is not a special-status species but is similar in appearance to Lyon's pentachaeta.

Ojai Navarretia

Ojai navarretia is a low and spreading annual species in the Phlox family (Polemoniaceae) that occurs on dry, clay soils in grassland habitats within openings and along the margins of coastal scrub, chaparral, and oak woodlands. At the project site, the species occurs within a dirt roadbed and within non-native grassland along the margins of scrub oak chaparral, usually where the vegetative cover of other herbaceous species is relatively low. Species associated with the Ojai navarretia at the site include non-native herbs such as common wild oat (*Avena fatua*), red brome (*Bromus madritensis* ssp. *rubens*), tecolote (*Centaurea melitensis*), and red-stemmed filaree (*Erodium cicutarium*), and native herbs such as slender tarplant (*Deinandra fasciculata*), goldenstars (*Bloomeria crocea*), Parry's larkspur (*Delphinium parryi* ssp. *parryi*), and foothill plaintain (*Plantago erecta*). Representative photos of the Ojai navarretia at the site and its habitat are provided on Plate 1.

Linear-leaf Goldenbush

The locally rare linear-leaf goldenbush is a perennial shrub in the sunflower family (Asteraceae), which occurs at the site in rocky areas within and in the vicinity of the steep gully surrounding the ephemeral drainage in the southwestern portion of the site. Although common in the Mohave Desert, this species is substantially disjunct from desert populations at this location in Agoura Hills. It isn't designated as special-status by state or federal agencies, but its presence in the Agoura Hills area appears to have factored significantly in the designation of the Los Angeles County Las Virgenes Significant Ecological Area (SEA #6).

IMPACTS

The proposed limits of grading, landscaping, and fuel modification for the Agoura Cornerstone Mixed-Use Project are shown overlaid on a recent aerial along with the locations of the Agoura Hills dudleya, Lyon's pentachaeta, Ojai navarretia, and linear-leaf goldenbush on Figure 1. These boundaries are based on a Preliminary Grading and Drainage Plan prepared by DTR Engineering (November 2008) and a Fuel Modification Plan/Landscaping Plan prepared by James Dean Designs (January 15, 2014), which are attached to this letter.

As shown on Figure 1, as of June 2014 there are approximately 142 Agoura Hills dudleya at the site, including 90 within the limits of fuel modification and 52 in areas that would not be impacted by the project. There is one (1) Lyon's pentachaeta within the limits of fuel modification. There are 74 Ojai navarretia within the limits of grading, seven (7) within the limits of landscaping, and 163 within the limits of fuel modification. The soils in occupied areas can be anticipated to contain seeds of these species and the number of live individuals of the annual species at the site (i.e., Ojai navarretia and Lyon's pentachaeta) can be anticipated to vary each season depending on growing conditions. All three of these species although small and low

growing would be potentially susceptible to impacts during fuel modification activities such as trampling, mowing, and, in the case of the Agoura Hills dudleya, being dislodged from its rock substrate. In addition to the impacts to these species that could result from grading, landscaping, and/or fuel modification, the Agoura Hills dudleya, Lyon's pentachaeta, and the Ojai navarretia that would not be directly removed by the project could be subject to a number of potential "edge-effects" during the construction and operational phases of the project. The loss of live plants and associated seed banks of Ojai navarretia due to grading and landscaping would be a significant, but mitigable impact. Also, the direct or indirect loss of Agoura Hills dudleya, Lyon's pentachaeta, and/or Ojai navarretia as a result of edge-effects or fuel modification would be a significant, but mitigable impact. Implementation of Agoura Village Specific Plan (AVSP) measure BIO 1(a), which would require appropriate buffers between the project and the special-status plant species at the site; a restoration plan to off-set the direct removal of Ojai navarretia; and, a maintenance plan and management program that would off-set potential direct and indirect impacts of fuel modification activities and edge-effects on Agoura Hills dudleya, Lyon's pentachaeta, and Ojai navarretia would reduce impacts to these species to a less than significant level.

Also, there are 24 linear-leaf goldenbush that would be potentially impacted by fuel modification and two (2) in areas that would not be impacted by the project. Although this species does not receive special consideration or protection outside of Significant Ecological Area boundaries, it is strongly recommended that this species be preserved on-site, as feasible. This could be accomplished by including measures to protect linear-leaf goldenbush in the active maintenance plan and management program that would be prepared for the three other special-status plant species at the site.

Mitigation for Impacts to Special-Status Plant Species

Mitigation measure BIO 1(a) of the AVSP Mitigation Monitoring and Reporting Program is incorporated herein to address impacts to special-status plant species. This Spring 2014 survey meets the sensitive plant species survey requirement of AVSP BIO 1(a).

> **BIO 1(a) Sensitive Plant Survey and Protection Plan**. Prior to approval of an individual development application for the project within residual natural areas within Zones A south, B, E, and F, surveys for sensitive plant species, including but not limited to Agoura Hills dudleya and Lyon's pentacheata should be performed by a qualified plant ecologist. These surveys shall be performed during the blooming period (April – June). If a sensitive species is found, avoidance shall be required unless the applicant provides substantial documentation that avoidance would not be feasible or would compromise the objectives of the Specific Plan. For Lyon's pentachaeta and Agoura Hills dudleya, avoidance is defined as a minimum 200-foot setback unless an active maintenance plan is implemented for the known occurrence. With implementation of an active maintenance and management program, the buffer width may be reduced further based on review and approval by the jurisdictional agencies (USFWS and/or CDFW). For other sensitive species avoidance shall be determined based on the specific plant pursuant with the recommendations of a qualified plant ecologist, and with the coordination of USFWS and/or CDFW for state and federally listed plants. The maintenance and management

plan must be approved by the appropriate jurisdictional agencies prior to issuance of a grading permit.

If avoidance is not feasible, on-site mitigation is preferred if suitable, unoccupied habitat is present that can be isolated from human disturbance. Otherwise, an off-site location would be considered; the Ladyface Mountain Specific Plan area may contain appropriate habitat and may be a preferred location. A mitigation restoration plan shall be prepared by a qualified plant ecologist that identifies the number of plants to be replanted and the methods that will be used to preserve this species in the on- or off-site mitigation location. The plan shall also include a monitoring program so that the success of the effort can be measured. Restoration efforts shall be coordinated with applicable federal, state, and local agencies. The required level of success for Agoura Hills dudleya, Lyon's pentachaeta, and Ojai navarretia shall be defined at a minimum as a demonstration of five consecutive years, or a period as deemed appropriate by the permitting agencies (USFWS and/or CDFW), or growth of a population equal to or greater than that which would be lost due to the project. This level of success shall be achieved prior to removal of the impacted population. When applicable, the mitigation restoration plan shall be submitted to the appropriate regulatory agencies for review and approval, with the approved plan then submitted to the City of Agoura Hills prior to issuance of a grading permit for the area of concern.

If you have further questions, please contact me at Envicom Corporation at (818) 879-4700.

Sincerely,

Jim Anderson
Senior Biologist

Attachments:

Vascular Plants Observed
Figure 1, Spring 2014 Rare Plant Survey
Plate 1, Representative Photos of Special-Status Plants and Occupied Habitat
Preliminary Grading and Drainage Plan, DTR Engineering, November 2008
Fuel Modification / Landscaping Plan, James Dean Designs, February 15, 2014

Vascular Plants Observed
Agoura Cornerstone Project Site
April 24, May 1, May 30 and June 2, 2014

* indicates a non-native or introduced species

GROUP Family *Scientific Name*	Common Name
FERNS AND ALLIES	
Pteridaceae (Brake Family)	
Adiantum jordanii	maiden hair fern
Pellaea andromedifolia	coffee fern
Pentagramma triangularis	goldback fern
Selaginellaceae (Spike-moss Family)	
Selaginella bigelovii	Bigelow's spike moss
FLOWERING PLANTS-DICOTS	
Adoxaceae (Muskroot Family)	
Sambucus nigra ssp. *caerulea*	blue elderberry
Amaranthaceae (Amaranth Family)	
**Amaranthus* sp.	amaranth
**Amaranthus albus*	tumbleweed
Anacardiaceae (Sumac or Cashew Family)	
Rhus ovata	sugar bush
Toxicodendron diversilobum	poison oak
Apiaceae (Carrot Family)	
Apiastrum angustifolium	wild celery
Lomatium dasycarpum	woolly lomatium
Sanicula crassicaulis	Pacific sanicle
Apocynaceae (Dogbane Family)	
Asclepias fascicularis	narrowleaf milkweed
Asteraceae (Sunflower family)	
Acourtia microcephala	sacapellote
Artemisia californica	California sagebrush
Baccharis pilularis	coyote brush
**Carduus pycnocephalus*	Italian thistle
**Centaurea melitensis*	tocalote
Corethrogyne filaginifolia	California aster
Deinandra fasciculata	slender tarplant
Ericameria linearifolia	linear-leaf goldenbush
Ericameria palmeri	Palmer's goldenbush
Erigeron canadensis	horseweed
Erigeron foliosus var. *foliosus*	fleabane aster
Eriophyllum confertiflorum	golden yarrow
Hazardia squarrosa	sawtooth goldenbush
Heterotheca grandiflora	telegraph weed
**Lactuca serriola*	prickly lettuce

GROUP Family *Scientific Name*	Common Name
Lagophylla ramosissima	hareleaf
Lasthenia californica	coast goldfields
Lasthenia coronaria	crowned goldfields
**Matricaria discoidea*	pineapple weed
Micropus californicus	slender cottonseed
Pentachaeta lyonii	Lyon's pentachaeta
Pseudognaphalium californicum	California everlasting
Rafinesquia californica	California chicory
**Senecio vulgaris*	common groundsel
**Silybum marianum*	milk thistle
Stebbinsoseris heterocarpa	grassland silverpuffs
Uropappus lindleyi	silverpuffs
Boraginaceae (Borage or Waterleaf Family)	
Amsinckia intermedia	common fiddleneck
Cryptantha clevelandii	white forget-me-not
Eucrypta chrysanthemifolia	common eucrypta
Phacelia cicutaria	caterpillar phacelia
Pholistoma auritum	blue fiesta flower
Brassicaceae (Mustard Family)	
Athysanus pusillus	dwarf sandweed
**Brassica nigra*	black mustard
**Hirschfeldia incana*	hoary mustard
Lepidium sp.	lepidium
**Sisymbrium irio*	London rocket
Thysanocarpus laciniatus	narrow-leaved fringe-pod
Caprifoliaceae (Honeysuckle Family)	
Lonicera subspicata var. *denudata*	chaparral honeysuckle
Caryophyllaceae (Pink Family)	
**Spergularia* sp.	sand spurrey
**Stellaria media*	common chickweed
Chenopodiaceae (Goosefoot Family)	
Chenopodium californicum	California goosefoot
**Salsola* sp.	Russian thistle
Crassulaceae (Stonecrop Family)	
Dudleya cymosa ssp. *agourensis*	Agoura Hills dudleya
Dudleya lanceolata	lanceleaf live-forever
Cucurbitaceae (Gourd Family)	
Marah macrocarpa	wild cucumber
Euphorbiaceae (Spurge Family)	
Chamaesyce sp.	prostrate spurge
Croton setigerus	turkey mullein